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CENSUS: PLANNING AHEAD FOR 2020

HEARING

BEFORE THE

FEDERAL FINANCIAL MANAGEMENT, GOVERNMENT INFORMATION, FEDERAL SERVICES, AND INTERNATIONAL SECURITY SUBCOMMITTEE

OF THE

COMMITTEE ON HOMELAND SECURITY AND GOVERNMENTAL AFFAIRS UNITED STATES SENATE

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CENSUS: PLANNING AHEAD FOR 2020

WEDNESDAY, JULY 18, 2012

U.S. SENATE,
SUBCOMMITTEE ON FEDERAL FINANCIAL MANAGEMENT,
GOVERNMENT INFORMATION, FEDERAL SERVICES,
AND INTERNATIONAL SECURITY,
OF THE COMMITTEE ON HOMELAND SECURITY
AND GOVERNMENTAL AFFAIRS,
Washington, DC.

The Subcommittee met, pursuant to notice, at 2:34 p.m., in Room SD–342, Dirksen Senate Office Building, Hon. Thomas R. Carper, Chairman of the Subcommittee, presiding.

Present: Senators Carper, Brown, and Coburn.

OPENING STATEMENT OF SENATOR CARPER

Senator CARPER. This hearing will come to order. Welcome, one and all. Today's hearing will examine lessons learned from the 2010 census, while identifying issues that show promise for producing an even more accurate and hopefully more cost-effective census in 2020.

I want to begin by thanking Dr. Groves for his commitment to public service and for his willingness to help the Bureau navigate through some very challenging times. I must admit the news of your decision to leave this post as Director of the Census Bureau is bittersweet. It is actually mostly bitter, if you want to know the truth. But when you came on board in 2009, the Census Bureau faced many challenges that threatened the success of the 2010 census, as we will all recall, and you along with your dedicated staff confronted these challenges head on, and through his very impressive skill set and background in these issues related to the census and statistics, he helped right the ship through the completion of the 2010 census.

And under your leadership, the Bureau completed key operations on schedule, hired nearly 900,000 temporary workers at a time when a lot of people needed jobs, obtained an exceptional participation rate of 74 percent, and managed to report population figures in time to support the redistricting. The Bureau has also realigned its national field office structure and implemented key management reforms, reducing costs by an estimated $15 to $18 million annually beginning in 2014. Three years after your arrival, Dr. Groves definitely leaves the Census, I think, in better shape than when you found it.

However, despite these achievements, the 2010 census was still the most expensive in our Nation's history, by far, and even taking

inflation into account, the total cost of the single operation escalated from an initial estimate of about $11.3 billion to right around $13 billion. Even more disturbing is the fact that with all the modern scientific improvements in technological advancements that have been made over the years, the framework for conducting the 2010 census was based off of a model that we first used in the 1970s. In fact, I have just been re-reading part of the Old Testament, and found that King David ordered a census. Got in trouble with the Lord for ordering it; I do not know why.

But they were doing a census all this time ago. They did not have these handheld—I think it was mentioned, I think, in the Book of Samuel about the handhelds. No, not really. But pretty much we are not a whole lot further along than we were then. Actually, we are, but you get the gist.

Although the methodology basics of the census have remained the same over the past 40 years, the cost of the census has decidedly not. The average cost per household was about $97 in 2010, compared to $70 in 2000, and $16 in 1970. The total cost of the 2020 census could rise to as much as $30 billion. This, in my view, is just not acceptable. We cannot do that. And it is especially not acceptable at a time when we are struggling to find solutions to the serious deficit and debt crisis our country is currently facing.

I have spoken at previous hearings about the need for us to look in every nook and cranny in the Federal Government and ask this question: "Is it possible to get better results for less money or better results for the same amount of money?"

The hard truth is that many programs funding levels will need to be reduced, and even some of the most popular and necessary programs out there will likely need to do more with less, or at least more with the same amount of money. The Census Bureau, despite the vital and constitutionally mandated nature of its work, cannot be immune from that sort of examination.

Today we will look at the Bureau's planning efforts for the 2020 decennial, and although it is 8 years away, it is never too early to start thinking about ways to reduce costs and improve quality through more efficient data collection. More importantly, we need to make certain that the issues that lead to the failures and cost overruns we saw the last time around have been addressed and will not reoccur. Taxpayers ought not be expected to pick up the tab for them again.

Looking ahead, the Bureau's research should focus on how existing technology can be incorporated into the 2020 design. Obviously, the Internet is here to stay, and according to experts, an Internet response option could have saved the Bureau tens of millions of dollars in processing costs in 2010 alone.

Future research should not only focus on how to implement Internet data collections, but also how to reap the benefits, both financial and otherwise, of it, and other technologies next time around. We also need to make certain that people who make up our growing and changing country are comfortable enough with the security of the data collection methods for us to allow for an accurate census.

Moreover, steady leadership will also be critical in reversing a trend of decennial censuses marked by poor planning and esca-

lating costs. The 2010 census experienced several changes in leadership, as we will all recall, and vast spans of time with waiting or with acting or interim directors, further putting the operation at risk.

I think in the 27 months leading up to the census day, the Bureau had, as I recall, three different Directors during that span of time. Dr. Groves, your departure will undoubtedly leave some very big shoes to fill, but it is imperative that we get someone just as good in place as soon as possible so that we can avoid the operational and management changes and challenges that plagued some of our prior decennials.

We look forward to hearing from our witnesses today who will help us to identify ways to best balance the need for an accurate census, with a need to ensure reasonable costs for this endeavor. Before turning to Senator Brown, I just want to say to Senator Coburn, just a real special thanks for your diligent work on this issue. We have, I think, done better than we might otherwise have because of your strong efforts, and in the future we will do better still because of your ongoing efforts. Senator Brown.

OPENING STATEMENT OF SENATOR BROWN

Senator BROWN. Thank you, Mr. Chairman. It is also good to have Senator Coburn here, and I think he has spearheaded this issue and has some concerns, which is a good thing. I am going to give my opening statement, leave some questions for the record, and defer to Senator Coburn. I have other commitments.

The decennial census, due to its size, is probably the most schedule-driven project mounted by the Federal Government, as we all know, and it was a vital undertaking, as you referenced. The results were used, obviously, for redistricting and the annual distribution of billions of dollars in Federal and State funds.

The results of the 2010 census were both encouraging and discouraging at the same time. Encouraging that our population has expanded to become more diverse and that the Census Bureau achieved a high degree of accuracy in the 2010 count. As you referenced, the discouraging news is that the costs exploded and we simply cannot afford that continued cost. I believe, and have learned in my brief tenure here, that we cannot continue to do the things that we have always been doing, to the detriment of the American taxpayer.

For the most part, the basic model of conducting the census has not changed since the 1970s, as you referenced. Using methods like the old-fashioned snail mail, et cetera. Last year's hearing revealed the Census Bureau must innovate and bring the census into the 21st Century. I am encouraged as well that Director Groves has recognized this need to change the census, beginning many reforms aimed at reducing cost while maintaining quality.

I am hopeful. I know as long as I am here I am going to make sure that those innovations and cost reduction efforts continue. For example, I look forward to filling out my 2020 questionnaire online. Additionally, with Director Groves' pending departure, it becomes more imperative that we institutionalize these necessary changes.

I also want to voice my support for the continuation of the American Community Survey (ACS). It is our country's only source of

micro-area estimates on social and demographic characteristics. The ACS survey is critical to many businesses like AIR Worldwide of Boston which founded the catastrophe modeling industry in 1987 and utilizes the ACS survey in the development of its catastrophe modeling. Eliminating the ACS survey would be short-sighted and hinder the ability of the Census Bureau to achieve efficiencies in the 2020 census.

This is the second hearing we have had on the census this session, so I want to thank you, Mr. Chairman, for that, and Senator Coburn, for your efforts and I look forward to watching the testimony. Thank you.

Senator CARPER. Good, you bet. Senator Coburn, welcome.

OPENING STATEMENT BY SENATOR COBURN

Senator COBURN. Well, first of all, let me thank each of you for being here. I think we also ought to thank President Obama for his nomination, Dr. Groves. Being on the other side of the aisle, we are always critical, but when we recognize great leadership in terms of Dr. Groves and his leadership in the Senate, we ought to recognize who nominated him.

I am particularly interested in this hearing because I think there is still lots to do, and doing it now rather than what Dr. Groves was faced with means we are going to be better at it, we are going to save more money, and the data is going to be more accurate.

I do have some significant concerns with the American Community Survey. As a matter of fact, I experienced the harassment personally from the Census Bureau when I was sent the American Community Survey 3 years ago. I stood by my constitutional rights to not answer certain questions in that.

I recently have had five letters to my office on the American Community Survey with people with the same complaints as to their constitutional right not to answer questions of total privacy that is really nobody else's business. That does not mean I do not believe we need an American Community Survey; I think we do.

But I think there are ways, and one of the things I would like to explore is, how do we do it and still get the same information, make sure it is not skewed, and how we do it with a carrot instead of a stick, because one of the problems that is occurring in our country today is the undermining of the confidence of the rule of law.

And when you have good patriotic Oklahomans that pay their taxes every year, work, follow the rules, follow the laws, feel invaded when the government comes in and says, We want to know this, this, and this, and they say, I am sorry, I will pay the fine, but I am not telling you this, this, and this.

So there are ways for us to get around it. We know that the data is important and we know that the accuracy of the data is important, but what we have to have is innovative thinking as we approach that, and that also goes towards the 2020 census.

I have had a conversation with Dr. Groves as well as appreciate the work of the Inspector General (IG) and the General Accountability Office (GAO). I am a big defender of IGs, and everybody knows my reputation of protecting and defending the GAO for the valuable work that they give to Congress. We could not do any-

where close—and that may be a good thing—without that help. So I am appreciative of you being here.

I will save the rest of my statement as we ask questions.

Senator CARPER. Thank you, Dr. Coburn. I have a fairly lengthy introduction for our witnesses. I am not going to use that. I would second what Dr. Coburn said about thanking the President for submitting your name and for your service.

Todd Zinser. Todd has been before us number of times, the IG for the Department of Commerce. How is the Secretary of Commerce doing? Any idea how he is coming along?

Mr. ZINSER. I think he is doing fine. In fact, he has having a little reception for the staff at Commerce Department later this week.

Senator CARPER. Oh, that is good. OK, thank you. We are very appreciative of your work and that of your team and welcome you back here today. And Robert Goldenkoff, our friend from GAO, Director of Strategic Issues, responsible for reviewing the 2010 census and Federal Government-wide capital reforms. Welcome. Thank you all.

In certain times we try to limit you to 5 minutes. I am not going to do that today. If you go on too long, just drone on endlessly, I will rein you in. But short of that, we will let you go.

TESTIMONY OF HON. ROBERT M. GROVES,[1] DIRECTOR, U.S. CENSUS BUREAU, U.S. DEPARTMENT OF COMMERCE

Mr. GROVES. Thank you. I am really delighted to be here. I want to thank both of you personally. One of the greatest pleasures I have had during my directorship is working with you and I appreciate your interest in the Census Bureau and your support for the things we are trying to do.

Senator CARPER. Did you ever think you would say that to two guys, one from Ohio State (OSU), and another from— [Laughter.]

The guy from Michigan. You never know.

Mr. GROVES. So I want to begin with a little retrospective on the 2010. And as you, Mr. Chairman, noted, when I was in this room for my nomination hearing in the spring of 2009, the forecast was one that the 2010 census was headed for disaster. I think what we all discovered, I most deeply, was that the team that was assembled late in the decade was much better than anyone knew at the time.

Recently, as you know, the statistical evaluation of that census showed that it was one of the best this country has ever seen, if not the best. Having said that, there are still groups in this country that are very difficult for us to enumerate. These are deep social forces that produce these problems. We have trouble counting renters, young children, young adult males, African-Americans, Hispanics, American Indians on reservations. That has been true for several decades.

On the other hand, we overcount groups in the population, owners of homes, older persons, females, and white non-Hispanics. These are problems that are deep in our society that the Census Bureau cannot solve itself, but they are real problems and cause us difficulties.

[1] The prepared statement of Mr. Groves appear in the appendix on page 51.

I am pleased that we returned nearly $2 billion of the taxpayers' money and presented the key results on time. But I want to note, and I think it is important, I think, for the Subcommittee to know that the credit for the accomplishments of this really go to the wonderful scientists and managers at Census Bureau. They pull off an enormous feat and they deserve that glory.

Meanwhile, we have been restructuring and realigning a lot of key functions at Census, and we have one mantra in this. We want to get more efficient and take advantage of new technologies to do that. With the approval of Congress, we have restructured the Census Bureau. We have added a Research and Methodology Directorate to inhouse discover the innovations in statistical operations that reduce costs.

We have reduced the number of regional offices from 12 to 6, simultaneously modernizing supervisory structures and software support systems. We have built cross-functional survey teams with technical and management resources to find efficiencies in our operation. We have new leadership in the information technology (IT) Directorate that is making a difference already.

We have given it enterprise-wide authorities, so whenever feasible, we are sharing IT services across directorates. We are using public cloud services. We have done this several times successfully, saving big, big money. Consolidating data centers building. We are also building a private cloud environment that I have great hopes for.

Senator CARPER. Building a what? What is that?

Mr. GROVES. A private cloud environment inside. So a lot of our operations have surge needs and if each directorate said, "We are going to take care of ourselves, you have to pay for that capacity."

Senator CARPER. At first I thought you said private club. [Laughter.]

You certainly got my attention.

Mr. GROVES. We have completed an application programming interface (API), and we have released this in beta, but this is going to allow developers all over the world to produce apps on all sorts of mobile devices to access our statistical information. Within a matter of weeks, we will be able to show you an economic statistics app that will run on Android and iPhones and allow you instant access to the most up-to-date data on that.

We are attempting to build a culture of innovation and that takes a while, but one of our tools is an annual challenge to our staff and the challenge is, Write down your ideas to make us more efficient and if they are meritorious, we will do them. And we are getting hundreds of proposals each year. There are tons of ideas in the Federal Government workers and the Census Bureau for doing things more efficiently. We are trying to release those.

We are building better statistics through new analysis. We have launched a team devoted to blending together dataset that we already have collected to create new information. We can do this without launching any new data collections. We do not pay much at all for that.

Through the collaboration with the National Science Foundation (NSF), we have established a network of research, university research teams working on problems that we face of statistical, geo-

graphical, and computing nature. And when you put all these things together, it allows me to speak to the 2020 planning effort, because it is in this environment that we have tried to launch a new way of planning the next decennial census. These are interconnected things.

We, too, recognize that the rising cost of the decennial census cannot be sustained. That is well accepted, both by the leadership of Census, but all through the culture now. We get it. So we are focused intensely on cost-saving ideas. We have built a new 2020 directorate. That was part of the restructuring, deliberately to build a new culture for the new census.

It is free to optimize its structure. In about a year, about this time next year, the proposed new structure of that will be put forward. We have created an executive level steering committee that directs cross-directorate collaboration, a key thing we are working on. We have restructured research teams; we have made them smaller and nimbler.

Every one of the research projects that we are mounting has cost efficiency as one of the goals. It is not just quality; it is quality and cost at the same time. And we are attempting to use many small tests rather than a small number of very large tests, and we think we will save money on the planning if we do that, and we will run through more ideas that way.

The key innovations that you should look for are things that are on our agenda. You know about these things, but they need the kind of nurturing that you talked about just a few minutes ago. We aspire to do targeted address canvassing at the end of the decade that can save hundreds of millions of dollars if we do it right.

To allow us to do that, we want to continuously update our master address list and we are working on that right now. This will require new partnerships with local areas and the Postal Service.

Two, we are designing—all of our options are what survey methodologists call multi mode designs. We will use mail, telephone, Internet, face-to-face interviews, and any other electronic response option that is going to arise over the next few years that we do not even know about yet. We are doing those multiple modes because it is clear, if you talk to census statisticians around the world, no one thing works for all sub-populations. We are a very diverse society and all Internet census will not work and all mail census will not work.

Most importantly, we are evaluating using existing administrative records that are held in other Federal Government agencies to obtain data about the households who do not otherwise respond. This tool can save very large amounts of money if we succeed in that.

And then finally, we talk a lot about program management on 2020, learning lessons from 2010. We have integrated budget and schedule and scope, and soon we will have a fully integrated schedule that has what questions need to be answered for what decisions at what time in the decade and we would love to share that with you. That would be a great way to keep track of our work.

Now, in addition to working hard to save money, I have another duty in this position and that is to inform the country of the impact of budgets on the scope and quality of what we do, and I must note

that the Fiscal Year (FY) 2013 House Appropriations Bill has major effects on what we do.

It cut the President's request by about $358 million, or 37 percent. I must report to you that if that stands we cannot conduct the economic census of the United States, scheduled for just a few months from now, which measures the health of our economy.

As you know, the bill does not permit any spending on the American Community Survey. In addition, the cuts will halt crucial development of ways to save money on 2020 and it will eliminate most of the remaining 2010 products. I feel obliged to tell you that.

I want to turn to near-term challenges that I think are very big. Some of these are more amorphous than others, but they are things that we all have to worry about. There are four in number that I want to mention. One is a moment's notice will tell you that the Census Bureau's mission can be fulfilled only with the willingness of the American public to provide data.

We know this every day. We see this every day. A real challenge for us is to link the valuable statistical information we provide, people's knowledge of that, to these requests for their own answers. And that is a constant challenge to us. It is a big educational burden to communicate to large, diverse groups of people why it is useful to have this statistical information for key decisions and then how that information leans on individual decisions to participate.

Two, we must continue to nurture ties with university researchers and technology firms. We are very active in discussions with technology firms on a variety of issues: Dissemination, data collection, and others. The challenges here are greatest with regard to staying up-to-date on mobile computing technologies, new features of the Internet, and new geographical information technologies.

Three, some Internet-based data and other so-called big data sources are relevant to what we do. The explosion of Internet-related data in this country is a real change in the work of information agencies. A challenge to the Census Bureau is developing real organic access to those kind of data, new public/private partnerships, and learning how to combine those kinds of data with our traditional surveys and censuses to provide better information to the American public.

And then finally, four, the world of statistics is rapidly changing. There are developments in the field of statistics that we should use. They are model-based innovations that can enhance the quality of what we do and reduce the cost of what we do. So a challenge to the Census Bureau is making sure that we stay up to date on that domain of knowledge, but also that we have access to other data to permit us to enrich our estimates with auxiliary data.

So let me close by saying, it is my fervent hope that the oversight from this Committee will act to allow the Census Bureau to continue on the path that we have set. Thank you very much.

Senator CARPER. Not to worry. Thank you so much for that testimony, and again, for your wonderful leadership. Todd Zinser, Mr. Zinser, please proceed. Thanks a lot for joining us again today.

TESTIMONY OF HON. TODD J. ZINSER,[1] INSPECTOR GENERAL, U.S. DEPARTMENT OF COMMERCE

Mr. ZINSER. Thank you, Mr. Chairman, Senator Coburn. Thank you for the opportunity to testify about planning for the 2020 census and the challenges the Census Bureau faces in laying the groundwork for the decennial. In our April 2011 testimony before this Subcommittee, we identified seven top management challenges facing the 2020 decennial.

They included: One, revamping the cost estimation process to make it better; two, using the Internet and administrative records to control costs and improve accuracy; three, implementing a more effective testing program using the American Community Survey; four, effectively automating field data collection; five, the continuous updating of address lists and maps; six, improving project management and planning; and seven, establishing a Census director position that spans Administrations.

Since that testimony, we have issued our final report on the 2010 decennial which included 19 recommendations and helped us identify the challenges ahead for 2020. We have also issued two reports, in April and May of this year, one focused on 2020 planning and the other on the master address file (MAF) and the topologically integrated geographic encoding and referencing (TIGER) database.

The challenges we identified in April 2011 remain operative. Our work over the past year and recent developments have brought five key issues concerning those management challenges into greater focus. The first key issue concerns departmental oversight of the Bureau's data collection and IT infrastructure projects.

The Department will need to play a strong oversight role early in the 2020 census. Now is the time for the Department to assess the Bureau's IT and data collection plans and help Census manage operational risk. For 2010, we saw the path to escalating IT costs begin early in the decade. For 2020, the Department needs to help the Bureau as it develops cost estimates, establishes critical path management, and maintains a more reasonable cost route.

The second key issue concerns decennial planning within the constrained budget environment. We have already seen during the research and testing phase how the Bureau has had to adapt to a challenging cycle of Federal Government budgets. In Fiscal Year 2012, the Bureau canceled 20 of 109 studies that measure 2010 performance and inform 2020 plans.

Like all other Federal agencies, the Census Bureau must continue to plan within constrained budgets. Providing the Department and Congress reliable and transparent budget requests will be paramount.

The third key issue concerns continuity of leadership at the Census Bureau. Because the Bureau must operate on long planning cycles for decennial surveys, it is difficult to maintain leadership with a consistent vision and much easier to fall back on old ways and institutional habits. Making the nomination and confirmation of a new Census director a priority will significantly help the Bureau

[1] The prepared statement of Mr. Zinser appears in the appendix on page 67.

manage its critical issues of budget, design, and survey content, which dictate the success of the decennial.

The fourth key issue concerns modernizing the 2020 census with an Internet option, greater data sharing, and the use of administrative records. When the Bureau decides how the 2020 census will be designed, it may need the help of Congress to facilitate that design.

The goal should be significantly reduced labor costs through more equitable interagency sharing and more effective use of data and administrative records, more automated data processing and fewer time consuming, costly, personal enumeration visits.

The final key issue concerns the uncertainty surrounding the American Community Survey. As Congress considers whether to make responding to the survey voluntary rather than mandatory, or eliminate the survey's funding entirely, there are several implications that will factor into the deliberations, some of which we have identified in our written testimony.

With respect to making the ACS voluntary, Census research in 2002 and 2003 indicated that a voluntary ACS would result in a significant reduction in the mail response rate. This reduction would then require a more costly survey to obtain the same level of reliability—and would also have an adverse impact on the data quality for areas of low response.

With respect to eliminating ACS funding altogether, the implications include no longer being able to use the ACS as a test bed for the 2020 decennial, the loss of the trained and experienced workforce distributed across the country that carry out the ACS on an ongoing basis and also support decennial operations, and losing the opportunity to use the ACS over the course of the decade to build and perfect the IT infrastructure necessary to securely use an Internet option for 2020.

Finally, Mr. Chairman, on behalf of the entire staff at the Office of Inspector General, I would like to thank Dr. Groves for his leadership of the Census Bureau. It was a personal privilege to have served with Dr. Groves and we wish him well. This concludes my statement. I would be happy to answer any questions you or Senator Coburn may have.

Senator CARPER. Thanks much for the testimony. We welcome Mr. Goldenkoff. Please proceed. Thanks for joining us.

TESTIMONY OF ROBERT GOLDENKOFF,[1] DIRECTOR, STRATEGIC ISSUES, U.S. GOVERNMENT ACCOUNTABILITY OFFICE

Mr. GOLDENKOFF. Mr. Chairman, Senator Coburn, thank you for the opportunity to be here today to provide an update on the Census Bureau's planning and reform initiatives for the 2020 census. As was earlier noted, the basic design of the decennial census, an approach the Bureau has used since 1970, is no longer capable of a cost-effective enumeration. Unless changes are made going forward, future headcounts could be fiscally unsustainable.

The 2010 census was the most expensive population count in U.S. history with a total cost of around $13 billion. Without reforms, the 2020 census could be even more costly. In fact, the Cen-

[1] The prepared statement of Mr. Goldenkoff appears in the appendix on page 82.

sus Bureau estimates that if it uses the same approach to count people in 2020 as it did in 2010, it would cost $151 to count each housing unit compared to 2010s $97 per housing unit, a 56 percent cost increase.

When we last testified before the Subcommittee in April 2011, we discussed four lessons learned from the 2010 and earlier decennials that could help secure a more cost-effective enumeration in 2020. They included, one, reexamining the Nation's approach to taking the census. Two, tailoring operations to specific operations in population groups. Three, addressing prior high risk areas. And four, ensuring that the Bureau's management, culture, and business practices all align with a successful census.

The Bureau generally agreed with these actions and is taking steps to address them. As requested, my remarks today will focus first on the Bureau's progress in each lesson learned, and second, what remains to be done going forward.

Overall, the Bureau's preparations are off to a good start. However, sustaining those efforts will be a tremendous challenge as the Bureau's planning over the next few years will take place in an uncertain environment given the extent of the Bureau's reforms, budget constraints, and next month's planned resignation of the Census Director. As a result, continued Congressional oversight throughout the decade will be critical.

With respect to the first lesson learned, reexamining the Nation's approach to taking the census, the Bureau is already rethinking the design of the enumeration. For example, the Bureau is researching how it can use administrative records such as data from other government agencies to help it locate and count people, including nonrespondents. Administrative records could help reduce the need for costly field operations, but the Bureau must first resolve data quality and access issues.

As for the second lesson learned, tailoring operations to specific locations and population groups, in 2010, the Bureau effectively targeted several activities, including its paid advertising campaign. For 2020, the Bureau is considering expanding these efforts, for example, to address canvassing. A better understanding of value added of key census operations would help the Bureau's ability to further target its operations and allocate its resources more efficiently.

On the third lesson learned, addressing factors that led to 2010s high risk designation, it will be important for the Bureau to improve its ability to develop reliable life cycle cost estimates and strengthen its information technology (IT) management so that shortcomings in these areas do not recur in 2020.

With respect to the fourth lesson learned, ensuring that the Bureau's management and culture align with the cost effective enumeration, we found that the Bureau's early planning efforts for the 2020 census were consistent with most leading practices for organizational transformation, long-term planning, and strategic workforce planning. But in the future, additional steps will be needed, including determining how to monitor and evaluate its workforce planning efforts.

In summary, the Bureau is making noteworthy progress in addressing these and other lessons learned from the 2010 census. To

help sustain the Bureau's progress going forward, it will be important for Congress to continue to hold the Bureau accountable for results, weigh in on key design decisions, and provide appropriate funding.

I would also like to take this opportunity to congratulate Dr. Groves on his successful stewardship of the Census Bureau and wish him the best of luck in his new position at Georgetown University. Under Dr. Groves' leadership, the Census Bureau mitigated the risks jeopardizing the decennial and delivered an operationally successful headcount.

The Census Bureau embarked on a more transparent and results-oriented path, and it developed a vision for a more cost-effective approach to collecting and disseminating data in the future. Mr. Chairman, Senator Coburn, this concludes my remarks. I would be pleased to respond to any questions that you or other Members of the Subcommittee might have.

Senator CARPER. Mr. Goldenkoff, thanks a whole lot. I have asked Dr. Coburn to lead off the questions. I have got to return a phone call real quick and I will be right back. Tom?

Senator COBURN [presiding]. Well, thank you for each of your testimonies. What I noticed across all three testimonies, Dr. Groves was talking about the changes he has made in terms of IT. Actually, I believe what you said was IT was across all sections, all silos, but I also heard worries by IG and GAO on the implementation of that. What you all are talking about is one of our biggest problems in the government, not just at Census.

So first of all, Dr. Groves, I wanted to correct an omission I made. You really were successful, through your leadership, but also the quality of people that you have working for you. And so I want to publicly recognize them, because what we saw was under great leadership they shone. They stepped up. So that reflects great on those employees, but as well your leadership.

So tell me, if you would, hearing the concerns about IT transformation and the watching of it, it is a sinkhole. Just so you all will know, we spend $64 billion a year on it in the Federal Government and half of it is wasted, fully half, $32 billion. The American people need to hear that. $32 billion a year goes down the drain in IT projects that do not work.

So would you give me some assurance, first of all, of where they are worried and what is in place, and how are you going to address their concerns on the IT portion of it?

Mr. GROVES. Well, worry is not an ill-placed emotion, I think, because it would motivate the kind of scrutiny of changes that are coming in now. I must admit I am rather optimistic. There are features of the environment on the IT side and the leadership side that were not there 10 years ago. OK?

So a move for more centralization of authority, of CIOs is afoot. That seems inevitable that will not stop. And the reason I do not think it would peter out is if you just look at Census, 10 years ago each of our directorates really had their own IT set-up, they had their own hardware, they had, many times, unique software systems.

What we are doing in our data center is virtualizing servers, basically. So you may have had your own servers that did your stuff

and I had mine. Now we get the same services, but we are actually sharing servers in a completely—in a way that does not affect our productivity. That service provision is a change, I think, and a good change.

And then the hard thing is going to be the next developments, the new things that we do. How do you avoid the problems of the past where you spend years developing requirements and then years more working on system development that actually is so late in delivery that it does not solve the original problem?

Agile programming environments are good. We are using that wherever we can. The very basic lesson of keeping the user in the loop all the time, I think, we have gotten, but it is counterculture still. So pressure in that regard, I think, is needed throughout.

I am hoping we have turned a corner, both because of these administrative things, the technical nature of the hardware environment, and then our software developments, but scrutiny will be required.

Senator COBURN. So there is good reason for us to watch that closely?

Mr. GROVES. Absolutely. And, calling the leadership on this. Our leadership is attuned to this problem now. I think we talk about it a lot. We are talking openly about it as something that we want to do better on. I think that is real healthy, but calling us to account on this is a useful thing, I think.

Senator COBURN. So you have got this in place and moving forward and you are leaving next month. That is what I hear the IG and the GAO say. OK. How is it going to go forward without you there?

Mr. GROVES. Well, we have good leadership. We have a wonderful new CIO. He has brought in several key, high-level scientists who are rolling up their sleeves and working with the program areas. They have built the trust or are building that trust.

I think the other way you could keep track of this is that for 2020 especially, we are going to be pretty transparent on deliverable dates and key intermediate deadlines. That will be out there and we are hoping to establish an ongoing briefing of your staff, so too in the House, to tell you where we are on things. And that should be a wonderful vehicle that would allow you to catch things that are off-track early, if they go off-track.

Senator COBURN. Any comments on what you have heard, either of you? Both of you raised it as a concern.

Mr. ZINSER. Sir, I do think that the culture at the Census Bureau has greatly improved since we expressed concerns over the handheld computers. That problem was hidden, possibly from the Director and definitely from the Department.

That is not going to happen in the future the transparency mechanisms that have since been built in and the increased oversight will help in that regard.

Senator COBURN. Well, it also was a problem. We did not know what we want, so we created a cost-plus contract and we kept changing what we want. Plus, in my personal opinion, we had poor performance by the supplier. So I am in adamant opposition to all cost-plus contracts other than pure research, because if we do not

know what we want, then the first thing we ought to do is go research what we want and create specifics for that. Anything else?

Mr. GOLDENKOFF. Well, I agree with what has been said so far. What I would add to that is that the management processes need to be in place before any contracts are let. I think what you were alluding to is that for 2010, the specifications for a lot of these systems were not matched to the operational requirements and that led to some of the problems that came about later in the decade.

Senator COBURN. We actually showed in a Subcommittee hearing how you could get an iPhone to do exactly what we paid almost $500 million to get somebody to develop. So, I mean, that is a governmentwide contract problem. From the testimony we had earlier today from Danny Werfel at the Office of Management and Budget (OMB), the Comptroller, I think we are on the way to starting to change some of that culture within the government. So I think that is good.

Mr. GOLDENKOFF. And it is a cultural shift that needs to take place. It is one thing to talk about the implementation of agile programming or, we saw in 2010 the use of IT management leading practices here and there, but it has to be implemented organization-wide. There needs to be that executive level oversight and that is one thing that we did not see happen during 2010, but we are seeing some important shifts moving forward.

Senator COBURN. One thing that caught my mind during all of your testimony is getting this administrative data from other government agencies. Who in the government knows what we need to do to enable that for you? Because there are certain laws on the books that restrict some of that? Somebody needs to be charged with an assessment of how do we create an activity?

Or if it requires legislation that allows the Census Bureau to have data that otherwise we would not want them to have through previous legislation? Does anybody know where that list is so that we could actually start thinking about how we can—if it is going to require our help to get there, what we need to be doing? Because the sooner we get that done—this place is designed to not pass laws. That is what our Founders intended. They wanted it to be very difficult to change laws.

So the sooner we get that list of what is necessary for us to do, the sooner we can aid the Census Bureau in what I think I heard Dr. Groves say could save us millions and millions and millions of dollars, plus a lot of time. Anybody have any idea of what that list is?

Mr. ZINSER. Senator, we do have some suggestions about legislative changes. We think there are sufficient laws on the books allowing the Census director to access records and administrative data from other agencies. However, there is not corresponding legislation requiring the heads of those other agencies to provide the information to the Bureau. As a result, there are some key legislative initiatives that could help.

Senator COBURN. Can you address that directly to me in response to this question?

Mr. ZINSER. Absolutely.

Senator COBURN. Put it in writing and where those areas are? I think that would be very helpful, and my commitment is to try to grease that skid to see if we cannot get it done.

Mr. ZINSER. Yes, sir.

Senator COBURN. Privacy rights are an important thing in this country and we can do that without violating privacy rights. But we also do not want fiefdoms to limit our ability to save tons of money.

If we could, can we move on to one other question for Dr. Groves? I have never had a hearing where I am the only one present, so it is kind of fun. One of the things I heard in your testimony was an expansion of what you can do in terms of data, in terms of research, in terms of data. And I would just put forth a cautionary tone for you there.

This country faces an enormous challenge in its fiscal situation. This Congress has proved it is not up to that. Maybe future Congresses will be. But I think it is important to go back and look first at what the charge is for the Census Bureau before you take on new things. Two reasons I would say that.

One is the fiscal implications and the dollars spent there that might not be able to spend, saving us some money somewhere else within your organization. And I will assure you that you will not see the House number for the Census Bureau at this time. It will not come through. The worst will be is you will be where you are right now for at least—for the first 4 or 5 months, and I think that is pretty well a given by most of us looking at that.

That is not to say that we are not going to see some dollar cuts, but you ought to be involved in what those are, rather than some of us who actually do not know what we are talking about being involved in what those are.

But the second point is, there is a private sector out there and if what you can bring through analysis and research of numbers that you have that are already public, somebody wanting to make a buck can also do that. And there is a lot of private capital out there that is looking for ways to make money out of your data. You see it all the time.

And so, I would just caution, that is just one Senator's opinion, because we are going to have trouble doing the basics in the future, financing the basics for what we do. So I would just caution in that regard. If I could continue for a little bit longer, I will be finished with just one more.

It leads the American Community Survey. As you and I talked in our office, there is a real cultural change occurring in our country about the invasiveness of that survey. Some of it is right; some of it is wrong. And I think it is good to explain to people what the utilization of that data is and why they ought to participate in it. I do not discourage that.

But if you look at the Constitution, there is nothing in there about the American Community Survey. It is an expansion that we have done. And we have done it on the basis of having data so we know how to distribute funds. That is one of the reasons. That is why it started.

But I think it is really important that we figure out, how do we get this data and still pay attention to this very real concern by

people that we are violating their privacy? And I think we can figure that out. The study says that you had a 20 percent reduction in participation. Well, there are carrots that can increase that, and figuring out what those carrots need to be to not skew the data is not rocket science. I mean, it will take some work, but it can be done.

But the point is, I think we ought to pay attention to the message we are hearing. This is not a small deal. This is a big deal. And the reason you saw that coming from the House is because the people's House are feeling all this blowback on the American Community Survey.

So I would love, before you leave, even though we have had a conversation about it, Director Groves, and I would also love you all's input as well, and anybody else listening to this, is how do we accomplish the collection of the data in a way that truly protects us? How do we innovate in a way that gets us the same data with as good a quality and not rub up against personal liberties?

And I think that is the challenge in front of us, because I am not certain that you could not, even though it has been tried before, but under the environment we are in today, see a real revolt on that. The Internet spreads information. Half the time it is true and half the time it is not.

But people do not go to factcheck.org. What they do is they write their Senator a letter, and then you have to say, Well, these are not true facts that you are reacting to. So how about your comments on that? If all the witnesses would comment on this issue.

Mr. GROVES. Well, I understand the reaction. I have talked to respondents, as you probably have talked to your constituents on this, so I understand the concerns. There are technical issues that could be investigated on this. Your notion of approaching this not to increase the benefits of participation as opposed to just persuasion is logical and we know how to do that. We need a little research to make sure it works. It is risky, but it could be done.

The enormous challenge the ACS has is that it publishes statistics on really small areas. That makes it slightly more difficult than, say, the unemployment survey which is not producing such lower level estimates. My reaction to what you are saying is to take this on as a serious matter that could be investigated in a variety of ways.

We have been having workshops, by the way, through the National Academy of Sciences panel on the 2020 with people who are not really users, but more representative of consumers, and ideas are coming up out of that suggesting ways that we could keep in touch with real people as we do our work in ways that would benefit.

There will be—my knowledge—I worked before I came to Census in this very area of how do people make decisions on whether to participate or not. I am not optimistic that any one thing will work for all people.

Senator COBURN. No, I agree.

Mr. GROVES. And there will always be, especially in this country, a strain of people that say, I do not want to tell anyone anything about myself. We will not succeed on them. But on large portions of the population, I think it is worth investigating.

So my reaction, if you are exactly right and this is the beginning of a wave and this will just get bigger is, it is prudent for us to do the research that provides you with the trade-off decisions on what would happen if we took this course to the quality of the data versus some other course, and that would be a proper role for a statistical agency and a proper role for the Congress, I think.

Senator COBURN. Well, I would say the fact that the House passed elimination of funding for the ACS is a pretty good indication there is a wave out there. I do not know if you would concur with that, but that tells me something. And I know we need that data. So one of the legacies you could leave as you leave is to make sure that is one of the research projects that is started and tested and looked at.

Because I would suggest, with the low rating government as a whole has with the American people, that your compliance is going to tend to get tougher. The voluntary compliance is going to go down. I do not want that to happen. But at the same time, we need the data so we need to be on top of that. Any comments from either of you on that?

Mr. GOLDENKOFF. Well, I mean, there is the inherent challenge of balancing the need for timely and accurate small area data on the one hand without violating people's personal privacy and unduly burdening them on the other hand. I think one way, one approach, the Bureau can take, in the shorter term is to continually re-examine and assess the need for specific questions on the ACS. Are they still relevant? Are they needed at that low level of data, for example? Some of them still might be; others may not be, and I do not know how often that review process is done.

Senator COBURN. And that also would be a variable based on the geographic location you are looking into, too, as well, as you try to get these groups that are under-represented.

Mr. GOLDENKOFF. Because, I mean, some of those questions really had their origins in the census long form back prior to 2000. Well, here it is 10 years later and maybe it is time to revisit the need for those questions at that level of granularity.

Another thing that the Census Bureau might do is look at how they are publicizing and communicating what is done with this data. Some of those questions on their face, they may look a little bit odd and people may question, why does the government need to know this, because we know that is happening. So maybe a big part of it could be a communications issue.

And now with all the various forms of technology that are available, and social media, there might be new and better ways of communicating the importance of that information and what is done with it.

And then finally, another approach for the Bureau to take is to communicate the cost of non-response—how much that will cost for follow-up—that the Bureau will come back and call you up on the phone and then knock on your door.

Senator COBURN. Well, that is the whole point of changing the way you do this so that you do not get this non-response.

Mr. GOLDENKOFF. Right. And so now in these cost-conscious times with taxpayers saying, "Hey, this is my money being spent," well, maybe that by itself might be an incentive. And then finally,

as you said, there might be other incentives out there instead of the hammer of this is required by law, which probably is important and Bureau studies have shown the importance of that. But are there other incentives that could work more constructively with folks?

Senator COBURN. All right. I just have one final question and that is on the part of maps and what the Census Bureau is doing with maps versus what can be bought in the private sector and the justification for continuing to spend money there when, in fact, you can probably or, at least, I think it was, Mr. Zinser that raised the issue in terms of maybe what is available in the private sector can be modified to meet the needs rather than spending the money internal in the Census.

Mr. GROVES. I think a good development that is occurring because of our work on trying to reduce full address canvassing is basically an opening up of collaborations with all sorts of entities. It would be good if that were nurtured. The relationship between the private sector and statistical agencies is a dynamic one, more dynamic than it has ever been in my career.

We are working with several of them on dissemination and, in a way, a map is a dissemination of a piece of information. So getting that right is difficult because the private sector has different needs and goals, but we are working on this. I would hope that continues.

I think part of the reason I am optimistic it may continue is our budget pressures are such that we are re-examining everything we do and that will continue, I suspect, for some years. That is a healthy environment to consider new arrangements.

Senator COBURN. All right.

Mr. ZINSER. Sir, can I just add one thing? I am sorry.

Senator COBURN. Sure.

Mr. ZINSER. I think your question about improving Census Bureau map quality and cost-efficiency is about more than just sharing information or using available private sector resources. There also needs to be a freer flow of information between the Census Bureau and State and local governments. Right now, the law is basically a one-way street, except for one part of the decade when the Bureau conducts an address update operation with local governments. Laws need to allow more free-flowing information between jurisdictions and the Census Bureau.

Senator COBURN. Where is the problem? Coming from the States?

Mr. ZINSER. The Census Bureau has restrictions from Title 13 on sharing information. Census shares address information with local governments during only one period of the decade; we think legislation ought to loosen those restrictions so that the Bureau can share data more freely throughout the decade as part of the Bureau's continuous updates.

Senator COBURN. Well, would you add that to the list—

Mr. ZINSER. Sure.

Senator COBURN [continuing]. That you are going to send to me?

Mr. ZINSER. Yes, sir.

Senator COBURN. Thank you, Mr. Chairman.

Senator CARPER. [presiding]. Sure, you bet. I just want to follow up on a little bit of Dr. Coburn's questioning on the ACS. One of the things that continues to amaze me is I have two sons that are 22 and 23. They are all about social networking and have been for a while. And I am amazed at the kind of information people are just willing to like bare their souls in Facebook and other venues.

And then when it gets to something like the ACS, they are just much more reluctant, maybe understandably so because you are turning it over to the government as opposed to your friends or those who are thought to be friends.

But anyway, you said something earlier in your comments, Dr. Groves, that I took down and asked Velvet Johnson who is sitting over my left shoulder, asked her to note it as well. You had asked the Census employees with an eye toward innovation and creativity just to think about good ideas and smart ways to do business and just submit those. I think you said you had gotten hundreds of folks who participated in that.

And I said, one of the things we need to do on another side of our jurisdiction is work with the Postal Service. And going forward in our work with the Postal Service we must try to make sure that they remain not just relevant in the 21st Century, but sustainable on a fiscal basis. They need not just to cut, cut, cut. They need to find ways to get better results for less money and they need to be able to grow revenues. And so, I said, just write that down. We want to make sure that the Postal Service is doing the same thing in soliciting ideas from their folks.

I do not know to what extent this ACS issue is a growing concern and I think it is reflected by the House vote, but if I were in your shoes or the shoes of the person who is going to succeed you, I would be making sure we do a lot of focus groups around the country in different venues and just add people from all different walks of life throughout the country.

Where do you think the lines should be drawn knowing what you need in terms of information? Just get their input. I think I would urge that whoever is going to be sitting in your seat 6, 7, 8 months from now, that they will be doing that. I know we have other folks who are in the audience who is from the Census Bureau? Just make a note of that if you would. Be sure to tell the next Director that there are one or two guys on this Subcommittee that think that is a good idea.

The other thing I want to ask—I have several things I want to ask, but every organization I have ever been a part of, whether it was the Navy or running the State of Delaware as Governor, or working here in the Senate, everything that I have been a part of leadership has been the key.

If I go to a school, the school is doing a good job, more often than not because they have a great principal. They can have wonderful teachers, but if they have a lousy principal, they are not going to be meeting their potential. The leadership is just so important. The same is true here with the Census Bureau.

One of the things we ask all in trying to help identify a talent pool for people to fill this position several years ago, we had a panel in. I think they were people that had previously been Census Bureau directors, and we asked them to basically give us, not at

that time, but to just give us a couple good names that we would then share with the Administration. I also asked them to tell us what kind of skills and talents we ought to be looking for, or the Administration, our country should be looking for.

I will not ask you all to give me a couple good names, although later on I may ask Dr. Groves to give me a couple to share with the Administration. But rather, the qualities that we ought to be looking for, the President should be looking for our country, our Senate, our colleagues should be looking for as we move into this century.

Let me just start with you, Dr. Groves. Just give us some thoughts of the qualities, the kind of leadership qualities and skill sets we should be looking for.

Mr. GROVES. I view this position as both a managerial one, but a technical one, a scientific one. So what goes on at the Census Bureau is based on a set of principles that are derived often from statistics, but sometimes from other disciplines. So pretty high on my list would be someone that understands that knowledge domain. Does not mean they have to be the greatest scientist in the world, but you have to be able to understand technical matters.

I want to stress that because I think I have heard opposite opinions, that what we need in the Census Bureau is maybe an ex-general that has run an Army. It is sort of like running an Army. Right? That is what you need. Well, I do not agree with that.

Senator CARPER. OK.

Mr. GROVES. Now, you do need managerial—

Senator CARPER. How about a Navy man?

Mr. GROVES. I did not want to pick on one branch.

Senator CARPER. OK.

Mr. GROVES. Sorry. But you do need managerial expertise, and what kind you need, I think you need a calmness and a certainty of decision style. That is, you have to make decisions. Decisions need to be carefully crafted, but quickly made. Indecision is deadly, I think, in an environment like this.

As Senator Coburn noted, we have some good leaders at the Census Bureau, and knowing when to delegate and when not to delegate, what is the right decision on that score is important greatly. And then I have learned something that I did not know before I took this position.

There is an outreach side of a Director. The ability to relate to communities, to understand how real people live is, I believe, I would rate that higher than I did before I came in. That is pretty important because we are relying on their goodwill to do our business, and kind of understanding how people process what we do is an important thing.

Senator CARPER. Those are great items to consider. Mr. Zinser, do you agree with any of those or disagree with all of them, add to them?

Mr. ZINSER. Yes, sir. I would agree that all the qualities of a good leader are important. With respect to the Census Bureau, what Dr. Groves brought that did not exist before was an openness and willingness to subject the Bureau to oversight and to communicate with the Department and the oversight bodies in a straightforward way.

I think that the way the Census Bureau operated in the past was a little more insular. The next leader of the Census Bureau would do well to adopt an open and transparent management style like Dr. Groves did.

I also think that relationships are very important inside the Department, with Congress, and with the rest of the country.

Senator CARPER. OK, thanks. Go ahead, please.

Senator COBURN. Just a follow-up question. How are we going to assess that? Let us say we have a new one and it is not as open and transparent as Dr. Groves. How are we going to find that out? Because the problem is, is we all know how organizations work, and outside a whistle-blower on a specific issue, tell us how we are going to assess that.

Mr. ZINSER. I brought up transparency at the Census Bureau because I actually had to write a letter to this Subcommittee when I first arrived at the Department asking for the Subcommittee's help in getting access to Census Bureau information. We were faced with all kinds of barriers with respect to operating inside the Census Bureau and accessing their information.

And to the credit of Dr. Murdock and then Dr. Groves, there has been a sea change. As a result, transparency depends partly on hearings like this. GAO, OIG, and the Department have to be held accountable for pushing that kind of transparency.

Senator COBURN. It is actually a more fun place to work when it is transparent.

Mr. ZINSER. That is what I think.

Senator CARPER. Mr. Goldenkoff.

Mr. GOLDENKOFF. Well, in terms of the leadership characteristics—

Senator CARPER. Let me just say, one fact comes to mind. We have some opportunities here as well as we go through the vetting process, as we go through the confirmation process. I just think nominees come to call on us and that is a good point to make. I would say, By the way, did you know? All right, please.

Mr. GOLDENKOFF. We listed some attributes in our written statement that we submitted for the Record, but just building on some of those in thinking about attributes that help create a high performance organization, those are things that are so essential. And I think to Dr. Groves' credit he certainly exhibited and applied a lot of them and thought more at a corporate level, and brought a lot of stewardship and innovation to it.

I think in the past where the Bureau was not as successful is when they applied more of a scientific or "if statistician's approach to solving problems. As if we can just do one program a little bit better, apply this one statistical thing, do it a little bit better, we would make some improvements."

But for the first time, we have been starting to see that these issues, because they have been recurring again and again, that the problems are more deeply rooted in the Census Bureau. It was things like the culture of the Census Bureau, the management of the Census Bureau, old ways of thinking, stovepiped organizations. Now those issues are being addressed, and so that is so important.

Further, developing and using partnerships strategically is critical. Working with political leaders and Capitol Hill and reaching

out to other levels of government, and then everyday citizens. And then getting back to internal things that the Census Bureau can do, managing people strategically, talent management, just making the Census Bureau a desirable place to work.

Senator CARPER. Let me ask you a question. I have jurisdiction in another Subcommittee that deals with the Nuclear Regulatory Commission (NRC), and for a number of years, consecutive years, they have been at the top of the charts in terms of a place where people like to work. They get very good reviews. Any idea what it is like at the Census Bureau in terms of those rankings? Any idea?

Mr. GROVES. Well, we have employees—actually, you told me this in one of my first hearings, so I followed up.

Senator CARPER. Oh, good.

Mr. GROVES. I tried to decompose why is it that NRC have employee surveys that measure attitudes, and it is a very mixed bag. There are some parts of the environment that are really energized, believe they are doing important things. I have analyzed those data myself and there are some bad things in the data. We get very high ranks on people believing what they are doing is important. That is a good thing for a public servant to have that.

One of the most negative things is having to work next to someone who is not working very hard, the inequity of productivity and the lack of reward systems that allow one to get rid of deadwood and stuff like that. That is a drag on employee morale that is in the data. They are telling us that quite honestly and that is a hard thing to work on.

Senator CARPER. OK, thank you. I am sorry, Mr. Goldenkoff, I interrupted you there.

Mr. GOLDENKOFF. Just to build on that, making an organization a desirable place to work, and that is exactly what I was getting at. You were referring to the Partnership for Public Service, the survey that they do on best places to work in the Federal Government. And if you look at the Nuclear Regulatory Commission and other organizations that have always ranked high, and I have to say GAO is among them, that—

Senator CARPER. I like the way you worked that in there. [Laughter.]

Mr. GOLDENKOFF. I know my boss was up here earlier today.

Senator CARPER. He never used a note. I told someone, I said to the other colleagues, I said, for all the years I have been here, I have only had two people come in and testify for an extensive period of time, and never use a note. He is one of them and the other is John Roberts, our Chief Justice of the Supreme Court. Very impressive.

Mr. GOLDENKOFF. Very. Well, you see me with my binder here and papers all over the place.

Senator CARPER. You and me both.

Mr. GOLDENKOFF. Comptroller General sets a high bar. But one of the things for those organizations that rank highly in the best places to work—

Senator CARPER. I have noticed that with the change of the Comptroller General, there is a guy who sits right behind him over his left shoulder and when Gene Dodaro speaks, the guy right behind him, it is like his lips are moving. [Laughter.]

Senator COBURN. That is absolutely untrue. [Laughter.]

Mr. GOLDENKOFF. Well, there is a clear and compelling mission of the organization. They have an aggressive recruiting program. They have a wonderful on-boarding process. It is one thing to recruit people, but what do they do once they get there? Is there a buddy system to keep them engaged? Are there rotational opportunities so they see all different parts of the organization? Is there a good work/life program? Things that make people want to stay and feel good about the place that they work for.

And ultimately, what the Partnership for Public Service has found out, a lot of what it comes down to is leadership.

Senator CARPER. I like to tell the story about listening on my way from my home to the train station last fall, I catch a 7:15 train many days and I listen to the news. I watch the 7:00 top of the hour, listen to NPR on my way to the train station.

A number of months ago, late last year, NPR was reporting on an international survey. The question was being asked in the survey of people all over the world, thousands of people, is what is it about your job that makes you like it? And people had a wide range of responses, but a lot of people said, "Well, I like getting paid. I like getting a paycheck."

Some people said, "I like having health care benefits," some people said "I like receiving a pension," some people said, "I like the folks that I work with or the kind of surroundings in which I work."

What most people said was the thing that was the most important to them in terms of liking their work is they felt that they were working on something that was important and that they were making progress.

Mr. GOLDENKOFF. Challenging work and making a difference.

Senator CARPER. Yes, and that was the key for more people than not. One of the questions, when we get to the end of this session I am going to ask—the last question I will probably ask of you and you can just think about it now—is just think what each of you have said and I just want you to share with us something that you heard from one of the other two witnesses that maybe made you think a little differently or that you think is especially important that you would just like to underline and leave for us as we look at it. Just be thinking about that.

I think Dr. Coburn got into this a little bit, but I am going to ask this question anyway and just ask you again, if you will. Starting with you, Dr. Groves, but just to reiterate again some of those important lessons that we learned from the 2010 census that the Bureau should really be focused on now looking ahead.

Mr. GROVES. Well, I was not able to talk about some of the things, so I thank you for this question, first of all. We had, in 2010—this was before my time so I cannot claim credit for it—the wisdom to design the post-enumeration survey, which is our way of evaluating the census, in a way that allows us to decompose the quality, the marginal impacts on quality of different operations.

So looking forward on 2020, we have, for the first time, a way of asking the question, how valuable was a particular operation to the overall quality? Now, we do not have perfect cost data on each of those operations, but we could do pretty good work, and for the

first time, I think this decade will have cost/quality trade-off commentary on different components.

Sometime this decade, if all goes well, we will publicly be able to say we could do this operation that costs X hundred million dollars and we think it would impact the quality this amount. We have never had a discussion in this country about how good does the census have to be for a particular cost. We will need Congressional help on this.

Senator CARPER. How so?

Mr. GROVES. It is crystal clear, in Article 1, Section 2, that the census will be done in a manner that by law Congress shall direct. For the first time, I think we will be able to give cost/quality trade-off. The mandate in all paths, if you study the history of this is, do better, do better, do better. Or at a particular point in the decade, make it cheap, make it cheap, make it cheap, but we have to bring these together.

Senator CARPER. There you go.

Mr. GROVES. And it is a tough trade-off decision and it belongs to Congress, I believe.

Senator COBURN. Yes, but there is a law of diminishing returns.

Mr. GROVES. Absolutely and we know it. We see it in the data. But it is that law or that diminishing return that poses the issue. How much more money should be spent for what payoff, and what payoff is worth getting, which is basically a Congressional question.

Senator COBURN. Well, we have 10 tough years in front of us at least.

Mr. GROVES. Yes.

Senator COBURN. And so those are going to be difficult discussions.

Senator CARPER. Mr. Zinser, do you want to respond to my question? When you look at some of the most important lessons learned from the 2010 census that the Bureau ought to be focused on at this time, would you just again restate those?

Mr. ZINSER. We identified seven challenges looking forward for 2020, based on what we saw in 2010. One Bureau priority is to stay focused on cost issues. A problem we saw in 2010 was the inability of the Census Bureau to accurately estimate the costs of its field operations and maintain the transparency of its money tracking.

As a result one important lesson is to develop the cost-tracking capacity to be able to know, going through the operations how much they cost and how much progress or lack of progress is actually costing.

Senator CARPER. All right, thank you. Mr. Goldenkoff.

Mr. GOLDENKOFF. I would say sustaining the reforms. The Bureau, past experience has shown that the Bureau has always gotten off to a good start. 1990 got off to a good start, 2000 got off to a good start, 2010 got off to a good start. And then things went awry before too long. Part of that was because, I think—and this goes back to the transparency issue—the Bureau was always late to acknowledge that there was a problem and that created more difficulties down the road.

I think that is the greater challenge. It is one thing to come up with good ideas at the very beginning of the census planning cycle,

but good ideas and getting off to a good start are not enough. The Census Bureau needs to focus on priorities, risk management, continue to focus on changing the culture, and that is going to be difficult in the years ahead given the fiscal uncertainties, the leadership uncertainties.

Senator CARPER. OK, good. I am going to ask maybe one more set of questions about the ACS here in a minute, but before I do that, our Governor Jack Markell, has just become since last Sunday the Chairman of the National Governor's Association (NGA), which is a great thing for him and for our State. It is a post I once held when I was Governor of Delaware.

I used to describe the States as 50 laboratories of democracy. They are not all the same, but we can learn from one another. In fact, we did. As Governors, we used to try to steal the best ideas from other States, and frankly, I would gladly share it with other States what we were doing, how it actually made sense.

When you look around, again, the world, we look around the world at countries like us, maybe a little different from us, what are some of the lessons that we have learned from them that we actually are incorporating? Maybe what are some of the lessons we have yet to learn from them that we ought to be incorporating with the idea of better results, less money or better results for the same amount of money. Dr. Groves.

Mr. GROVES. Well, I was a party to sort of a summit meeting of the English-speaking world.

Senator CARPER. Really? When was this?

Mr. GROVES. Statisticians, several months ago.

Senator CARPER. I will bet that was pretty exciting.

Mr. GROVES. Now, now. Statisticians can be exciting.

Senator CARPER. You all did not have it in Las Vegas, did you? [Laughter.]

Mr. GROVES. No, not at all. What I learned is that we face similar problems. Our societies, modern societies are moving in the direction that is common. We are more diverse because of immigration. Every one of the countries is encountering more new immigrants. We differ in various ways. By the way, we all believe there is a consensus that we must move to multiple ways of collecting data simultaneously.

Senator CARPER. So everybody pretty much agrees on that?

Mr. GROVES. That is clear. We all agree that administrative records must be a component to our future. Where we differ is the legal infrastructure. So if you take Australia as an example, the chief statistician in Australia has the authority to use, for statistical purposes, all record systems in the country, government, private sector, for statistical purposes.

U.K. has a statistics law that spans all agencies and defines what rights and responsibilities a statistical agency has. Because of our history of a dispersed structure, we do not have unifying legislation like that. And that is, at this moment in history, a dealbreaker for our progress, because if administrative records are part of the statistical future, we are decades behind some of these countries. So that is a critical issue we need to learn from.

The other thing, Brazil, the Brazilians did their census with handhelds after visiting the Census Bureau in the late 2000s, no-

ticing that we were doing handhelds, and they succeeded in a very interesting way. We sent a team down to research.

So there are lessons to be learned all over, and our decennial folks are trying to learn those lessons quite actively now because it is a period of enormous change in how statistics are collected and presented and we have got to stay up with them.

Senator CARPER. Good, thanks. Mr. Zinser, any comments on my question?

Mr. ZINSER. We have not done any comparative analysis of how different countries carry out their census.

Senator CARPER. OK.

Mr. ZINSER. We face particular challenges in the United States with, with the American Community Survey, especially tying it back to the constitutional issues that Dr. Coburn raised. I am not sure those kinds of issues exist in other countries.

There are countries, for example, where the citizens are actually issued I.D. numbers that make it easier to count them. That is never going to happen here. In this respect, the United States does have a lot of unique challenges that other countries may not have.

Senator CARPER. OK, thanks. Mr. Goldenkoff, anything on this particular point?

Mr. GOLDENKOFF. There could be lessons learned out there. Canada is one possibility, for example. They have been able to hold their census costs very steady for a number of cycles now. I think this country needs to have a better understanding of what is behind that. Is it because their census is conducted differently? Are they able—do they accept higher error rates than would be acceptable in this country?

Is it because of something about their culture that they are more willing to give up personal information? Or are they doing something that the Census Bureau can truly adopt here in this country to help us control costs, unique and innovative?

Senator CARPER. Let me just ask, Dr. Groves, 60 seconds on that. Tell us what you know, a little bit of what you know.

Mr. GROVES. Statistics Canada is really a sister agency. We are back and forth all along. They do something that would be a radical change for us in the United States and that is, when a small area, a certain percentage of people have responded on the census, they will cut off efforts, and those are in the 90s, a pretty high rate.

But many people do not know that most of our money is spent on those last percentages. This would take a different discussion in this country. Are we willing to stop at a certain point knowing that it is incomplete, but we have gone through a certain predefined set of efforts. We have never had that discussion politically.

Senator CARPER. All right, thank you. A couple more questions and I will be excusing you. Dr. Groves, some of the critics of the ACS have suggested that all or much of the data from that survey are available from or could be culled, I guess, from other sources, maybe even from data that other government agencies collect for different purposes. Could you address that for us just very briefly?

Mr. GROVES. My professional judgment is that that is incorrect and it is incorrect largely because of ACS's attempt to have esti-

mates, statistics on small neighborhoods universally, and there is nothing like that available.

Senator CARPER. All right. Is that true, to some degree, and how would the Census Bureau go about supplementing what it collects in the ACS with data already available from other sources? I think you have spoken to this, but just a little bit more, if you would.

Mr. GROVES. There are some of the attributes that we ask, questions that we ask people that do appear on record system that the Federal Government has collected. For those variables, we could have alternative ways of estimating. If it were done jointly with ACS, it would be even more powerful, in my professional judgment, and that is the vision we have for the future.

Senator CARPER. OK. If I could, for Mr. Goldenkoff and Mr. Zinser, if the American Community Survey is de-funded or made voluntary, how would these changes impact planning, designing, and executing the next decennial census?

Mr. ZINSER. The biggest impact that we forsee relates to how we recommended that the Census Bureau use the ACS as a test bed for the 2020 decennial, for example with questionnaire content—

Senator CARPER. Would you have it be done over the Internet?

Mr. ZINSER. That would be one of the tests, yes; the Bureau, in fact, is going to use the Internet for the ACS. With respect to Internet response options for the 2020 decennial having the ACS in place gives the Census Bureau the opportunity to perfect using the Internet for 2020 because it is not something that can be put in place overnight. It has to be developed. Security measures have to be developed.

If the Bureau does not have an ACS, it will have to come up with another way to develop that capacity. That is one of the biggest impacts on the decennial that we have identified.

Senator CARPER. Good, thank you. I appreciate that. Mr. Goldenkoff.

Mr. GOLDENKOFF. It throws a monkey wrench into the future plans because so much is riding on having, as Todd said, the ACS as a test bed for all these various systems, as well as puts the future costs to possibly raise them, because what has happened in the past is that the census systems will be designed for use in the decennial, one-time use. They would have to perform flawlessly the first time and they would never benefit any other survey.

And so, the whole approach here is to start developing systems that can be used for the ACS, for the decennial, and other surveys, and greatly reduce costs. And that throws that whole plan into doubt.

Senator CARPER. OK, thanks. Earlier I said the last question would kick it back to you and just say, is there anything here today that you would like to just reiterate, whether it is from one of your fellow witnesses or a thought that came to mind, parting shots? But do you want to go first, Mr. Goldenkoff? Anything you want to underline for us?

Mr. GOLDENKOFF. Constructive oversight, that leads to the transparency that was so important the last couple of years. It has been very effective. We have all been able to get together here to talk about problems, solve them as a group. No surprises. And that is what is going to be so important going forward.

Senator CARPER. OK, thank you. Mr. Zinser.

Mr. ZINSER. I was struck by how focused everybody is on cost. When I first arrived at the Department, what I was told is that, at the end of the day, Congress is going to give the Census Bureau the money that it needs.

I would be concerned that attitude might resurface, but—if the Bureau were to run into the same trouble as with 2010 and had to ask Congress for an extra $2 billion for 2020—I really question whether or not Congress is going to be able to give the Bureau an extra $2 billion.

As a result, this issue of cost containment is what everybody is focused on and that is very important.

Senator CARPER. Good, thanks. I do not know how long I will be around here; that is really up to the people of Delaware, but for however long, I am here. We are going to focus in this Subcommittee and our Committee, at least from my perspective, on how do we get better results for less money or better results for the same amount of money, just about everything that we do.

Dr. Coburn intimated we are going to be focused on that, I think, for probably as long as he and I will be here. Dr. Groves.

Mr. GROVES. Well, let me take on something Robert said, my own version of it. I think this is a decade where we need help from Congress and we need an Executive Branch and Congress to come together on matters involving the decennial census. And the two principal ones we have talked about, but let me reiterate.

Freeing up our ability to use administrative records to save money and improve quality is critical for where we want to go. And second, that will lead to a discussion this decade of trade-offs, of how much money is worth spending for what outcome. And we believe we are trying to assemble the kind of information to allow Congress to make wise decisions on that.

But these are hard decisions to make and it is, if I read the Constitution right, the role of Congress to make that decision. So our job is to give enough information about these trade-off decisions and then for Congress to pay attention at the right time. One of the great difficulties we have is that 2020 seems like forever away in today's world, but the decisions we need are going to be much closer to mid-decade to allow us to reduce risk on where we are going in 2020. So we need your help.

Senator CARPER. Well, God willing and the voters of Delaware are willing, you will have it, and your successor will have it as well. I want to again echo the comments of Mr. Zinser and Mr. Goldenkoff about you and your leadership just to say what a joy it has been, a real privilege, for us—and I know I speak for Dr. Coburn—to have had a chance to work with you and your colleagues at the Census Bureau.

You are not going to be that far away and my hope is that if you get a phone call from us somewhere along the line you will take it. My other hope is that you would spend some time, and it may be months from now, be willing to spend some time with your successor when he or she is confirmed.

We presume there will be an interim director and hopefully somebody could—I am not sure who that is going to be, but I think I have an idea. We just hope that you will be willing to impart

some guidance from time to time to whoever does succeed you on a more permanent basis. In the Navy, when people are ready to ship out—when do you leave?

Mr. GROVES. August 10 is my last day.

Senator CARPER. And what is today, the 18th? So it is like 23 days. That is 23 days and a wake-up, so we say in the Navy when we are thinking about coming home from overseas 23 days and a wake-up and it will be your time to ship out and actually sail for home.

I just want to say, as we say in the Navy, fair winds and a following sea. And whenever people, in the Navy, do something especially good, well done, we say, bravo zulu, and for you and your team, bravo zulu. Thank you so much.

Mr. GROVES. Thank you.

Senator CARPER. I am going to call just a brief recess and I am going to ask our next panel to go ahead and take their place and then we will resume as soon as I get back. Thank you. [Recess.]

All right. Let us go ahead and resume our hearing. Thank you for understanding the brief recess. Dr. Jason Providakes. Did I get it close? Is that correct?

Mr. PROVIDAKES. Providakes.

Senator CARPER. So I got it right actually. Senior Vice President and the General Manager of the Center for Connected Government at MITRE. He leads the delivery of MITRE expertise to civilian agencies through the federally-funded research and development centers. The goal for the Center for Connected Government under his leadership is to provide enduring technical capabilities supporting the missions of civilian agencies accountable for leading critical national challenges.

Mr. Providakes holds his doctorate from Cornell University, along with his master's and bachelor's degrees in electrical engineering from—is it Worcester?

Mr. PROVIDAKES. Worcester.

Senator CARPER. Worcester. All right. I should know that. Worcester. I apologize. Thanks a lot for joining us today and for all of the help that MITRE has provided.

Dr. Jack Baker, an easier name to pronounce, is Senior Research Scientist at the Geospatial and Population Studies program at the University of New Mexico and serves as New Mexico's representative to the Census Bureau programs on population estimates and projections.

He participated extensively in the preparation for the 2010 census and chaired the group to redesign the 2010 count review program. In the fall of 2009, he was named a member of the National Academy of Sciences Panel to Review the 2010 census. He holds a B.A. from the University of North Dakota. Are you a native of North Dakota?

Mr. BAKER. No, sir.

Senator CARPER. All right. And M.S. and Ph.D. degrees from the University of New Mexico, all in anthropology. We are glad you are here. We have got three of them, three doctors here.

Dr. Andrew Reamer, Research Professor at George Washington Institute of Public Policy at the George Washington University (GWU) where he focuses on Federal statistical policy and pro-

grams, sources and uses of socioeconomic data, State and local economic analysis and strategy, and the geography of innovation and other regional studies. That is a lot. That is a mouthful, is it not?

Mr. Reamer holds a bachelor's degree in Economics from the University of Pennsylvania, right up the road from where I live, and a Ph.D. in economic development and public policy from MIT, where our oldest son went to school. He is a lot smarter than his dad, I can assure you.

But we are happy you all are here and welcome your testimony. It is an important hearing. I am glad that Dr. Coburn suggested it. He will be back if he can and we will just say your whole statement will be made part of the record and feel free to proceed. I let the first panel go on for a while and we will do that a little bit, but I have some time constraints at the end here, so we will not be able to go quite as long. All right. Dr. Providakes, welcome and thanks so much.

Mr. PROVIDAKES. Thank you and I can actually keep to the 5 minutes to allow questions. I know that.

TESTIMONY OF JASON PROVIDAKES, PH.D.,[1] SENIOR VICE PRESIDENT AND GENERAL MANAGER, THE MITRE CORPORATION

Mr. PROVIDAKES. Chairman Carper, thank you for the invitation to produce a more complete and effective enumeration of the census. Let me talk about that today for you. As you know, MITRE is a long-standing partner with the Department of Defense and many civilian agencies; the Internal Revenue Service (IRS), for example. We also work with the Department of Veteran Affairs (VA), the Federal Aviation Administration (FAA) and the Department of Homeland Security (DHS).

As you mentioned earlier, MITRE is a not-for-profit company. Our sole activity is the operation of federally funded research development centers (FFRDCs), which operate for the benefit of their Federal Government sponsors. As alluded to earlier, our expertise is in scientific research and the analysis, development, and acquisition of system engineering and integration.

I am here today sharing with you my perspective as a system engineer and as a technologist derived from many years of experience in large and complex systems, and as a contributor, also, to several scientific advisory boards.

MITRE supported the Census Bureau in preparation for the 2010. We continue to work with the Census as they prepare for the 2020. Our role in helping to mitigate large risks that developed during the 2010 program informs my comments today. So I am going to try to get to those lessons learned that we alluded to earlier.

The single most important question, in my view the Census needs to think about is—and indeed all government departments and agencies—how do we effectively and affordably capture technology innovation. I heard that most of today. How do you capture that innovation in terms of bending that cost curve that some of us are concerned with.

[1] The prepared statement of Mr. Providakes appears in the appendix on page 99.

The good news is that today there is no shortage of hardware, software, and middleware that enables more efficient and accurate census taking that does exist. We are in the midst of geometric growth of technologies, in fact, and will continue through 2020. In fact, by 2020, we at MITRE join many others in predicting that the snapshot of today's available technologies will feel as antiquated as, for example, the rotary dial phone did in 2010.

The bad news is that challenges of technology selection and implementation in order of magnitude are more complex than they were in previous planning and R&D cycles. So how can the Census Bureau effectively and affordably capture the value from technology innovation? That is really the question we are trying to address.

Our experience suggests there are two areas of operational changes in order for the Census to be more effective. I will try to address those two quickly. The first is—we heard this theme again—engineering for a data rich ecosystem. These datasets today across government are inter-dependent and lend themselves to some very valuable insight—

Senator CARPER. Let me just interrupt you here. You can slow down just a little bit. Do not feel you have to rush. OK?

Mr. PROVIDAKES. All right. Of that data rich ecosystem, and that is what we are trying to get to, my hope is that technology exists today. That for a paperless census, the technology will likely exist through 2020 for the automated census. I should also point out, without the physical storage space and logistics required for massive amounts of paper, the field infrastructure which lends itself so much for cost, can be radically reduced and re-envisioned.

In MITRE'S extensive experience with the IRS, FAA, and others in the government, we found it is most effective with regard to enterprise modernization when ownership and control of this technical baseline exists within the agency. I will say more about that. The technical baseline effectively defines the capabilities and characteristics needed to deliver specific outcomes and guides the priorities for an acquisition program.

It permits continuous trade space analysis of the optimal design. Our observation is that successful programs that use engineering, particularly enterprise engineering, and the technical baseline as a compass for navigating uncertainty and complexity of tomorrow's technological advances.

The second area is really this alignment of budget cycle and spending to realities of technology planning and acquisition. The census is a 10-year planning cycle. MITRE continues to recommend that agencies be given flexibility to adapt funding to react to changes in technology requirements.

This should include multi-year authority and the authority to fund the up-front systems engineering and necessary trends of analysis and to evaluate and estimate the scope, cost, and schedule of their proposed investments without prior approval.

This up-front investment is not trivial. In fact, perhaps up to 20 percent of the total life cycle costs of an acquisition would be expensed. Overall program success is highly correlated to early investment in concept development and systems engineering. It is

critical to successful execution, but today not available to the management budget process.

There are two specific benefits really to this budgeting flexibility. First, it would permit utilization of contemporary risk mitigation techniques like beta testing we heard earlier. How do you test? Agile development, which we talked about, identification of trade space and negotiation, open source, and non-proprietary solutions, to name a few.

Second, capability development could be undertaken on a continuous improvement basis rather than the point in time delivery basis we see many times by programs. I think those two areas and recommendations should be considered and I welcome your questions. Thank you.

Senator CARPER. Thanks so much. Dr. Baker, please.

TESTIMONY OF JACK BAKER, PH.D.,[1] SENIOR RESEARCH SCIENTIST, GEOSPATIAL AND POPULATION STUDIES, THE UNIVERSITY OF NEW MEXICO

Mr. BAKER. Thank you, Mr. Chairman. As you said in your introduction, I am a member of the National Research Council panel to review the 2010 census. Last year, the panel's chair, Tom Cook, reviewed the findings of the panel's first report, "Change and the 2020 census, Not Whether, But How." Today I would like to continue the conversation that Dr. Cook started and offer further suggestions on 2020 planning.

From my own background as an experienced demographic methodologist, I need to make the disclaimer that my opinions in this testimony and this hearing are my own and should not be construed as formal word from the panel or the National Academies.

It is fair to say that the panel supports the basic conclusion from its first report that the 2020 census can and should be conducted in a way that sees large scale reductions in costs per housing unit while maintaining quality. In the report, we identified four priority areas for 2020 R&D. These include applying modern operations engineering to field operations and making fuller use of administrative records.

My comments today mainly cover the other two areas, emphasizing multiple response modes to the census, particularly the Internet, and continuous improvement of the Bureau's geographic resources. I think the Bureau has embraced the notion that ongoing testing and experimentation are important aspects of 2020 planning.

The Bureau is working on a more adaptive process in operations and field management for its data collection programs. This will be tested and implemented first in the Bureau's other surveys and then eventually form 2020 census systems. Under this process, respondents may move between different response modes and interviewer approaches based on past contact attempts and contextual information.

This process of rethinking census taking as a more organic process rather than a string of only loosely integrated operations is cru-

[1] The prepared statement of Mr. Baker appears in the appendix on page 105.

cial. It fosters the kind of exploratory and bold thinking that I think is necessary for the Bureau to meet its challenges.

For decades, the Bureau has tended to layer on more and more operations, often in the name of improving overall quality, without stepping back to consider costs and benefits and cost/quality tradeoffs. I think that a management framework built on adaptive design can allow a better understanding of redundancies of effort and the resulting need to prioritize. My hope is that analogs of the same adaptive design may be brought to bear in other parts of the census besides managing contacts.

That said, successful retooling of the census is only possible if 2020 planning and R&D activities that will directly inform it are made an adequately funded priority. I believe the short-term upfront costs associated with 2020 planning are worthwhile investments with major long-term cost offsets.

Gains from changes in the census processes will be undermined if the Bureau's geographic resources are inadequate if individual census responses cannot be accurately linked to precise geographic coordinates specifically. Therefore, effective means for updating the Bureau's geographic data resources, its master address file, and its TIGER geographic database are a key aspect of any census design effort.

To this end, the Bureau faces a major decision on the extent to which it will conduct address canvassing prior to 2020. As you know, the Bureau sent staff to every block in most of the country in 2009 to verify or correct address list entries, and as others have noted, that is quite expensive to do.

Looking ahead to the decision for 2020, the Census Bureau launched its Geographic Support Systems Initiative, which the panel generally endorsed in our first report. As this work progresses, I suggest that, first, there is a pressing need for quality metrics for both MAF and TIGER. To its credit, I think the Bureau has been candid in noting shortcomings in recognizing the need for improvement. This is just to say that there is a danger in slipping into the mind set that the Bureau's own files are some sort of unassailable gold standard which they should avoid.

Second, the Bureau's geographic research should focus on the coverage properties of MAF and TIGER and those of alternative resources as others have mentioned. Those alternative sources include commercial databases such as Google maps as well as additional data from the U.S. Postal Service and other agencies. In a nutshell, my point is that it is exceedingly unlikely that there will be one single source that is universally best.

The Bureau's research should consider differences in quality and their effect on the resulting accuracy across different sources and for specific geographic and demographic subgroupings.

Third, I think that the Census Bureau should consider the same kind of adaptive or flexible approach for updating its geographic resources as it hopes to implement in field operations. In approaching the address canvassing, my hope is that the Bureau can avoid the one-size-fits-all approach that has driven operations in the past.

The geography and the housing address stock of downtown Chicago is different from that in the pueblos in New Mexico where I reside. Likewise, I think that developing models of MAF/TIGER

coverage and using them to strike a balance between field collection and tapping existing resources should lead to different approaches for those areas, too.

Fourth, the Census Bureau can learn a great deal from outside its walls, from private and public sector organizations faced with similar challenges, as well as from statistical agencies in other countries. The Bureau should consider the techniques used by commercial MAF vendors in updating their products, draw from the experience of firms such as UPS, and study the specific operations conducted by agencies such as Statistics Canada.

In closing, I understand that recent developments involving the ACS are a secondary topic for today's hearing. As a regular user of ACS data, my personal hope is that the Senate will undo the appropriations amendment passed in the House. But in keeping with the main theme of this hearing, I would like to close by emphasizing that a healthy ACS is critical to an improved 2020 census. The ACS will be a critical proving ground for the adaptive process I spoke about earlier prior to ruling it out in 2020.

I think that one flaw in 2020 planning to date is that the role of the ACS has not been fully fleshed out and trust that that will change. But, of course, the ACS cannot be a test bed for 2020 if it does not exist or exists in a severely hobbled form. I thank you again for the opportunity to testify and I welcome your questions.

Senator CARPER. Thanks, thanks very much for those words. Dr. Reamer, you are recognized, please.

TESTIMONY OF ANDREW REAMER,[1] PH.D., RESEARCH PROFESSOR, GEORGE WASHINGTON INSTITUTE OF PUBLIC POLICY, GEORGE WASHINGTON UNIVERSITY

Mr. REAMER. Chairman Carper, I appreciate the opportunity to discuss recent developments concerning the American Community Survey. I will indicate why ACS cancellation would be destructive; review the negative consequences of a voluntary ACS, including exacerbating rather than reducing constituent concerns; and then I will offer an alternative approach to addressing those concerns.

For decades, small area census data have been essential to the proper functioning of government, the economy, and our communities. Today, for example, the Federal Government uses ACS data to build statistics such as State personal income and annual population change, design, implement, and evaluate policies and programs, distribute over $450 billion in financial assistance across the States, and enforce the Voting Rights Act.

State and local governments use ACS data to allocate scarce resources, calculate caps on taxing and spending, and redraw legislative districts. Economic development groups, businesses, non-profit organizations, and research organizations use ACS data to make informed decisions in their respective domains. And the public uses ACS data to understand changes in their communities.

The origins of the ACS begin with Congressman James Madison, who on the floor of the House in 1790 said he wished that each census would gather information beyond bare enumeration so that fu-

[1] The prepared statement of Mr. Reamer appears in the appendix on page 110.

ture Congresses can adapt public measures to the particular circumstances of the community and mark the progress of society.

For 222 years, Congress has fulfilled Madison's wish, and in 2004 approved the long-sought collection of census data more often than once a decade, through the American Community Survey. The advent of the ACS has made possible more informed public, business, and personal decisions in light of widespread long-term reliance on long form-type data. The survey's cancellation would cause economic disruption, misapplication of scarce community resources, and increase waste of government funds.

In terms of the issue of voluntary versus mandatory response, since 1790, the government has had the authority to fine anyone refusing to answer census questions or providing a false response. While current census law says the fine for not responding to the ACS can be up to $100, this cap has been superseded by a uniform sentencing act that Congress passed in the 1980s that sets the limit of the fine at $5,000.

Members of Congress are hearing several types of complaints from constituents receiving the ACS. Some constituents experience the questions as an invasion of privacy; some distrust the government's use of the data; some feel terrified or coerced by a possible $5,000 fine; and some who do not mail back the form feel harassed by Census Bureau staff.

Several members have responded to these complaints by proposing to prohibit the government from imposing a fine for ACS non-response, in effect making the survey voluntary. However, a voluntary ACS would have the perverse effect of aggravating, not eliminating, constituent concerns.

In memos, the Census Bureau says that to produce sufficiently reliable small area estimates, it needs to maintain the current number of completed ACS surveys and that failure to reach that number would lead to, quote-unquote, unacceptable estimates. It also says that based on field tests, a voluntary ACS would lead to a 20 percent drop in the mail-back response rate.

The Bureau has asked, under a voluntary ACS, what changes would need to be made to get the current number of finished surveys, and the answers, as I understand them reading through the memos is, one, 23 percent more households would get an ACS form. So a sample almost a quarter larger.

Two, 18 percent more households would get a follow-up phone call because if the response rate falls, there are more phone calls. And then three, 39 percent more households would get a visit from Census Bureau staff. So if the goal is to reduce the number of touches of the Census Bureau, to households this is going in the opposite direction.

And then finally, the cost of these extra efforts would be about between $70 and $100 million added to the current $242 million base to get the same number of completed surveys. So I do not think these are the impacts of a voluntary ACS proponents are seeking.

And in light of these findings, I suggest an alternative approach that relies on better information in communications and a minor tweak, a legal tweak, while maintaining a mandatory response. First, to address constituent concerns about privacy and data mis-

use, I suggest that the Census Bureau offer the public access to information on ACS uses by State and place.

With spidering technology, the Bureau could build a searchable online database with links to thousands of national, State, and local ACS applications. My belief, and it is a testable one, is that when seeing these applications, recipients would be more willing to complete the survey.

Second, I encourage the Bureau to create an ACS partnership program modeled on the one it created for the decennial census. The Bureau would find and train trusted third-party organizations willing to give constituents information and reassurance on ACS data uses and confidentiality.

To address concerns about the $5,000 fine, I suggest that Congress exempt the Census Bureau from the uniform sentencing statute and allow it to revert to fine caps of $100 for non-response and $500 for false statements, caps that were set in 1929, by the way.

I recommend that the Bureau review and revise staff protocols and incentives so that non-respondents do not feel harassed. The Bureau might consider creating a hotline or an ombudsman for constituents.

And finally, I encourage the Census Bureau to communicate more with Members of Congress about the ACS. The Bureau could periodically provide examples of recent ACS uses in a Member's State or district, provide updates on efforts to encourage constituent response, and with each ACS release, provide the new socioeconomic profile of each Member's State or district.

In these several ways, I think constituents' discomforts with the ACS can be addressed while avoiding steps that compromise the integrity of the data.

So to conclude, going back in history once again, in George Washington's 1790 State of the Union message, he offers a statement rich with relevance for the management of the ACS, to paraphrase, In every country, knowledge is the surest base of public happiness. Increased knowledge contributes to the security of a free Constitution in multiple ways, including teaching those in authority the need to gain the enlightened confidence of the people and teaching the people to distinguish between necessary exercise of lawful authority and oppression.

I believe that with the Subcommittee's guidance, the Census Bureau can find an approach that results in constituents experiencing a proper balance between an individual's rights and duty to community and Nation. Thank you and I look forward to your questions.

Senator CARPER. You bet. Thank you very much—let me just ask Dr. Providakes and Dr. Baker just to react briefly to what you have heard from Dr. Reamer. Any particular aspect of his testimony that you just want to underline, rebut—

Mr. PROVIDAKES. I would not say rebut.

Senator CARPER [continuing.] Hold up for ridicule?

Mr. PROVIDAKES. We do throw technology around a lot as sort of the lynchpin to many of these solutions, almost like the Savior in terms of how do we deal with some of these issues. And it reminds me of the topic we just heard about, the Internet, and they want to use the Internet. To do that, to be informed for doing some ex-

perimentation or testing of that with a large population, I think, is critically important.

I think if you go back and look at what happened during the FDCA days, there was a vision and a view of handheld devices, but we did not really have full understanding of in terms of how people and their behaviors and how they do their jobs, actually utilize those. The same thing, I think, with the populace, understanding what people will do when you give them surveys and tell them to come to the Internet and come to a location.

Getting some experience from that would have a lot to do with understanding not just that modality, but we heard about other modalities as well in terms of wireless devices. Getting some experience with that from a Census construct, I think, would add a lot of insight and value in terms of what that final architecture would look like going into the 2020.

Senator CARPER. OK, thanks. Dr. Baker, just a brief reaction to some of what you heard from Dr. Reamer?

Mr. BAKER. Well, I think my experience is most relevant to what Dr. Reamer was mentioned, was in working in the Local Updated of Census Addresses Program in 2007–2008, in which there was a large interplay between State and local governments and the Census Bureau in an interchange of address data.

I think my experience reinforces Dr. Reamer's comment that in some sense, the local governments, and this extends down to the constituents of those governments who are hesitant about these responses, not see a reward specifically for them in filling out the response. In other words, there is a burden, but they do not see how there is something within those returns.

I think building the sort of partnerships that Dr. Reamer had mentioned becomes essential because people need to understand and see that there is something concrete that they get out of their participation. So I would just reinforce that comment and I do not have any other.

Senator CARPER. OK, good. Thanks. Any response to what you just heard there, Dr. Reamer? No? OK, good. Maybe I will go back to a couple questions I would like to ask. The first one would be for Dr. Providakes, if I could, and we will work you in this line up, Dr. Baker, and maybe Dr. Reamer, too.

In your testimony, you describe how it is important that the Federal agencies effectively and affordably capture value from technological innovation. You pretty much said that again here. Could you again help us understand how the Census Bureau could use cloud computing in its 2020 design? And also, what specific applications or services do you see the Census contracting for?

Mr. PROVIDAKES. Well, I think clearly from a cloud computing perspective, that really talks to the fundamental infrastructure of how the Census collect data and would share data. One of the challenges I think one would find from a lesson learned from the 2010, when we did eventually rule out these handheld devices, the fundamental infrastructure that the people were talking to—there was a fundamental performance topics associated with that.

What cloud computing eventually does, and I think the Director, Dr. Groves, mentioned that, is that it allows one to scale affordably in time for your needs. As you attempt to build out this infrastruc-

ture for what you think that 2020 architecture will look like, cloud computing gives you an affordable way of doing that. You do not have to buy it all at once tomorrow. You can buy as you need.

So that provisioning is a very powerful tool in terms of agility as the technology evolves. So by 2020, I would suspect you would see quite a bit of advancement in public clouds. I think you would also see significant advancements in whether we call them private or hybrid clouds where there is some dimension that is closed, but then again, there is some access to that hybrid cloud by other agencies and institutions in terms of sharing information.

So that is just one example of how cloud computing can help bend that cost curve. Its agility of provisioning technology, when you need it and size and cost.

Senator CARPER. All right. Dr. Baker, Dr. Reamer, do you want to respond or react to what we just heard from Dr. Providakes?

Mr. BAKER. Well, I would respond just to reinforce and add. My special area of expertise is really in geographic mapping resources, and from the perspective of sharing information back and forth between the Census Bureau, that allows them to enumerate effectively, and local governments, who have information that would help them to do that, building this sort of infrastructure makes a lot of sense in that, because often times, it is very difficult to detect, for example, like with like a targeted address canvassing sort of program where you should be looking, but locals always know where you should be looking.

And so, this sort of infrastructure would allow that to be done efficiently and at a very low cost and very effectively.

Senator CARPER. Thank you. Dr. Reamer, anything you would like to add or take away?

Mr. REAMER. I am not a technical person or a statistician or an engineer, but I am doing something that is complementary to this.

Senator CARPER. OK.

Mr. REAMER. In May, I held at G.W. a data fair.

Senator CARPER. I am sorry. Say that again.

Mr. REAMER. A data fair where we had 50 different organizations that provide, in an innovative way, data that was not possible to provide even 10 years ago. We had Federal agencies and we had the private sector. We had Amazon, we had Microsoft, we had big data organizations. And the purpose was to have people meet each other.

And so, I think Dr. Groves can attest to this, he was there, it was basically a 2-day opportunity for people, through serendipity, to find technologies, both from the public side and the private side, with synergies, I hope to get funding to do the fair again. I think we learned that a number of agencies, I believe including the Census Bureau, found some positive connections there in relation to cloud computing and other activities. Our role at G.W. in facilitating this process.

Senator CARPER. OK, thanks. If I could come back to Dr. Baker, for the 2010 census, the Bureau dropped plans to use the Internet as a method for collecting data. What challenges might the Bureau face with an Internet response option for the census in 2020?

Mr. BAKER. Well, I think first off, the consideration of Internet would be a considerable improvement. It is probably the one thing

that I can think of that could reduce costs, wholesale across the board in taking the census. The main challenge that I see with this—actually comes from where the sort of work that I do—is in geographic location of respondents.

The Census is geographically grounded because it is used for apportionment, but often people are unaware that locally within the State it is also used for recalculating voting districts. And so that becomes important about where you place them on the ground, and there are a lot of open methodological questions about how you do that when it is an Internet-based response.

They have given us a lot of thought. It is done in other places, so I am not saying it is insurmountable, but it does present a challenge that may be specific and unique to a highly mobile population such as we have.

Senator CARPER. OK, thank you. Dr. Providakes, if you want to take a shot at that question as well?

Mr. PROVIDAKES. I think on the Internet perspective, there is this view—that there is this significant cost saving that is going to come with going with one of the modalities of using the Internet as a replacement to, for example, mailings. I think that is a legitimate modality to look at. I think it is going to provide significant improvements, not just in cost, but, for example, in quality and engagement with the population.

As I think Dr. Groves alluded to, the significant cost that I found, particularly in 2010, generally has to do with that smaller population, the ones that you have got to go out and touch, and the question is, do these modalities like the Internet help you really improve on that significant cost factor that we struggle with? It is that last 20, 30 percent.

Today I think I saw a number of something like 70 percent people did mail in. I would expect that same sort of number of users would use the Internet. Can the Internet or other modalities get at those other elements where you try to go and touch where you have a higher massive number of people and hit the streets and actually count and get information from?

That is where I think the 2020 time frame technologies of different modalities, people with wireless devices getting access to the Internet. Absent, then provide opportunities not just the Internet, but other modalities to get at those remaining 20 or 30 percent non-response.

Senator CARPER. OK, thank you. I want to come back to the American Community Survey and pose maybe a couple of questions. Before I ask a question, let me just set it up this way, Dr. Reamer, if I could. This would be just for you. In recent months—and we have talked about this a fair amount today, but in recent months, there have been several proposals put forth in Congress that call for the elimination of the American Community Survey or to prohibit the government from penalizing those individuals that decline to respond to the survey.

I would just ask, you talked about this a little bit already, but I just want to ask you more directly. How would the loss of the American Community Survey affect the cost and the scope of planning for the 2020 census, as well as future decennial censuses, and other Census Bureau surveys and estimate programs?

Mr. REAMER. Well, in terms of the relation between the ACS and planning for the 2020, I do not feel I have the expertise for that question. But if there were no ACS, Congress would then have to make a decision, does the Nation go back to a 2020 long form? And so, that would be an extra expense. I do not know if this is actually the case, but when the Census Bureau asked Congress to fund the ACS, it said it would make every effort to make the change from the long form to the ACS cost neutral.

And so, the cost over a decade is $2.4 billion, so that could add that amount of money again, people at Census could tell you, but it would be an extra expense. If there were no ACS, the impact on the decennial would be the least—it would be an issue, it would be the least of the issues, because so much of the operation of the public and the private sector rely on the ACS for decision making in ways that are obvious and ways that are not obvious.

So, for instance, the Medicaid reimbursement formula that Delaware gets is based on a Bureau of Economic Analysis (BEA) state per capita income, and the richer the State is, the lower its reimbursement rate. So per capita income is total income for the State divided by its population, and each of those numbers depends on the ACS.

Total income. There are a lot of people who live in Delaware but do not work in Delaware. The ACS allows BEA to adjust people's place of work earnings to place of residence earnings so that Delaware gets the right amount of total income for the State.

On the population side, the ACS provides the data for international migration to the United States. So both those numbers, and then the ratio, which is how Medicaid's reimbursement is determined, depend on the ACS. The ACS goes—we just would have to rely on old ACS data until 2022 or 2023 if there is a long form. And I can go on, there are many examples.

Senator CARPER. OK, thank you. A follow-up question if I can. We know that many Americans who were asked to complete the ACS do not understand the rational for a number of the questions and how the data that they are being asked to provide is actually going to benefit their communities, their quality of life. Any ideas? And this would be a question for you and maybe for other panelists as well. But what could the Census Bureau do? Any specific ideas that you have to better explain to the American people the purpose not only of the survey generally, but of each question, as well as the data each question yields? Any advice?

Mr. REAMER. Yes. In the testimony, I mentioned two ideas and I probably can think of a few more right here, but one is to create a uses database. I gave each Member of the Subcommittee a packet. In the packet is a 10-page listing of the uses of the ACS that I put together in 3 days.

The Census Bureau has the ability to find uses on the web that are specific to a community. In your packet also are examples of uses specific to Delaware. We just did a search on Delaware and American Community Survey. So the Census Bureau could, in its cover letter, say, If you would like to learn more about how the data are used in your community, go our Web site, put in your ZIP code, and we will provide you with links to examples.

The Census Bureau could tag the examples by category. If people are interested in health or people are interested in bicycling or people are interested in disaster management, that those uses for Delaware could come up. So that is one.

The second way, I think, is, as I mentioned, having an ACS partnership program so that there are Delaware-based partners, whether it is community groups or the State of Delaware or the City of Wilmington, or any of the above. I think there were over a thousand partners for the decennial census who would be trusted, who would be seen as trusted by local constituents, who could call them and ask, Is this for real, how is this stuff being used, and get a third party opinion about that.

And then I think the Census Bureau could also, on its Web site, take each question and have someone click on that question and show nationally just the wide array of ways that the data collected from that particular question, whether it is flush toilets or journey to work, are used. So, I think in all those ways, the Census Bureau can make it easy and accessible for people to get information.

Senator CARPER. Gentlemen, anything you want to add to that?

Mr. PROVIDAKES. I would like to just echo that. There is great opportunity here in 2020. This is where I think the power of the Internet really comes into play. If, in fact, you put out an ACS on the Internet, you can almost envision where I go to fill out my survey, there is not just a form that pops up, but there are other links. There is information. There is a way to incentivize the user to better understand why Census is asking—what is the meaning of this question, what is the value of answering those questions.

It gives more interactiveness as opposed to even a letter or a form in the mail. It is an opportunity to really help inform the people who are filling out the forms why the Census is important. It is at the point of experimenting with some of that behavior early to get a sense of what will people react to, what are they missing that is inhibiting them to just want to fill out or answer certain questions.

You really gain a lot from that knowledge and you can actually see that reaction just like social networking does today, to how people are reacting in what districts, how they are reacting to certain questions and the like. So I think it is an opportunity to just think a little bit out of the box in terms of what the Internet could bring from that perspective.

Senator CARPER. Thanks. Dr. Reamer, did you want to add something?

Mr. REAMER. Yes. The ACS is facing a start-up challenge now because it is being sent to homes in the absence of any to-do about a decennial census. People have received a long form since 1960, but it was always preceded by a Presidential proclamation, that it is everyone's duty to fill out the form. So, when people got it, it was, Oh, geez, I got the long form. One out of six households got the long form.

Now, people are getting an American Community Survey and they do not have enough context. So it is easy to be fearful, it is easy to lack understanding, it is easy to have concerns because there is no infrastructure—informational infrastructure around it. One of the challenges of the Census Bureau is to build up recogni-

tion and trust and information and familiarity with the American Community Survey.

Actually, the Census has faced this issue before, in the 1790 census. All right? There was an argument in Congress—not argument—debate about a concern: Would people fill out the census form, because the Nation had never done a national census before? Well, it turns out that people in the north, in what used to be the northern colonies, Massachusetts and New York, were comfortable with the census because as colonies, they had censuses before, but people in the south had never seen a census and there was more difficulty.

So it took a couple times for all the States to understand the value of the census, and in some ways, the ACS is facing the same situation that the original census did in 1790.

Senator CARPER. OK. Before we wrap up, you heard the first panel testify and then respond to questions and have some discussion among themselves with us, and we have had a little bit of that here. Anything you may add? I just like to ask for closing statements. Just maybe take a minute, if you would, something you would like to underline, emphasize, change, or just something you thought of. But I would welcome that. I really do not care who goes first. Dr. Baker, would you like to go first?

Mr. BAKER. Sure, I would be happy to. Thank you. I think the two things that stand out for me are a commitment to early planning, which I think is evidenced in the recent actions of the Bureau, so I would want to reinforce that. And also reinforce the idea of a more flexible, adaptive planning and operational set of processes that are enabled by existing technology, but that are really driven by the desire for accurate information.

And so, balancing the use of technology and the gaining of statistically valid information, I think, really has to go in the direction of that process to be successful in the world that we live in today, and those two points, I think, are worthy of a take-home message.

Senator CARPER. OK, good. Thanks. Dr. Reamer.

Mr. REAMER. Yeah. Two things. One is, in looking back over Congress's discussions about data collection in the 18th and 19th Centuries, I was struck by the passion that these Members of Congress had about data collection, because it was so difficult to do. And they just kept trying and trying, both on the demographic side and the economic side.

And finally, by the end of the 19th Century, they had figured a lot of things out, the Executive Branch did, and I am struck by the difference between that and the lack of passion—

Senator CARPER. The what?

Mr. REAMER. A lack of passion, to a large degree, about some Members of recent Congresses regarding data, because data have become like the plumbing. There is, I think, a great under-appreciation of the value of data, of the teeny amount of money it costs the Federal Government to collect data that have orders of—uses valued at orders of magnitude beyond the original cost. You could not run the country without the decennial census.

So, for instance, Mr. Webster, who introduced the amendment to prohibit carrying out the ACS, oversaw the redistricting process in Florida when he was Senate Majority Leader there, and set up an

open process for people to go online, My Redistricting, and you could use software to draw districts in Florida.

Well, guess what those data are based on? The American Community Survey. Because you need the ACS for the citizenship data to be compliant with the Voting Rights Act. And then the—so, that is an example. I think Mr. Webster does not really understand the extent to which the ACS data are necessary.

The second point is this. The Census Bureau—we were talking culture in the first panel, about the culture of the Census Bureau—and for decades, the culture of most Federal statistical agencies was one of production shops. Right? It was their job to just produce the data. Experts, the Council of Economic Advisors, Congress in developing formulas for allocation, they would use the data.

It was not the Census Bureau's role to figure out how the data should be used or even whether the data should be collected. That has changed. Right? With the Internet, all of a sudden all these data are accessible and 20 years ago for me to look at census data, I had to go to a Federal depository library. Right?

Now it is instantaneous. It has been instantaneous for 15 years, but the Census Bureau is delivering data in a way—there are parts of the Census Bureau culture—that don't understand that the Census Bureau has spun off as an independent organization. Parts of the Census Bureau still think they are a back-office shop.

I think one of the great accomplishments of Dr. Groves has been to have the Census Bureau recognize that it is in business. It has customers. It needs to understand what its customers are looking for in terms of data, customers including Congress, but the public as well. And to have a back and forth, have a relationship with the users. This historically has not been the case because historically it was very difficult to do. So I think in this day and age, it is necessary for that cultural change.

Senator CARPER. Something you just said. A question I often ask myself, even in government, who is our customer? And in thinking of the Census Bureau, the customers are obviously businesses, they are State and local governments that are involved in redistricting, and there are variety of others. But in a way, the customers are the people who are going to be filling out the surveys, because if they do not provide the information in a timely and accurate way, then what is being provided to the other customers that we have alluded to is not going to be as valuable. Dr. Providakes, last word?

Mr. PROVIDAKES. I do want to echo the whole data topic and what I said the two key elements are, one of them being engineering a data rich ecosystem. I can just imagine by 2020 such an opportunity here looking at how do you understand and interconnect these various data sources which exist today, particularly at the administrative data sources, and engineering that construct, how you would use it for the 2020, I think, is an important imperative for the census and for broader government as a whole.

Second, there has been this theme about how do you capitalize on technology? I think from a government perspective, which is not unique to Census, is how does an organization or a department become a smart buyer of technology. That is where the real challenge is. So getting a handle on what does that mean? It is getting smart.

I mentioned earlier it is about getting a handle on what is your technical baseline, what are you trying to do to find those requirements to some degree so industry can best respond and even partner with you as you are thinking through conceptually what that technical baseline will look like going into the future?

And then finally a third, which is the organization. In my experience with Census through the 2010, I have to agree with the previous speakers that there has been a sea state change in terms of an organization being very transparent. So when I alluded earlier of empowering organizations to have more accountability of the life cycle and making decisions, I think that goes hand in hand with greater transparency.

If Congress decides, OK, I am going to give you guys more leeway, that means you have got to provide greater transparency. So there is an opportunity here. It is a two-way street between accountability and transparency. When you talk about organizations and government which I have seen are exceptional, and I see Census moving down that way in terms of leadership, particularly with the current leadership in place, I think what I see that they fundamentally have instilled is what I call a learning organization.

I see a substantial shift in Census being a learning organization. And when organizations are in that State of learning, I think that is where you find the greatest innovation. I think you find people having a better sense of purpose. They are willing to take risks. They are willing to be uncomfortable, because you learn the most when you are most uncomfortable, and I think the leadership is pushing the organization to be uncomfortable, to think outside the box, and I think that is very positive, particularly for the challenges for the 2020.

Senator CARPER. Thank you. Velvet handed me another question. I am not going to ask for you to respond right now, but I just want to—Dr. Reamer, you talked a little bit about partnerships, I think in one of your earlier comments, but I will ask you all to respond for the record to this question and that is, can you describe the value of the partnership program and assess its overall effectiveness in ensuring full participation of hard-to-count groups? And what should Census do in 2020 to keep stakeholders better informed? And we will provide that in writing.

Appreciate you to kind of amplify, build on what you have said earlier. And for other witnesses, if you would like to respond, that would be great. It would help me. In terms of how long our colleagues have to submit any questions that they have, 2 weeks. All right. Two weeks. I can think of a lot by then.

We would just ask as you receive those questions from Dr. Coburn and myself or Senator Brown, or from others, that you respond in a timely and prompt way. It has been a most informative hearing. Not one where people are actually beating down the doors to get in, Members or the press, but I think it is just really a very important, very important subject and an important point, timely point to ask, have this kind of hearing, and we appreciate you making it a real beneficial one.

I think it was largely Dr. Coburn's idea, but one I readily joined in, in saying let us do that. So with that having been said, we thank you all for your testimony. Sitting here, I can envision like

the clouds darkening outside. If it does not rain tonight, we have missed a great opportunity here. So hopefully it will because we could sure use all that. Obviously it is not just God playing a trick on us in getting our hopes up and then saying, Ah. Like in a Charlie Brown cartoon where Lucy pulls the football away. So hopefully that is not going to be the case here.

Thank you all. It was a great hearing. We appreciate very much your participation. With that, we are adjourned.[Whereupon, at 5:11 p.m., the hearing was adjourned.]

APPENDIX

Opening Statement –Senator Carper

This hearing will come to order.

Today's hearing will examine lessons learned from the 2010 Census while identifying initiatives that show promise for producing an even more accurate and cost-effective census in 2020.

I would like to begin by thanking Dr. Groves for his commitment to public service and his willingness to help the Bureau navigate through such challenging times. I must admit the news of his decision to leave his post of Census Bureau Director is bitter sweet. When Dr. Groves came on board in 2009, the Census Bureau faced many challenges that threatened the success of the 2010 Census. Dr. Groves, along with his dedicated staff, confronted these challenges head on and through his impressive skill set and background in issues related to the Census and to statistics, he helped right the ship, ensuring the completion of the 2010 Census.

Under his leadership, the Bureau completed key operations on schedule, hired nearly 900,000 temporary workers, obtained an acceptable participation rate of seventy-four percent, and managed to report its population figures in time to support redistricting. The Bureau has also realigned its national field office structure and implemented key management reforms, reducing costs by an estimated $15 million to $18 million annually beginning in 2014. Three years after his arrival, Dr. Groves definitely leaves the Census Bureau in better shape than when he found it.

However, despite these achievements, the 2010 Census was the most expensive in the nation's history by far, even taking inflation into account. The total cost of decennial operations escalated from an initial estimate of $11.3 billion to around $13 billion. Even more disturbing is the fact that, with all the modern scientific improvements and technological advancements that have been made over the years, the framework for conducting the 2010 Census was based off of a model we first used in the 1970s.

Although the methodological basics of the census have remained the same over the past forty years, the cost of the census has decidedly not. The average cost per household was $97 in 2010, compared to $70 in 2000 and $16 in 1970. And I've been told that the total cost of the 2020 Census could rise to as much as $30 billion. This, in my view, is not acceptable. It's especially not acceptable at a time when we're struggling to find solutions to the serious deficit and debt crises our country is currently facing.

I've spoken at previous hearings about the need for us to look in every nook and cranny of the federal government and ask this question, "Is it possible to get better results for less money?"

The hard truth is that many programs' funding levels will need to be reduced. Even some of the most popular and necessary programs out there will likely need to do more with less. The Census Bureau, despite the vital and constitutionally-mandated nature of its work, cannot be immune from this sort of examination.

Today, we will look at the Bureau's planning efforts for the 2020 decennial. Although it's eight years away, it's never too early to start to think about ways to reduce costs and improve quality

through more efficient data collection. More importantly, we need to make certain that the issues that lead to the failures and cost overruns we saw the last time around have been addressed and will not reoccur. Taxpayers should not be expected to pick up the tab for them again.

Looking ahead, the Bureau's research should focus on how existing technology can be incorporated into the 2020 design. Obviously, the internet is here to stay and, according to experts, an internet response option could have saved the Bureau tens of millions of dollars in processing costs in 2010.

Future research should not only focus on how to implement internet data collection, but also on how to reap the benefits – financial and otherwise – of it and other technologies the next time around. We also need to make certain that the people who make up our growing and changing country are comfortable enough with the security of the data collection methods we use to allow for an accurate census.

Moreover, steady leadership will also be critical in reversing a trend of decennial censuses marked by poor planning and escalating costs. The 2010 Census experienced several changes in leadership and vast spans of time with acting or interim Directors, further putting the operation at risk. In the 27 months leading up to Census Day, the Bureau had three different Directors.

Dr. Groves undoubtedly leaves some very big shoes to fill, but it is imperative that we get someone just as good in place as soon as possible so that we can avoid the operational and management challenges that plagued prior decennials.

I look forward to hearing from our witnesses today, who will help us to identify ways to best balance the need for an accurate census, with the need to ensure a reasonable cost for this endeavor.

Now, I'd like to turn to Senator Brown for any comments he would like to make.

Opening Statement by Senator Scott P. Brown

July 18th, 2012

Subcommittee on Federal Financial Management, Government Information, Federal Services, and International Security

U.S. Senate Homeland Security & Governmental Affairs Committee

"Census: Planning Ahead for 2020"

The decennial census due to its size is probably the most schedule-driven project mounted by the federal government. The Census is a vital undertaking. The results are used to apportion seats to the House of Representatives, redistricting and to determine the annual distribution of billions of dollars in federal and state funds.

The results of the 2010 Census were both encouraging and discouraging. It's encouraging that as our population has expanded to become more diverse and that the Census Bureau achieved a high degree of accuracy in the 2010 count. The discouraging news is that the cost of the 2010 count exploded from $8.2 Billion in 2000 to $12.8 Billion in constant 2010 dollars. We simply cannot afford to repeat this growth in cost. As I have learned in my brief tenure here, we simply cannot continue to do things the way we always have and expect a different result.

For the most part, the basic model of conducting the Census has not changed since the 1970 Census, including relying on the mailout and mailback of Census

questionnaires. As last year's hearing revealed the Census Bureau must innovate and bring the Census into the 21st century. I am encouraged that Director Groves has recognized this need to change the Census and has begun many reforms aimed at reducing costs while maintaining quality. For example, I look forward to filling out my 2020 questionnaire on the internet. With Director Groves pending departure it becomes more imperative than ever that these reforms become institutionalized into the 2020 Census effort.

I also want to voice my support for the continuation of the American Community Survey (ACS). The ACS is our country's only source of micro area estimates on social and demographic characteristics. The ACS Survey is critical to many businesses like AIR Worldwide of Boston which founded the catastrophe modeling industry in 1987 and utilizes the ACS survey in development of catastrophe modeling. Eliminating the ACS survey would be shortsighted and hinder the ability of the Census Bureau to achieve efficiencies in the 2020 Census.

This is the second hearing this Subcommittee has had on the Census this session and I want to emphasize the importance of Congress maintaining vigilant oversight over the 2020 Census to ensure that reforms begun under Director Groves are successfully implemented. To accomplish this oversight we depend on the help of our oversight partners the GAO and the Commerce Inspector General, I would like to thank them for their excellent work on this topic and I look forward to all the witnesses' testimony.

PREPARED STATEMENT OF

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Census: Planning Ahead for 2020

Before the Subcommittee on Federal Financial Management, Government Information, Federal Services, and International Security

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I am pleased to appear before the committee and to discuss the future of the Census Bureau.

During my tenure as director, one of my greatest pleasures has been working closely with you, Chairman Carper, and with ranking member, Senator Brown, and especially, Senator Coburn. I thank you for your interest in and support for the work of the Census Bureau.

Below I review the 2010 Census evaluations to date, the Bureau's current efforts to increase efficiencies of processes and quality of its product, the current budget situation, and mid-term challenges that are relevant to the committee's oversight.

A. Retrospective on the 2010 Census

First, let me remind us all that at my nomination hearing in spring, 2009, most forecasts (OIG-19217, GAO 08 886T) warned that the 2010 Census was headed for disaster. That actually energized a whole group of people in the country who care about the Census Bureau as an institution. And that support clearly was related to my decision to take this position.

But it turned out that all of those predictions were wrong. The team that was assembled late in the decade to run the 2010 census was really much, much better than anyone knew at the time. They had organized things in a way that made for success. So I was the beneficiary of good things that were done before I arrived.

There were a variety of design decisions that created the success: the move to a short form led to higher response rates than in 2000; the replacement form sent to nonrespondents, although it generated a lot of grumbling, actually helped the return rate; and the bilingual form improved return rates for Latino households.

Recently, we announced the statistical evaluation of the census through the post-enumeration survey, the Coverage Measurement Program. And this showed that the 2010 census was one of the best (if not the best) censuses this country's ever seen. The results found that the 2010 Census had a net overcount of 0.01 percent, meaning about 36,000 people were overcounted in the census. This sample-based result, however, was not statistically different from zero. By way of comparison, the 2000 Census had an estimated net overcount of 0.49 percent and the 1990 Census had a net undercount of 1.61 percent. We recognize there are still some groups we have a harder time counting, for example, renters, young children, young adult males, blacks, Hispanics, and American Indians on reservations. Correspondingly, we tend to overcount owners of homes, older persons, females, and White non-Hispanics.

We returned nearly $2 billion dollars of taxpayer money and presented the key results before the deadline. All the glory for these accomplishments should go to the incredible public servants at the Census Bureau. The Bureau has demonstrated the competencies to be a modern, efficient organization.

In addition to apportionment and redistricting results, we have released a number of other major data products including demographic profiles which show data for age, sex, race, Hispanic or Latino origin, household, relationship, household type, group quarters population, housing occupancy, and housing tenure. They were released for each of the 50 states, the District of Columbia, and Puerto Rico, down to place/functioning minor civil divisions, as well as for the U.S., regions, divisions, and other areas that cross state boundaries.

Our 2010 Census Program for Evaluations and Experiments (CPEX) is progressing well, and with requested funding we expect to wrap it up on schedule in 2013. Results from the 2010 CPEX will greatly inform how the 2020 Census is designed, tested, and implemented. We expect to complete 75 of 100 planned reports by the end of September, and the rest in 2013, funding permitting.

We are in the middle of the 2010 Census Count Question Resolution (CQR) Program by which State, local and Tribal area elected officials may challenge their jurisdiction's 2010 Census counts. We offer this program because historically, there has been a small percentage of cases where an incorrect geographic boundary or coding of a housing unit was used to produce the official census population and housing counts for a local area. There may also be Census processing errors that need to be considered.

For the 2010 Census program, we have several important activities that need to be wrapped up in 2013: a) dissemination of the final 2010 Census data products, b) completion of the Census Program of Evaluations and Experiments (CPEX) crucial to 2020 planning, and 3) completion by September 2013 of the Count Question Resolution program.

B. The Census Bureau and Change

The stimulus for change at the Census Bureau comes from five external sources: 1) increasing difficulties gaining the public's participation in censuses and surveys; 2) increasing demand for timely, and small area social and economic statistics to help the country make key decisions; 3) new technologies that may make data collection more efficient; 4) new statistical methods of blending multiple data sources together; and 5) the real prospect of flat or declining budgets to do our work.

To adapt to these forces, we've tried to increase efficiencies and create new ways of doing our business.

B1. Restructuring and realigning key functions in the Census Bureau for efficiency.

Building a research and methodology directorate. With the approval of Congress, we have restructured the Census Bureau, adding a research and methodology directorate (the basic division of the Bureau), led by a rotating chief scientist from outside the Census Bureau on a 3-year Intergovernmental Personnel Act agreement. The purpose of the new directorate is to discover innovations in statistical operations that reduce cost. This group is working with other directorates to increase our use of modern statistical methods to produce more efficient statistics for small geographical units, greatly expanding the utility of our information products for communities throughout the nation. This group is leading our effort at intensive analytics on our data collection operations, building cross-agency capabilities of modern management by quantitative data.

Realigning the regional offices. We reduced the number of regional offices of the Census Bureau from 12 to 6, simultaneously modernizing the supervisory structure and software support systems. We now have 24-hour reporting of initial statistics during data collection, along with richer process tracking of the operations. We attempted to keep ties with local communities

by increasing the number of public outreach staff. All of these combined are saving money.

Using matrix organization to increase efficiencies in survey data collections. The Census Bureau provides survey data collection services for other Federal agencies, amounting to about 25% of its budget. Our clients face the same declining budget resources that we do. We have built cross-functional survey teams with technical and management resources to innovate and find efficiencies in our operations. Succeeding in this effort will benefit the budgets of these other agencies.

Consolidating IT development and operations. We have new leadership in the IT directorate and given it enterprise-wide authorities. Instead of building different IT systems that serve single directorates, whenever feasible, we are sharing services. We have a standard internet survey tool, that has been used by hundreds of thousands of Americans to reduce the burden of responding to surveys. We have utilized public cloud services for efficiencies in peak load demand for key statistical releases. We have consolidated data centers. We have virtualized our servers, building a private cloud environment, and storage systems to maximize usage of processing power and achieve economies of scale. We have committed to shared building block capabilities for internal collaboration tools, data base structures, and central software systems. We created a center for applied technology, which is increasing efficiencies in exploring the use of mobile computing for data collection and enterprise-wide tools of data processing. We have committed to computer systems that decouple the user device from any sensitive data, giving secure access to our private cloud through virtualization and expanding our telework capabilities without having to provide government-provided and purchased equipment.

Modernizing dissemination of statistical information. Through the new Center for New Media and Promotions, we have standardized the metadata structure of many of our statistics, and completed an application programming interface (API) that permits developers to build apps to access our statistics in new ways tailored to the needs of diverse audiences. Over the next several weeks, we will release our economic statistics app, running on diverse platforms, to provide mobile access to the latest economic statistics from the Census Bureau, Bureau of Economic Analysis, and the Bureau of Labor Statistics. More will come. We are simultaneously increasing the use of visualization tools in presenting our statistics, because that works for more audiences than reams of tables.

B2. Annual internal challenge grants for operational efficiencies.

We have instituted an annual challenge to our staff – write down your ideas to make us more efficient and, if they're meritorious, we'll do them. Hundreds of proposals come forward each year; they're voted on by all staff using a new intranet social media tool; business cases are written for the

best of them; and we implement the very best of the best. We've discovered that many of the ideas don't require any investment; they immediately produce savings, and we do them. Through this process we are attempting to build a culture of innovation, one that empowers each staff member to replace old, inefficient processes with modern, efficient ones.

B3. Building better statistics through new analysis

Just increasing efficiencies won't serve the American public's demand for better statistics. We're attempting innovations to produce more useful information.

Statistical modeling for small domain estimates. Every mayor, every community group, every small business wants to know the statistical characteristics of small groups. These may be a neighborhood in a city, a set of potential consumers with common characteristics, or a set of businesses in a certain industry. They want timely information – knowing what a group looked like two years ago is generally of little value in our fast paced society. We have launched a team devoted to using modern statistical modeling tools to produce more timely, small group estimates that our country needs. These require blending together data sets to produce new information; we can do this *without* launching expensive new data collection operations.

Combining data resources within Census Bureau firewalls. We have matched together data sets that then produce new information. For example, we have linked data on businesses to administrative and other data on their employees. This produces statistics on commuting patterns to work, and changes in the composition of growing and declining businesses. Once again, this new statistical information is created *without* creating expensive new data collections.

Partnerships with external scientific talent. The Census Bureau can never possess all the talent it needs to build its future. Through collaboration with the National Science Foundation, we have established a network of university research teams working on inventing new solutions to key statistical, geographical, and computing problems we face. These nodes will also act as a graduate student pipeline for new technical talent the Bureau needs to solve its problems. We hope the best of them will work at the Bureau.

Challenge grants to seek solutions from external talent. We plan to launch our first public challenge grant to produce statistical models predicting the patterns of participation in our demographic surveys and censuses. This will call on the collective statistical talent of the US to help us learn how best to identify areas and subpopulations that require new solutions for data acquisition.

C. An Example of the New Way of Doing Business – the 2020 Census Planning Effort

The Census Bureau recognizes that the rising cost of the decennial census in recent decades cannot be sustained. The cost of the 2010 Census (which includes the American Community Survey or ACS) represented a 38 percent increase in the cost per housing unit over Census 2000 costs, which in turn represented a 76 percent increase over 1990 Census costs. If the Census Bureau makes no changes to the design of the decennial census, projected costs for the 2020 Census will increase at a similar rate. This is untenable.

We must find a way to maintain the quality of data produced by the decennial census while increasing efficiency and controlling costs. Accordingly, we have embarked on a research and testing program focused on major innovations to the design of the census oriented around the major cost drivers of the 2010 Census.

In restructuring the Bureau, we invented a new but small 2020 directorate charged with implementing new ways of planning the Census. As the design for 2020 becomes clear, the directorate will define its internal structure not to replicate the past but to tailor its organization to the needs of the next census. As the new structure grows, it will replace the old 2010 decennial directorate. And because we launched the 2020 research and testing program after we launched the organizational changes just listed, it will take advantage of their impacts.

Enterprise-wide synergies inform the 2020 planning effort. As a measure of our devotion to reducing the "siloed" inefficiencies, we have created an executive-level steering committee that directs cross-directorate collaboration in the planning. This permits, for example, the implementation of the method by which the IT directorate will facilitate enterprise-level systems, avoiding the 2010 experience of building one-use decennial-only systems.

We have restructured the research teams, making them smaller and more nimble. This will make the planning effort more efficient.

We have explicitly targeted cost efficiency as a key attribute for developments.

We are using many, small tests to evaluate alternative ideas rather than a very small number of very large tests.

C1. Key design features

There are key design features that we are working toward:

Targeted Address Canvassing. In the 2010 Census, the Census Bureau mounted a substantial operation late in the decade to update the Master

Address File (MAF) and the associated mapping system we call TIGER (topologically integrated geographic encoding and referencing) used as the basis of the census. While the Census Bureau took the important step last decade of bringing TIGER into GPS alignment, we still conducted the decennial operation called address canvassing. During address canvassing, staff in the field walked almost every street in the Nation to ensure that we captured every housing unit in the correct geography. This was one of the more expensive components of the census.

Updating the MAF/TIGER system continually throughout the decade will enable us to reduce costs by targeting our canvassing efforts. This ongoing update also will benefit other census programs, including the ACS, other current surveys, and the Population Estimates program. Congress already has provided support for this ongoing initiative by appropriating funds for the Geographic Support System (GSS) in FY 2011 and FY 2012. The initiative supports ongoing geographic partnership efforts with federal, state, and tribal governments, as well as commercial entities, so that the Census Bureau can acquire the most up-to-date address and mapping information available.

Multiple Mode Response Options. The population is increasingly diverse, and the general public's willingness to participate in government surveys has declined in recent decades. Traditional procedures that offer the public only one way to provide us with their data, and then follow up in person with households that do not respond to the census, are inefficient.

The vast majority of costs during the collection phase come from following up with households that failed to return their census questionnaires. The 2020 Census will be a "multiple-mode" census, using mail, telephone, internet, face-to-face interviews, and other electronic response options that may emerge to ensure that diverse subgroups of the population, including those that speak languages other than English, have every opportunity to submit their information.

We also must fundamentally redesign the operations we use to enumerate households that do not initially provide their information to us. These operations, collectively referred to as non-response follow-up (NRFU), used a massive national infrastructure to manage hundreds of thousands of interviewers. This is the most expensive component of the decennial census. The Census Bureau must explore using existing data sources like the ACS and administrative records to obtain data about those households that do not otherwise respond to the census. Using administrative records for a substantial number of non-respondents could result in substantially smaller field and labor infrastructure, thereby saving billions of dollars. We can also save money by modernizing the Information Technology (IT) and field support infrastructure.

Increased Program Management and Systems Engineering Efforts Early in the Decade. Based on lessons learned, there were areas of program management that have potential for improvement. More robust models could have been developed for use in cost estimation. Project plans and schedules could have been formulated earlier in the program development process that included a decision matrix for determining the most effective utilization of evidence from research and testing. Moreover, the Census Bureau needed to take an enterprise approach for linking major acquisitions, schedule, and budget. The 2010 cycle experienced: (1) premature cutoffs for several design components, precluding technology upgrades; (2) a large mid-decade technology acquisition; and (3) a few very large field tests. These factors and others led to major, expensive design changes late in the decade, including the implementation of two high-risk contingencies—moving to a paper-based non-response follow-up operation and the last minute development of an operational control system for non-response operations.

To achieve the goals of the 2020 Census, the program's budget, schedule, and scope are being integrated, and an iterative process is being put in place that will allow flexibility in planning and design. The goal of this extensive up-front effort is to hold down costs later in the decade without compromising quality.

The Census Bureau will adopt a new approach to budget, schedule, and scope. Initial 2020 Census planning began in FY 2011 with preliminary analysis and discussions of operational design and program management options. We now have entered a 3-year phase for the FY 2012-2014 budget period. During this phase, we are conducting the initial research and planning that will lead to the major design decisions for the 2020 Census. In later phases of the 2020 Census lifecycle, particularly during the FY 2015-2018 period, we will continue efforts to research, test, and refine specific components of the program that follow from the major design decisions. During this second phase, we also will focus on operational development and system testing of the various components of the program. In FY 2019-2021, we will move into readiness testing and executing the census. An increasingly more informed approach will enable decisions to be made based on continually increasing information and analysis. We will be able to develop cost estimates that are adjusted annually and synchronized with the schedule, requirements, and scope of the 2020 Census program as the design matures in keeping with the objective for controlling costs.

The bottom line is that the more we can innovate, the more we can contain costs without sacrificing the high quality census that the country requires.

This final point is important, and speaks to the direction from the Congress that the Census Bureau should discuss "challenges the Bureau anticipates that could prevent it from staying below the 2010 or even the 2000 spending level." The Census Bureau is tasked with producing the most accurate data

possible in every census, including the 2020 Census. However, obtaining a complete and accurate census every ten years becomes more complex and difficult with each successive cycle. For the 2020 Census, a larger, more diverse population will be more difficult and expensive to count. While we can reduce costs considerably by utilizing advances in technology and innovations in the design of the decennial census as described in these documents, there is a point at which reducing costs could lead to a reduction in the quality of census data. The 2020 research and testing program will help us gain a better understanding of the extent to which we can contain costs without sacrificing coverage and data quality.

C2. The mixed mode data collection system

As an example of our new way of doing business, we are building an enterprise-wide system for collecting and processing survey and census data. This one system will replace multiple systems now in use, each requiring maintenance and upgrade costs each year. We plan to use the system for the American Community Survey, the 2017 Economic Census, the 2020 decennial Census, and many of our ongoing surveys. Of special relevance to the 2020 Census, it guarantees that the decennial will not be forced to use core systems for the first time.

It will have the capabilities of ingesting sample identification data linked to administrative data or aggregate statistics informative of the likelihood of the unit participating in different modes of data collection. Through a set of prespecified business rules it will assign cases to internet, paper, telephone, face-to-face, and other modes of data collection, optimizing the cost and quality tradeoffs inevitable in modern surveys and censuses. It will use prespecified quality-cost tradeoff thresholds, and real-time estimation on key statistics in order to determine when the data collection efforts should optimally stop.

As a measure of the new way of doing business, the team working on this is a small, cross-directorate, multi-disciplinary team, consisting of some of the best talent the Bureau has. This team will serve all directorates and will report to the key executive committee of the Bureau when cross-directorate conflicts arise. It has the full support of the director's office.

Through such an effort we attain real benefits of 1) risk reduction for the 2020 system development; 2) shared system development to all directorates; 3) cross-directorate innovation diffusion; and 4) cheaper operating costs.

D. The Census Bureau Budget

Our country faces important Federal government funding challenges. On the Census Bureau's part, we have been striving to cut administrative costs, reengineer our survey processes, and find innovative ways to squeeze every cent of taxpayer money we get. This is an important duty, I believe, we have

as public servants, and I am proud of the hard work of my Census Bureau colleagues on this score. It is also my duty to inform the country of the impact of budgets on the scope and quality of the nonpartisan statistical information the Census Bureau provides.

The FY 2013 House Appropriations Bill has the effect of cutting the President's Budget request by $358 million or 37 percent and preventing implementation of core Census activities. The House bill lacks adequate funding to conduct the Economic Census, which measures the health of our economy. Moreover, due to a floor amendment, it does not permit spending for the American Community Survey, which produces the social and demographic information that monitors the impact of economic trends on communities throughout the country. In addition, the cuts will halt crucial development of ways to save money on the next decennial census and it eliminate many of the remaining 2010 Census data products and evaluation reports. It severely damages our efforts to build a cheaper 2020 census. In the last three years, the Census Bureau has reacted to budget and technological challenges by mounting aggressive operational efficiency programs to make these key statistical cornerstones of the country more cost efficient. Eliminating them halts progress to build 21st century statistical tools through those innovations. This bill, if enacted, will devastate the nation's statistical information about the status of the economy and the larger society.

D1. The American Community Survey

The ACS is our country's only source of small area estimates on social and demographic characteristics. Manufacturers and service sector firms use ACS to identify the income, education, and occupational skills of consumers and employees in the local product and labor markets they serve. Retail businesses use ACS to understand the characteristics of the neighborhoods in which they locate their stores. Homebuilders and realtors understand the housing characteristics and the markets in their communities. Local communities use ACS to choose locations for new schools, hospitals, and fire stations. There is no private sector substitute for ACS small area estimates. The prohibition for spending money on the ACS would have devastating consequences on what the United States businesses and communities know about their markets and socioeconomic conditions.

Even if the funding problems were solved in the proposed budget, the House bill also bans enforcement of the mandatory nature of participation in the ACS.

Concerns of intrusiveness regarding ACS. First, we take seriously all concerns expressed by our respondents. Some feel that the questions in ACS are intrusive. I understand that without knowledge of the benefits to the respondent's local community or the nation as a whole, the questions asked on the ACS would seem unusual and unnecessarily intrusive. We have

found that once people's concerns are addressed, they tend to participate in the ACS. In fact, over 97% of the households in the ACS sample participate in the survey.

Our research shows that having a message about the mandatory nature of the survey acts to convey the importance of the survey to the respondent. Rather than tossing out the letter, the mandatory nature leads to people opening the envelope to entertain the request. These census questions have been mandatory for the sampled units for over 70 years, since the long form of the census was formed. Individual actions that produce important common good results are often sanctioned by the central government: young men are required to register with the selective service; we are all required to reduce our auto speeds by posted speed limits; and we're not allowed to smoke on airplanes. So too the first Congress in 1789-90 decided that answering Census questions would be mandatory. They did this because of the importance of the information to the country.

We train interviewers to inform persons of the mandatory nature and to address their concerns about their participation. We offer to do the survey in separate pieces if they're pressed for time. We deliberately offer paper, telephone, and face to face interviewing, to fit the different lifestyles of the American public. We will add an internet option in January 2013

Impact of making ACS voluntary. At a recent House Joint Economic Committee hearing, it was noted that we get useful statistics from the Current Population Survey (CPS), yet it is a voluntary survey, so why not apply the same methods to make ACS voluntary. As a statistician, I know the purely technical response to this is that it probably could be done.

However, ACS was designed specifically as a different way to collect decennial census long-form sample. As part of the decennial census, our assumption from the beginning was that we were designing a mandatory survey. This had major implications for the survey design--e.g., we assumed it could start with a mailout/mailback mode because it was likely we'd get at least 50% response rate to a mandatory survey. A voluntary survey with this scope of content would likely have had such a low mail response rate as to make mailout/mailback impractical (not cost effective), which would have meant designing a survey for all personal visit interviewing (perhaps augmented with some telephone interviewing), as is done for the CPS. In short, a voluntary ACS achieving the same quality of estimates costs much more than the current design.

If we did have to design a voluntary ACS, given the expected reductions in response rates from the mail and Internet response options, we would need to increase the sample size for the survey in order to maintain current levels of reliability of the estimates. Working closely with House appropriations and authorizing staff, a test was conducted in 2003 to provide answers to key questions about a voluntary ACS. The ACS currently employs three

sequential modes of ACS data collection to maximize response and minimize cost: first mail, followed by telephone, and finally a sample of the unresolved cases are selected for personal visit. During the 2003 test, national cooperation rates fell across all three modes when the ACS was implemented as a voluntary survey.

The mail cooperation rate fell by over 20 percentage points. This decline has important consequences. Given the sequential design of mail, telephone and personal visit for the ACS, a lower response in earlier modes leads to higher workloads in the later more expensive modes.

Using the results of the 2003 test, and applying them to our current ACS sample size of 3.54 million addresses per year, we would expect that the telephone workload would increase by approximately 180,000 cases per year, and the personal visit workload would increase by approximately 219,000 cases per year, but the estimated number of completed interviews would actually decrease by approximately 320,000. Therefore, we would spend more money given the increased workloads, but the reliability of the survey estimates would decrease.

The design of the ACS seeks high rates of response by mail and telephone for two reasons. First, they are cheaper than personal visit follow-up activities. Specifically, based on the FY 2013 congressional submission of $242M, the cost per case in the mail workload is approximately $12.50, whereas it is $20.89 per case in the telephone workload and $149.57 per case in the personal visit workload. Second, the non-respondents after mail and telephone attempts are subsampled for personal visit follow-up, with inevitable loss of precision of the final estimates.

Although the logic above is correct, ACS is implementing an Internet response option in 2013, and the 2003 test provides no information about how a change to voluntary methods would impact response on the Internet.

If the ACS were to become a voluntary survey, the inter-related impacts on response, cost, sample size, and reliability would lead to the following options:

Option 1. Maintain the same reliability of estimates from a voluntary design. In order to preserve the current reliability of the survey estimates using voluntary methods, the initial sample size of the program would need to increase to compensate for the reduced overall number of addresses interviewed to approximately 4.25M addresses per year. Given the significant additional program funding required to support this (an increase of between $78 and $103 million based on the FY 2013 congressional submission of $242 million), it is not reasonable in the current budget climate to support this option.

Option 2. Maintain current costs by reducing the personal visit workload. Without any increase in funds, the workload of cases sampled for personal visit would need to be reduced from 1,031,000 to 660,000 cases per year. This would have a significant negative impact on the reliability of the survey estimates (between 25 and 28 percent reduction), and would also have a significant detrimental impact on survey estimates for population groups that tend to be included at higher proportions in personal visit operations, such as households speaking a language other than English, households in rural areas, and American Indians to name a few, which puts at risk the ACS' mission to provide high quality estimates for small population groups and small areas.

Option 3. Maintain current costs by reducing the initial sample size. In order to keep the cost of a voluntary ACS consistent with current funding levels, the initial sample size would need to be reduced to approximately 2.9M addresses per year and reduced funds to support the lower mail workload would be moved to support the increased workloads in the telephone and personal visit operations. This would result in a reduction in the reliability (between 20 and 22 percent reduction) of the survey estimates, still putting at risk the ACS' mission of providing estimates for small areas and small population groups.

Option 4. Maintain current sample size. Keeping the initial sample size at the current level of 3.54M addresses per year, the ACS would become more expensive as a voluntary survey (between $37 and $58 million increase), given the higher workloads for the more expensive modes. Despite the additional cost, we would still experience a reduction in the reliability of the survey estimates. The reduction in the reliability (between 10 and 12 percent reduction) would put at risk the ACS mission to provide estimates for small areas and small population groups, but would be less damaging than options 2 or 3.

Finally, we are in the middle of a full scale program review of the ACS, assisted by an expert panel of the National Academy of Sciences. This has generated new ideas of seeking input from the public about our data collection procedures. We are restructuring the process of evaluating what questions are asked in the ACS, assisted by an interagency group led by OMB. We have improved our tracking of respondent concerns in order to be quicker at any needed interventions in data collection activities. Our eventual success is dependent on our ability to convey the large benefits of the ACS information made possible only with the participation of the sampled persons.

D2. The Economic Census

The 2012 Economic Census provides comprehensive information on the health of over 25 million businesses and 1,100 industries. Done once every 5 years, it provides detailed industry and geographic source data for generating quarterly GDP estimates. The Economic Census is also the benchmark for measures of productivity, producer prices, and many of the nation's principal economic indicators. At this moment, we are poised to request the key data from individual firms. The internet infrastructure is nearing completion. We have already printed 7.5 million forms, and are preparing the October mailing. The House bill reduces Economic Census funding by $44 million or 29 percent. Cuts of this magnitude will force the Census Bureau to terminate the 2012 Economic Census.

Such an outcome would have negative consequences that include the following:

- Without benchmark data from the 2012 Economic Census, the quality of the U.S. National Accounts and their GDP measure would degrade progressively, rendering these key statistics less useful for gauging economic performance, making effective economic policy, promoting jobs, and guiding recovery from the Great Recession.
- The loss of business list updates and benchmarks from the 2012 Economic Census would lead to progressive degradation in the quality of estimates from monthly and quarterly surveys that track the business cycle and provide much of the source data behind quarterly GDP estimates.
- For similar reasons, there would be progressive degradation in producer price indexes, productivity indexes, and indexes of industrial production.
- Without uniquely detailed statistics on industries, geographic areas, products, the characteristics of business owners, and specialized subjects from the 2012 Economic Census, state and local governments, businesses, and the American public would be deprived of information that guides decisions on hiring, starting or expanding a business, developing new products, or opening new business locations.
- Cancelling the program now wastes $227 million already spent on preparatory activities.

Done every five years, the Economic Census program produces basic statistics on employment, payroll, dollar volume of business, and related content for nearly 1,100 industries, from anthracite mining to zoos, and nearly 15,000 geographic areas, from the nation as a whole to towns (for selected industry sectors, it also presents limited data for more than 41,000 ZIP Code areas). Economic Census statistics also provide details on business output for some 13,000 goods and services products, information on the characteristics of business owners, and many specialized measures, such as recently expanded data on franchising and employers' cost of

employee benefits. Additionally, new data for 2012 will highlight key characteristics of U.S. enterprises, including measures of globalization and innovation.

I have noted the Census Bureau's efforts to reduce administrative costs, re-engineer survey processes, and improve the operational efficiency of its programs. The Economic Census is no exception. This program's cost-saving measures include efforts to increase electronic response by offering web-based reporting for the first time; an improved data capture system that will incorporate optical character recognition for numeric data; use of the Postal Service's new Intelligent Mail Barcode to track report forms in the mail stream and optimize follow-up for businesses that are late in responding; targeted outreach to industries that are typically poor responders to reduce follow-up activities; and better data editing and review tools to reduce clerical and analytic intervention in the review of completed questionnaires.

D3. Implications on 2020 Census efforts of FY 2013 House Appropriations Bill

The House appropriations bill reduces the funding for 2020 Census activities by $51.6 million in FY2013. A cut of this magnitude seriously undermines efforts to reduce the cost of the 2020 Census by delaying or reducing the research and testing, and delaying the final design for the 2020 Census. The cuts to the Census budget by the House will result in the reduction of up to 150 permanent headquarters staff. Staff with knowledge of census operations drawn from their work on the 2010 Census will be lost. This cut will also minimize most of our contracts for technical expertise and services, and prevent us from contracting for people with skills and experience we do not have in house. Staff with technical skills, primarily in IT, that can only be gained from the private sector, will be lost as well.

Further, the detrimental effects of the proposed cut to the 2020 Census program is compounded by the proposed termination of the American Community Survey (ACS). The 2020 Research and Testing program plans to leverage the ACS as a test bed for the 2020 Census. If the ACS is not funded, a key underpinning of the 2020 research plan will be lost, increasing the cost of the 2020 Census, perhaps significantly so.

E. Near-term Challenges Facing the Census Bureau

Modern societies run on statistical information. Businesses, governments, nonprofit institutions, and, increasingly, households make their decisions only after seeking statistical information for relevant issues. In all other developed countries, a central government organization like the Census Bureau produces this information. In most other countries, the populace is asked to provide their own answers to survey and census questions, under strict confidentiality pledges, which are aggregated to produce the statistics that are freely given to all in the society. A key challenge for the Census

Bureau is to effectively demonstrate how these small intrusions for the public produce sufficiently valuable common good information for the society. We must "make our case" every day, to diverse subpopulations with diverse attitudes toward the Federal government.

The world of statistical information is changing at a rapid rate. A key challenge for the Census Bureau is to develop effective ways to adopt new technologies useful for data collection, as soon as possible after they prove their ability to offer efficient solutions. This will require nurturing the ties we have developed with university researchers and extending our ties with technology firms. The challenges are greatest with mobile computing technologies, new features of the internet, and new geographical information technologies.

The world of data is changing at a rapid rate. In this country the private sector is assembling vast data sets, describing characteristics of households and businesses. Some internet-based data and other "big data" sources are relevant to the statistical information that the Bureau produces. A challenge to the Census Bureau is developing access to these data sources and learning how best to combine them with traditional surveys and census data to improve our understanding of the society and the economy.

The world of statistics is changing at a rapid rate. Government statistical agencies must utilize new statistical modeling techniques that can enhance the quality of estimates by combining data sources. Every program in the Census Bureau can potentially benefit from such usage. We have built a core team that is identifying rich targets for such improvements. The challenge to the Census Bureau will be to gain access to auxiliary data from other Federal agencies that is needed in the models.

It is my fervent hope that the future oversight provided by this committee can facilitate the Census Bureau in meeting these challenges.

Testimony of

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U.S. DEPARTMENT OF COMMERCE

before the

Senate Committee on Homeland Security and Governmental Affairs

Subcommittee on Federal Financial Management, Government Information, Federal Services, and International Security

Wednesday, July 18, 2012

Census: Planning Ahead for 2020

Mr. Chairman, Ranking Member Brown, and Members of the Subcommittee:

Thank you for inviting us to testify today on lessons learned from the 2010 decennial and methods the Census Bureau could employ to design a cost effective and accurate enumeration in 2020.

The constitutionally mandated decennial census is perhaps the most schedule-driven project mounted by the federal government. Each decade the Census Bureau must enumerate the population in years ending in zero and deliver the results by December 31 to support apportionment of Congressional representation, a cornerstone of our democracy. My testimony today is informed by the oversight we have provided last decade to both the planning of the 2010 decennial and its execution.

As we look ahead, there can be no question that the 2020 decennial must incorporate bold approaches in order to achieve cost containment while maintaining or improving accuracy in enumerating an ever-growing and increasingly hard-to-count population. Since the 2010 decennial completed operations, we have issued reports that offer the Census Bureau and Congress recommendations with those goals in mind (see appendix for details). The next decennial calls for new design elements and meticulous planning and testing—along with unprecedented transparency on the part of the Bureau, including early and continuous engagement with key stakeholders.

While it seems that the 2010 decennial has just completed, we are rapidly approaching a critical decision point for the 2020 decennial, a point that must be engaged in a significantly more constrained budget environment. The critical juncture is that the Census Bureau must analyze the 2020 decennial design alternatives and make a design decision by the end of fiscal year (FY) 2014. We must pay attention now because, as Congress is discussing agency budget authorities for FY 2013, all federal agencies are developing their FY 2014 budget submissions. The Bureau's budget seeks to leverage its current survey operations with the research and testing of new decennial design options and drive critical decisions the Bureau makes in setting the cost trajectory for the next census.

The Census Bureau has vowed to contain costs of the 2020 decennial to an amount at a similar level to 2010. That is an important and admirable goal. However, last decade the Census Bureau made a similar vow: "Contain costs by conducting . . . a reengineered census for an amount that is less than the cost of repeating the methodology used in Census 2000." The life cycle cost of the 2000 decennial was $8.2 billion in constant 2010 dollars. The Bureau estimated in June 2003 that the cost of repeating the 2000 methodology in 2010 would be $12.2 billion. The final cost of the 2010 decennial was $12.8 billion. We simply cannot afford to repeat the cost growth experienced over prior decennials. Census must employ a new methodology.

Our testimony today will address three points: first, we will review some important challenges the 2010 decennial encountered. Next, we will detail some of the changes the Census Bureau and its stakeholders expect to improve the 2020 decennial. Finally, we will highlight key issues for the Bureau, the Department, and Congress to consider as the Bureau works to bring about these changes.

Congress must pay early and sustained attention to the Census Bureau's development of design alternatives, adaptation of strategy, and development of budgets to support the 2020 decennial. This attention includes monitoring program developments, developing any necessary legislation to enable a reengineered census, and support for early and mid-decade research and testing requirements. Without this attention and oversight, there will be significantly greater risk to the Bureau's ability to contain costs.

I. Long-Standing Challenges the 2010 Census Faced

The Census Bureau successfully completed decennial field operations in 2010. In May 2011, Census issued its assessment of decennial accuracy, which showed laudable results. The Bureau could even point to participation rate success that corresponded to cost savings: it had projected earlier in the decade that each 1 percent increase in the mail response rate would reduce the Bureau's costs by an estimated $85 million. It is generally accepted that the United States has been experiencing declining mail response due to decreasing public participation in surveys over the past 3 decades. The 2010 decennial nonetheless achieved a higher than expected participation rate of 75.8 percent (versus the planned 69 percent). The Department attributes the higher response to conducting the paid advertising campaign and public relations efforts as well as implementing a short-form-only questionnaire.

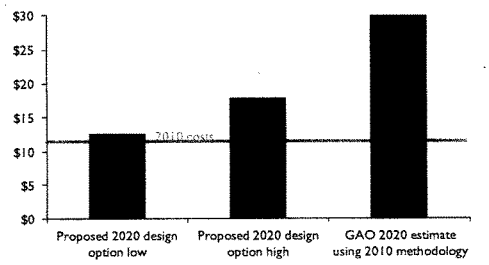
Despite these successes, the 2010 decennial carried with it a high cost and a level of risk that should not be repeated. Oversight bodies—including Congress, GAO, and OIG—held hearings

and issued reports that examined the costs and risks that the 2010 decennial incurred during its decade of planning and execution. At the request of Congress, we issued quarterly reports, including a final report in June 2011 that identified management challenges and included recommendations for the 2020 decennial. Some of the challenges OIG found most significant in our quarterly reports to Congress concerned:

- *Cost estimation;*
- *Data collection;*
- *Administrative records;*
- *An Internet response option;* and
- *Risk management.*

Cost estimation. Throughout the decade, the Census Bureau remained uncertain of what the 2010 decennial's total cost would ultimately be. With a life cycle cost estimate of more than $11 billion in 2003, the projection topped $14 billion in 2008 and ultimately totaled in excess of $12 billion as decennial operations concluded in 2010. The final cost was nearly twice the cost of the 2000 Census (nominal dollars)—due in part to a late-stage design change and higher-than-expected contractor costs. In recent history, the cost of the decennial census has roughly doubled during each cycle. In a December 2010 report, GAO estimated that using the 2010 decennial design in 2020 could end up costing up to $30 billion (see figure 1).

Figure 1. Projected 2020 Decennial Life Cycle Costs in Nominal Dollars (Billions)



Source: U.S. Census Bureau business plan; GAO reporting

Data collection. In preparation for the 2010 decennial, the Census Bureau tried to contain costs by automating the largest, most costly decennial operations through the use of handheld computers (HHCs). Unfortunately, it lacked the knowledge and experience to effectively manage the large, complex IT acquisition, greatly limiting the value of automated field data collection efforts. For one of the lengthiest, most cost-intensive operations

(nonresponse followup), the Bureau abandoned use of the HHCs and resorted to pencil-and-paper field data collection.

Administrative records. The Census Bureau used administrative records—information collected for the administration of programs and provision of services by federal, state, and local governments and commercial entities—to a very limited extent (e.g., United States Postal Service data) during the 2010 decennial. More extensive administrative records use could have reduced the cost of the nonresponse operations (which, at $2 billion, were the most costly of the 2010 decennial) and helped the Bureau avoid inaccurate enumerations.

An Internet response option. The Census Bureau offered an Internet response option in the 2000 decennial but did not publicize its availability. While it received only 65,000 unique electronic submissions, the Internet was deemed a viable response option. The Bureau did not, however, implement this option for the 2010 decennial; consequently, it relied primarily on paper-intensive operations, which were cumbersome, error-prone, and expensive.

Risk management. OIG quarterly reports on the 2010 decennial identified significant problems in project planning (e.g., not employing critical path management or thoroughly reviewing project start and end dates up front) and risk management (e.g., starting such activities late in the decennial life cycle and not completing contingency plans on time) that the Bureau needs to resolve to contain costs and maintain information quality for future decennials.

In May 2012, the Bureau issued its assessment of the quality of the 2010 counts. Currently, it is implementing an ambitious program to evaluate the design, methods, processes, and operations to build upon its past successes, while overcoming its shortcomings, as it plans the 2020 decennial.

II. The 2020 Census: A More Complete, Cost-Effective Enumeration Requires Fundamental Changes and Bold Approaches

First, the Census Bureau must make fundamental changes to the *design, cost estimation,* and *risk management* of the decennial census to obtain a quality count for a more reasonable cost. Decisions made during this decade's early years will be critical for setting the course for how well the 2020 count is performed and how much it will ultimately cost. Table 1 shows a high-level timetable of the 2020 decennial life cycle and the required deliverables. Failure to meet the deliverables imperils the schedule, which could drive up the costs of this decennial census as in 2010.

Table 1. 2020 Census Life Cycle and Corresponding Major Deliverables

FYs 2012–2014	FYs 2015–2018	FYs 2019–2023
Research and Testing	*Operational Development and Systems Testing*	*Readiness Testing, Execution, and Closeout*
Conduct research and testing and field tests	Develop and baseline operational requirements	Test systems readiness
Develop and baseline systems engineering processes	Conduct systems development and testing	Update frame address
Determine strategy for major acquisitions	Conduct operational and systems tests	Conduct enumeration activities
Determine and refine initial operational designs	Establish field infrastructure	Execute Census Day
	Final operational refinements	Deliver apportionment counts and redistricting data

Source: U.S. Census Bureau information

Design. As part of its effort to redesign the 2020 decennial, the Census Bureau has generated rough order of magnitude cost estimates for four preliminary design options, referred to by the Bureau as Design Alternatives 1, 2, 3, and 4, spanning the decennial life cycle of FYs 2012–2023.[1] Each of the four known design alternatives varies to the extent of address listing, mode of enumeration, and infrastructure setup. Table 2 (next page) provides a high-level summary of the differences among the different decennial design alternatives.

[1] There are two other design alternatives for which the Bureau has yet to generate cost estimates. Design Alternatives 5 and 6 rely heavily, or nearly exclusively, on the use of administrative records and include no address field operations. Testing involving these two options remains ongoing and the extent of their potential use is unknown.

Table 2. Comparison of Four Decennial Census Design Alternatives

	Design Alternative 1	Design Alternative 2	Design Alternative 3	Design Alternative 4
Address field operations	Full	Targeted		
Enumeration	Traditional (mail) and Internet	Multimode contact (e.g., phone, Internet, mail)	Visit households, then use administrative records	Use administrative records, then visit households
Infrastructure	Decentralized (many local census offices and modest IT improvements)		Hybrid (fewer local census offices and shared IT platforms)	

Source: U.S. Census Bureau

Design Alternative 1, the most expensive option, would cost a projected $17.8 billion and makes few changes to the 2010 decennial design. Design Alternative 4, the least expensive option at a projected cost of $12.6 billion, relies most heavily on new approaches (e.g., targeted field operations and administrative record use). The costs of the remaining two options fall between these figures. The Census Bureau bases these costs on assumptions that the American Community Survey (ACS) program will continue. With Congress debating the elimination of funding for this survey, which replaced the long-form questionnaire for the 2010 decennial, the Bureau must prepare to factor the significant uncertainty this would create into ACS planning and 2020 decennial designs.

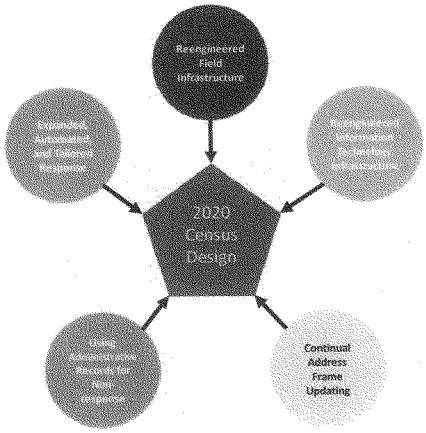
Cost estimation. The Census Bureau plans to update estimates annually to improve future budget requests. Per its decennial business plan, the Bureau will have a preliminary operational design by FY 2015 based on initial research and testing. From then on, the budget for 2020 decennial should provide more accurate estimates for the finalized design and associated costs. This is important because 71–80 percent of decennial costs, depending on the design, are incurred in the 3 years leading up to enumeration (FYs 2018–2020). If the Bureau is successful with its testing for a new design, the best-case scenario would be a 2020 decennial that ends up costing roughly the same as the 2010.

Risk management. In previous work, we recommended that risk management activities begin from the outset of the current decennial census life cycle, rather than just before field operations (which defined risk management for the 2010 effort). Similarly, a National Research Council report on redesigning the 2020 decennial encouraged planning for the next decennial to start early in the life cycle to ensure a more cost-effective design. For the next decennial, the Census Bureau should implement appropriate risk management from the outset and finalize contingency plans prior to the start of decennial operations.

Next, the upcoming decennial must incorporate bold approaches in order to achieve cost containment while maintaining or improving accuracy in enumerating an ever-growing and increasingly hard-to-count population. The Census Bureau has mapped these new directions with five major 2020 design research tracks (see figure 2, next page). Specifically, the Bureau is

considering strategies for reducing cost and increasing quality: automating *data collection*, reorganizing the *field infrastructure*, reengineering the *IT infrastructure* (including an Internet option), enhancing map quality through *continual address updating*, and using *administrative records*.

Figure 2. Five Major Research Tracks for the 2020 Census Design



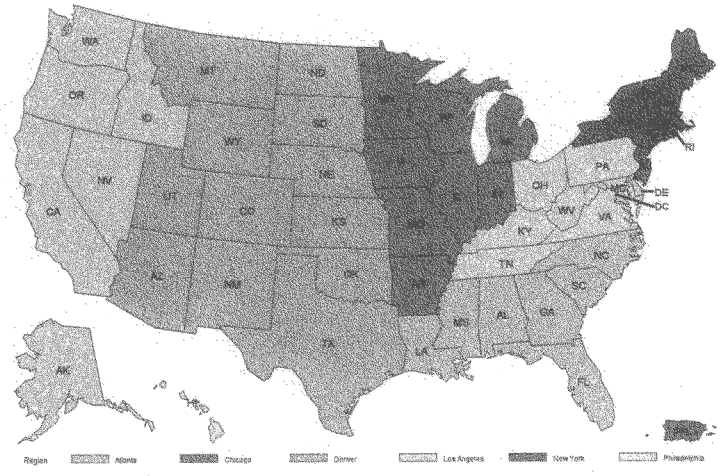
Source: U.S. Census Bureau

These design tracks are new to the 2020 decennial planning process. However, the impending departure of the Bureau's director puts these initiatives at risk, as they require strong leadership.

Data collection. Tailoring response options and automating data collection in the field could replace millions of paper forms and maps, and it remains a viable goal. To that end, the Census Bureau is launching a project to establish an adaptive design approach to conducting data collection faster and cheaper than the current prevailing survey philosophy, which strives for the highest response rate until time or money runs out. The "Adaptive Design" project creates a centralized, data-driven system that enables the Bureau to realize efficiencies in data collection, make knowledgeable tradeoffs between costs and errors, and to make better decisions on when to stop data collection efforts. However, in order to automate data collection in 2020, Census must improve its IT acquisition process early in the decade.

Field infrastructure. In June 2011, the Census Bureau announced a significant regional office restructuring. Marking the first such change since 1961, the Bureau expects to complete restructuring by January 1, 2013. The number of offices that manage nationwide surveys using thousands of permanent field representatives will decrease from 12 to 6 (see figure 3, next page).

Figure 3. Census Regions, Effective January 1, 2013



Source: U.S. Census Bureau

According to the Census Bureau, this reorganization aims to lower costs, improve efficiency, and increase responsiveness. The Bureau used objective criteria to select office closures and expects to save $15–18 million annually, starting in FY 2014, with few staff reductions. With the new 2020 decennial design still under development, it is unknown how these changes in the field will impact the Bureau's goal of containing the cost of the decennial census while preserving data quality.

IT infrastructure. The Census Bureau must improve its IT acquisition process early in the decade. To effectively implement a cost-effective and high-quality, redesigned data-collection operation for 2020, the Bureau must leverage emerging technologies. It is currently exploring the idea of a program similar to the U.S. Department of Defense's Venture Catalyst Initiative (DeVenCI).[2] Such an operation could increase the Bureau's awareness of emerging commercial technologies developed by nontraditional suppliers, as well as provide insight on census redesign needs and requirements to potential new suppliers.

The Internet is another tool that should reduce decennial IT costs. Statistical agencies in other countries, including Australia, Canada, New Zealand, and the United Kingdom, have employed the Internet to collect census data. An Internet response option would not be new to the United States either. The Bureau intends to provide an Internet response option

[2] According to the Department of Defense, DeVenCI fosters interaction among venture capitalists, small innovative companies, and potential Defense customers to identify and adopt emerging commercial technologies to meet Defense needs; see Department of Defense, *DeVenCI (Defense Venure Catalyst Initiative)*, http://devenci.dtic.mil.

in 2020 and as part of the ACS. Given the pervasiveness of the Internet and the public's ever-increasing reliance on it, we find it difficult to envision a 2020 Census without an Internet response option, albeit one that addresses IT security concerns.

Continual address updating. The Census Bureau describes "an accurate, comprehensive, and timely [address] list" as "one of the best predictors of a successful census." If the list is incomplete or inaccurate, people may be missed or counted more than once. Errors in the Bureau's master address file also increase the costs of nonresponse followup and other census operations. To reduce costs for the 2020 decennial—as we reported in May, the bureau spent nearly $1.4 billion in the decade preceding 2010 to produce the decennial census address list—the Bureau intends a continuous program of more robust updates of its maps and addresses database. A continuously updated, accurate database would improve the address lists and maps throughout the decade and support a less costly targeted address canvassing operation. To achieve this for 2020, the Bureau has introduced a $407 million initiative, called the Geographic Support System (GSS), to reduce costs. The Bureau also looks to gain enhanced address-list sharing capabilities with tribal, state, county, and local governments; this would bolster their Local Update of Census Addresses (LUCA) Program and the improvements it can make to the Bureau's address list.

Using administrative records. Greater use of administrative records offers the potential to enhance the decennial census in a number of important areas: from improving the master address file to finding households or individuals who may otherwise be missed to providing quality control for the enumeration process. These personal records contain information that individuals have already provided to the government, such as their names, addresses, age, sex, race, and a wide variety of demographic, socioeconomic, and housing information.

As indicated in the Census Bureau's 2020 business plan, supplementing decennial operations with information from these records could potentially reduce enumeration costs and help the Bureau avoid inaccurate enumerations in the following ways:

- Improving the address list;
- Supplying answers to questions with invalid or blank responses;
- Providing information for households that do not respond to the questionnaire, an in-person visit, or a phone interview;
- Offering quality control; and
- Helping assess overall decennial accuracy (i.e., coverage measurement).

However, relevant statutes governing other federal agencies do not facilitate the use of administrative records by the Census Bureau because these statutes either do not compel agencies to provide their records to the Bureau in response to requests or state that agencies are only required to provide certain information to the Bureau.

Finally, as we stated in our final 2010 decennial quarterly report to Congress, Census must implement a more effective decennial test program using the *American Community Survey (ACS)* as a test environment.

Background. ACS data are used in countless ways; its strength is in supplying a timely, consistent set of data, nationwide, across various levels of geography. The ACS provides:

- Annual statistics for all areas with populations greater than 65,000;
- 3-year estimates for all areas with populations greater than 20,000; and
- 5-year estimates for all areas.

Replacing the census long-form questionnaire with the ACS was a key goal of the 2010 decennial redesign. After eliminating the long-form questionnaire for 2010, the Census Bureau anticipated an improved 2010 response rate by featuring a short-form-only questionnaire. The ACS simplified the once-a-decade population and housing enumeration and provides the detailed demographic, housing, social, and economic characteristics throughout the decade in support of government programs, the business community, and the general public.

The ACS and testing for the 2020 decennial. Leading up to the 2010 decennial, the Census Bureau conducted three large site tests in 2004, 2006, and 2008. Although the Bureau scheduled its site tests at 2-year intervals, each one transpired over 3 years of planning, implementation, and evaluation—resulting in overlap with prior or subsequent tests. This overlap made it difficult for the Bureau to build on experiences and incorporate feedback from previous tests into the operational design it examined in the next test. For the 2020 decennial, the Bureau intends to implement smaller, focused research and testing.

The ACS infrastructure allows for the creation and testing of enterprise-wide solutions to obstacles that face all survey and decennial operations. In our final 2010 report, we suggested that the Census Bureau use the ACS to explore areas such as questionnaire content and design, response options (such as the Internet), use of administrative records, and targeted field data collection procedures and methodologies. According to the Bureau, Internet-response option tests have already produced useful results and will soon be implemented in the ACS. An ACS Internet response option that meets federal security standards would help the Bureau develop an IT infrastructure for its 2020 decennial program earlier in the decade. The cost and expense of building a secure Internet response option, for one-time decennial use, was cited by the Bureau as one reason for not using the Internet in 2010.

The ACS and a more efficient Census workforce. We have also suggested using the existing trained workforce, based primarily in the Census regions, for enhancing the 2020 decennial. This permanent workforce conducts other Census surveys such as the ACS on an ongoing basis. Using these workers to continuously update the maps and address list throughout the decade could reduce the size and improve the accuracy of the end-of-decade map and address updating operations.

By meeting these challenges, the Census Bureau and its stakeholders can maintain or improve on the quality of the 2020 decennial while containing cost.

III. Key Issues for the 2020 Decennial

The Census Bureau, the Department of Commerce, and Congress should take immediate action to lay the groundwork for a cost-effective 2020 decennial. We have identified the following key issues for consideration:

Departmental oversight of automated data collection. Departmental oversight should play a role: early in the process, it can reveal whether the Census Bureau has considered all reasonable project alternatives or if it is assuming too much risk. In this way, the Department can work with the Bureau to address problems before unnecessary costs accumulate. Supported by early independent cost estimates and independent assessments, its oversight can play a critical role in ensuring decennial IT investments stay on track.

Planning within a constrained Census budget. As research and testing continues, the Census Bureau must contend with and plan for several challenges that could adversely impact the next decennial. Like the rest of the federal government, it is operating in a constrained budget environment. In FY 2012, as a result of a reduction in its budget request for FY 2012, the Bureau canceled 20 of 109 studies that aimed to measure its performance in the 2010 decennial. The Bureau must be strategic in how it spends it available funding. And it must provide the Secretary and Congress reliable and transparent budget requests.

Continuity of leadership. Leadership continuity is essential to maintain momentum as planning progresses for the 2020 decennial. Absent stable, committed leadership, any organization tends to revert to its embedded culture. Because of the long planning cycle for the decennial, it is particularly critical that stable leadership chart the direction for the Census Bureau according to a consistent vision. A leadership void adds risk to the Bureau's management of critical issues (e.g., budget, operational design, and questionnaire content). Reverting to historical practices is a particular risk for the Bureau in the absence of strong leadership. It will be important to make the appointment of a new Director a priority.

Internet use and data-sharing. The Census Bureau is in the process of testing several design strategies for the 2020 decennial. In order to prepare for 2020, the Bureau must make a preliminary design decision by the end of FY 2014. Decisions made during the next 2 years will largely determine the cost and quality of the next decennial; thus, the Bureau must use the lessons learned from 2010 to guide its future decisions, and Congress may need to consider plans and legislation related to an Internet option and data-sharing to help achieve a cost-effective 2020 decennial census. For improving the address list through data sharing, the Bureau will need to look to Congress to address Title 13 restrictions on the Bureau reciprocating address information with the very partners who assist the Bureau. Specifically, while the Census Address List Improvement Act of 1994 helped by authorizing the LUCA program, further legislative action would help establish even better methods of two-way address sharing.

Administrative records use. The Census Bureau possesses appropriate authority to request and use administrative records from all government sources under 13 U.S.C. § 6, and the Privacy Act permits other agencies to disclose their records to the bureau. However, legislation governing other federal agencies either does not compel those

agencies to provide their records to the Bureau in response to requests or states that agencies are only required to provide certain information to the Bureau, limiting its usefulness. Congressional guidance on the disclosure and permitted uses of administrative records for the decennial census would be necessary to facilitate administrative records use by the Bureau.

The ACS and the 2020 decennial. Two recent developments may potentially impact both the ACS and the Census Bureau's decisions on decennial design, planning, and implementation.

First, Congress has initiated debate as to whether the ACS, which currently requires a response from each sampled household, should become voluntary. As part of its deliberations, Congress will consider the implications of making this a voluntary survey. Census Bureau research conducted in 2002 and 2003 indicated that a voluntary ACS would result in:

- Mail response rates falling by over 20 percentage points;
- Annual costs increases, by at least 38 percent, to achieve a comparable level of reliability; and
- Reduced data quality for areas of low response and small population groups (e.g., blacks, Hispanics, Asians, and American Indians).

The Census Bureau's concern about a lower response rate appears to be consistent with the recent results of the Canadian census. That country's 2011 census, which occurs every 5 years, shifted its long-form data collection from mandatory to voluntary—and experienced a 25 percent decline in its long-form questionnaire response rate.

Congress is also considering whether or not to completely eliminate funding for the ACS. As part of its deliberations, Congress will consider the implications that defunding the survey will have on the 2020 decennial, including:

- The replacement of a continuous nationwide testing process with discrete large-scale site tests, upon which the Census Bureau can determine a more cost-effective decennial design;
- The loss of a trained and experienced workforce, distributed across the nation to support decennial operations;
- The ability to establish an IT infrastructure to support an Internet response option that meets federal security standards; and
- The potential need to reinstate the long-form decennial questionnaire, currently not a factor in any design alternative.

Considering the Census Bureau's goal of maintaining the quality and containing the costs of the 2020 decennial, defunding the ACS would create significant uncertainty for decennial planning.

Appendix

2020 Decennial Recommendations to the Census Bureau Director from 2011 and 2012 OIG Reports

Recommendation	2020 Decennial Life Cycle Phase
Census 2010: Final Report to Congress (OIG-11-030-I; June 27, 2011)	
1. Conduct an analysis of the causes of the significant cost savings for 2010 field operations and incorporate those findings into any future validation studies to generate a more accurate final cost estimate.	Research and Testing
2. Obtain and use independent cost estimates to validate internally derived cost estimates (that include contingency reserves).	Research and Testing
3. Develop a transparent decision documentation strategy to account for 2020 census program and spending decisions.	Research and Testing
4. Improve the transparency of the decennial budget process, especially the presentation of surplus (or elimination of the surplus) as shown in the monthly financial management reports.	Research and Testing; Operational Development and Systems Testing; Readiness Testing, Execution, and Closeout
5. Reevaluate the practice of frontloading and develop a better process for developing workload and cost assumptions.	Operational Development and Systems Testing; Readiness Testing, Execution, and Closeout
6. Explore alternative approaches for conducting the 2020 Census that include (1) Internet and web-based response options, (2) automated field data collection alternatives, (3) utilizing administrative records, and (4) incorporating into the decennial process experienced field representatives who conduct nondecennial Census surveys each year.	Research and Testing; Operational Development and Systems Testing
7. Improve communication with the public on concurrent enumeration surveys and better inform people who did not receive decennial census forms at their homes how they might participate.	Research and Testing; Operational Development and Systems Testing
8. Increase the sample size of the American Community Survey (or other surveys) to use as a test environment for conducting smaller tests of new processes, procedures, and systems.	Research and Testing
9. Thoroughly review and improve decennial census training methods.	Research and Testing; Operational Development and Systems Testing
10. Explicitly address enumerator safety in collaboration with the Department, law enforcement agencies, and Congress.	Research and Testing; Operational Development and Systems Testing; Readiness Testing, Execution, and Closeout

Recommendation	2020 Decennial Life Cycle Phase
11. Regarding requirements management: a. Institutionalize effective requirements management processes that balance Census stakeholder needs and make appropriate cost, schedule, and performance tradeoffs; b. Ensure that major stakeholders fully participate throughout the entire acquisition process; and c. Maintain accurate cost estimates on cost reimbursement contracts to align them with identified requirements and subsequent changes.	Research and Testing; Operational Development and Systems Testing
12. Align system development schedules with operational deadlines to allow adequate time to test systems before their deployment.	Research and Testing
13. Continuously update the maps and address lists throughout the decade, supplementing these activities with targeted address canvassing at the end of the decade.	Research and Testing; Operational Development and Systems Testing
14. Review both address canvassing practices and post-data collection processing to minimize errors on the maps that support subsequent operations.	Research and Testing; Operational Development and Systems Testing
15. Develop acquisition lifecycle oversight procedures to manage project risk that correspond to government and industry best practices.	Research and Testing
16. Strengthen and implement a risk management strategy and relevant contingency plans before starting 2020 decennial census operations.	Research and Testing; Operational Development and Systems Testing; Readiness Testing, Execution, and Closeout
17. Develop a 2020 decennial lifecycle schedule early in the decade, finalizing the operational schedules as soon as practicable after research and testing are completed.	Research and Testing; Operational Development and Systems Testing; Readiness Testing, Execution, and Closeout
18. Regarding the partnership program and special enumeration operations: a. Improve advance coordination with partnership organizations, b. Ensure Partnership specialist skills are aligned with project requirements, c. Establish procedures to mitigate the risk of duplicate enumerations, and d. Institute a more effective process for selecting and confirming sites to enumerate.	Readiness Testing, Execution, and Closeout
19. a. Specify how to align Partnership activities and objectives with local Census office schedules to remedy current systemic shortcomings. b. Ensure joint Partnership- local Census office manager training as part of the decennial process. c. Refine the recruitment and hiring process and training of Partnership assistants. d. Provide Partnership assistants adequate electronic resources to do their job.	Readiness Testing, Execution, and Closeout

Recommendation	2020 Decennial Life Cycle Phase
2020 Census Planning: Delays with 2010 Census Research Studies May Adversely Impact the 2020 Decennial Census (OIG-12-023-I; April 5, 2012)	
1. Prioritize further the 2010 Census Program Evaluation and Experiments (CPEX) studies, and focus program resources, to ensure that the most critical studies affecting the cost and quality of the 2020 Census are completed.	Research and Testing
2. Improve the transparency of the 2010 CPEX program by posting study plans, expected publication dates for the 109 studies, and final reports online as soon as practicable so that stakeholders can review and monitor the Bureau's progress in redesigning the 2020 Census.	Research and Testing
High-Quality Maps and Accurate Addresses Are Needed to Achieve Census 2020 Cost-Saving Goals (OIG-12-024-I; May 10, 2012)	
1. Develop a master address file/topologically integrated geographic encoding and referencing system database (MTdb) measure for determining address list quality at a low level of geography that (a) provides a fair and equal opportunity for targeting selection, (b) drives selection and planning decisions, and (c) is well-documented and verifiable.	Research and Testing
2. Work with the Department to determine the feasibility of improving methods of sharing MTdb information throughout the decade with governmental entities (partners) to create a uniform, national address list.	Research and Testing; Operational Development and Systems Testing; Readiness Testing, Execution, and Closeout
3. Investigate and remedy the exclusion of 500,000 ungeocoded address records, which had been designated as valid U.S. Postal Service delivery addresses, from the 2010 census.	Research and Testing
4. Conduct the necessary research, develop a proven methodology, and allocate the necessary funds to continuously reduce the number of ungeocoded records throughout the decade.	Research and Testing; Operational Development and Systems Testing; Readiness Testing, Execution, and Closeout
5. Develop and implement quality indicator tools, including use of administrative records, to ensure that updates to the MAF are accurate.	Research and Testing

United States Government Accountability Office

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Testimony

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2020 CENSUS

Sustaining Current Reform Efforts Will Be Key to a More Cost-Effective Enumeration

Statement of Robert Goldenkoff
Director
Strategic Issues

GAO-12-905T

GAO
Accountability * Integrity * Reliability

Highlights

Highlights of GAO-12-905T, a testimony before the Subcommittee on Federal Financial Management, Government Information, Federal Services, and International Security, Committee on Homeland Security and Governmental Affairs, U.S. Senate

Why GAO Did This Study

Obtaining an accurate census in the face of societal trends such as increased privacy concerns and a more diverse population has greatly increased the cost of the census. At $13 billion, 2010 was the costliest census in U.S. history. Without changes, future enumerations could be fiscally unsustainable. GAO's past work noted that early planning, leading management practices, and strong congressional oversight, can help reduce the costs and risks of the enumeration. GAO also identified four key lessons learned from 2010 that could help secure a more cost-effective 2020 Census. The Bureau agreed and is taking steps to address them. As requested, this testimony focuses on the Bureau's progress on these lessons learned and what remains to be done going forward. It is based on GAO's completed work, including an analysis of Bureau documents, interviews with Bureau officials, and field observations of census operations in urban and rural locations across the country.

What GAO Recommends

GAO is not making new recommendations in this testimony, but past reports recommended that the Bureau strengthen its testing of key IT systems, develop policies and procedures for its cost estimates, and take actions to make 2020 Census planning more consistent with leading management practices. The Bureau generally agreed with GAO's findings and recommendations and is taking steps to implement them.

View GAO-12-905T or key components. For more information, contact Robert Goldenkoff at (202) 512-2757 or goldenkoffr@gao.gov.

July 18, 2012

2020 CENSUS

Sustaining Current Reform Efforts Will Be Key to a More Cost-Effective Enumeration

What GAO Found

Overall, the U.S. Census Bureau's (Bureau) planning efforts for 2020 are off to a good start, as the Bureau made noteworthy progress within each of the four lessons learned from the 2010 Census. Still, additional steps will be needed within each of the lessons learned in order to sustain those reforms.

1. Reexamine the nation's approach to taking the Census. The Bureau has used a similar approach to count most of the population for decades. However, the approach has not kept pace with changes to society. Moving forward, the Bureau has begun to rethink its approach to planning, testing, implementing, and monitoring the census. For example, the Bureau is researching how it can use administrative records, such as data from other government agencies, to locate and count people including nonrespondents. Use of administrative records could help reduce the cost of field operations, but data quality and access issues must first be resolved.

2. Assess and refine existing operations focusing on tailoring them to specific locations and population groups. The 2010 Census had several operations tailored to specific population groups or locales. For example, the Bureau mailed bilingual English/Spanish forms to some areas and sent a second questionnaire to areas with historically lower response rates. Preliminary evaluations show these targeted efforts contributed to an increased awareness of the census and higher mail-back response rates. For 2020, the Bureau is considering expanding these efforts. Designing future studies to better isolate the return on investment of key census operations would help the Bureau further target its operations to specific population groups and locations and potentially gain significant cost savings.

3. Institutionalize efforts to address high-risk areas. Focus areas for the Bureau include improving its ability to manage information technology (IT) investments and develop a reliable cost estimates. In January 2012, GAO reported that the Bureau did not have policies and procedures for developing the 2020 Census cost estimate. In moving forward, it will be important for the Bureau to improve its IT acquisition management policies and develop better guidance to produce more reliable cost estimates.

4. Ensure that the Bureau's management, culture, and business practices align with a cost-effective enumeration. In May 2012, GAO reported that the Bureau's early planning efforts for the 2020 Census were consistent with most leading practices for organizational transformation, long term planning, and strategic workforce planning. Nevertheless, GAO found that additional steps could be taken to build on these early efforts. For example, the Bureau's schedule does not include milestones for key decisions to support the transition between planning phases. These milestones are important and could help with later downstream planning.

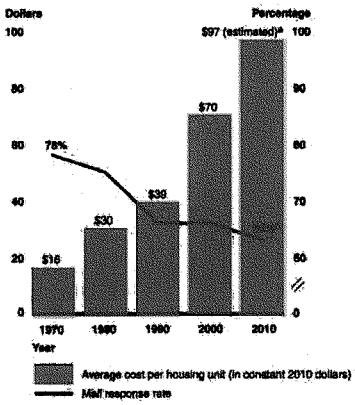
Chairman Carper, Ranking Member Brown, and Members of the Subcommittee:

I am pleased to be here today to provide a progress report on the U.S. Census Bureau's (Bureau) planning and reform initiatives for the 2020 Census. As you well know, the nation's population has been growing steadily larger, more diverse, increasingly difficult to count, and less willing to participate in the census. The bottom line is that securing an accurate count in the face of these trends has greatly raised the difficulty and cost of the enumeration. Unless changes to the census are made going forward, future headcounts could be fiscally unsustainable.

With a life-cycle cost of around $13 billion, the 2010 Census was the most expensive population count in U.S. history, costing over 50 percent more than the $8.1 billion 2000 Census (in constant 2010 dollars). While some cost growth is to be expected, in part because there are more people to count with each decennial, enumeration costs grew more than three times faster than the workload between 2000 and 2010 with a 39 percent increase in costs to count each housing unit compared to a 12 percent increase in workload. These trends do not bode well for future costs. Indeed, the Bureau estimates that if it used the same approach to count people in 2020 as it did in 2010, it would cost $151 to count each housing unit compared to 2010's $97 (assuming real costs grow at the same rate they did between 1990 and 2010).

Moreover, as shown in figure 1, while census costs have steadily increased since 1970, the mail response rate—a key performance measure because of its implications for both cost and accuracy—declined over this same period from 78 percent in 1970 to around 63 percent in 2010.

Figure 1: The Average Cost of Counting Each Housing Unit Escalated Each Decade While Mail Response Rates Declined



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

[a]The 2010 life cycle runs from 2002 through 2013, meaning that costs for the 2010 Census are not yet final.

[b]In the 2010 Census, the Bureau used only a short-form questionnaire. For this report, we use the 1990 and 2000 Census short-form mail response rate when comparing 1990, 2000, and 2010 mail-back response rates. Census short-form mail response rates are unavailable for 1970 and 1980, so we use the overall response rate for both the short- and long-form questionnaires.

In terms of quality, a post-census Bureau evaluation found that the 2010 Census generally accurately counted the total population of the country as well as each state. As in past enumerations, renters, young children, young adult males, Blacks, Hispanics, and American Indians on reservations were more likely to be undercounted, while home owners, older persons, females, and White non-Hispanics were more likely to be included more than once in the census. Moreover, despite some significant initial setbacks that raised the cost of the enumeration, the Bureau eventually developed workarounds to the challenges facing the 2010 Census and it was ultimately an operational success as the Bureau generally completed its peak census data collection activities consistent with its plans and released the state population counts used to apportion Congress on December 21, 2010, several days ahead of the legally mandated end-of-year deadline.

Mr. Chairman, these trends, facts, and figures all point to one simple fact: the basic design of the decennial census—mail-out and mail-back of the census form with in-person follow-up for nonrespondents (the same general approach the Bureau has used since 1970)—is no longer capable of a cost-effective enumeration. Thus, going forward, the singular challenge for Bureau officials will be balancing the need to control the cost of future enumerations with the need to assure their accuracy.

The Bureau is well aware of the need for reforms, and its business plan—which describes its efforts for the early research and testing phase of the 2020 Census—notes that the Bureau is committed to conducting a census that costs no more than the approximately $100 per housing unit that was spent on the 2010 Census, and has already developed six broad design alternatives for 2020. This is a noteworthy goal. However, fulfilling it will be an ambitious task as the Bureau's research and planning efforts over the next few years will take place in an uncertain environment owing to the extent and magnitude of the reforms being considered, budget constraints, and the planned August 2012 resignation of the current Bureau Director with the likelihood that it may be a number of months before a permanent replacement takes office.

When we last testified before this Subcommittee in April 2011, we discussed four lessons learned from the 2010 and earlier decennials that could help secure a more cost-effective enumeration in 2020.[1] They included:

1. reexamining the nation's approach to taking the census;
2. assessing and refining existing operations, tailoring them to specific locations and population groups;
3. institutionalizing efforts to address high-risk areas; and
4. ensuring that the Bureau's management, culture, and business practices align with a cost-effective enumeration.

The Bureau generally agreed with these lessons and is taking steps to address them. As requested, in my remarks today, I will focus on the Bureau's progress in each area and what remains to be done going forward. In summary, while the Bureau's preparations are off to a good start—as evidenced, for example, by its use of leading practices in such

[1]GAO, *2010 Census: Preliminary Lesson Learned Highlight the Need for Fundamental Reforms*, GAO-11-496T (Washington, D.C.: Apr. 6, 2011).

key management areas as organizational transformation, long-term project planning, and strategic workforce planning, moving forward, sustaining those efforts, focusing on priorities, winnowing down design options, and keeping the entire enterprise on-track—all within tight timeframes—will be a tremendous challenge. Furthermore, it will be important for Congress to hold the Bureau accountable for results through strong and continuing involvement in preparations for the 2020 Census, including weighing in on key Bureau decisions and providing the necessary funding.

My testimony today is based on our completed work related to key 2010 Census operations, on 2010 Census cost drivers and the 2020 life-cycle cost estimate, and the Bureau's planning efforts for 2020.[2] For this body of work, we analyzed key documents—such as budgets, plans, procedures, and guidance—for selected decennial activities; interviewed cognizant Bureau officials; reviewed existing leading practices for organizational transformation, long-term project planning, and workforce planning that we and other organizations have previously developed; and identified leading practices that are most relevant to the Bureau's early planning for the 2020 Census.

Additionally, for our work on 2010 operations, we made on-site observations of key census-taking activities across the country including such urban locations as Los Angeles, California; Atlanta, Georgia; Brooklyn, New York; Philadelphia, Pennsylvania; New Orleans, Louisiana; and Washington, D.C.; as well as such less populated areas as Meridian, Mississippi, and New Castle, Delaware. We selected these locations because of their geographic and demographic diversity, among other factors. More detail on our scope and methodology is provided in each of our issued products.

On June 29, 2012, we provided the Bureau with a statement of facts related to the information included in this statement, and Bureau officials provided technical comments, which we included as appropriate. The work on which this statement is based was conducted in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions

[2]See related GAO products at the end of this statement.

based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Background

At first glance, it might seem premature to discuss preparations for the decennial census; after all, Census Day, April 1, 2020, is still almost 8 years away. However, our reviews of the 1990, 2000, and the 2010 Censuses have shown that early planning, the use of leading management practices, and strong congressional oversight can help reduce the costs and risks of the national headcount. Indeed, the characteristics of the decennial census—long-term, large-scale, complex, high-risk, and politically sensitive—together make a cost-effective enumeration of the nation's population and housing a monumental project-planning and management challenge.

Despite the complexity, cost, and importance of the census, however, recent enumerations were not planned well. Indeed, shortcomings with managing and planning the 2000 and 2010 enumerations led to acquisition problems, cost overruns, and other issues, and, as a result, we placed both enumerations on our list of high-risk programs.[3]

For example, leading up to the 2010 Census, we found that additional costs and risks associated with the data capture technologies used in the 2010 Census were related to a failure to adequately link specifications for key information technology systems to requirements.[4] Additionally, the lack of skilled cost estimators for the 2010 Census led to unreliable life-cycle cost estimates, and some key operations were not tested under census-like conditions.

Importantly, some of the operational problems that occurred during the 2010 and prior censuses are symptomatic of deeper organizational issues. For example, a Bureau self-assessment carried out in October 2008 found that its organizational structure made overseeing a large

[3]GAO, *Information Technology: Significant Problems of Critical Automation Program Contribute to Risks Facing 2010 Census*, GAO-08-550T (Washington, D.C. Mar. 5, 2008), and *High-Risk Series: Quick Reference Guide*, GAO/HR-97-2 (Washington, D.C.: February 1997).

[4]GAO, *Information Technology: Census Bureau Needs to Improve Its Risk Management of Decennial Systems*, GAO-08-79 (Washington, D.C.: Oct. 5, 2007).

program difficult and hampered accountability, succession planning, and staff development.

Since then, we and other organizations—including the Bureau itself—have stated that fundamental changes to the design, implementation, and management of the census must be made in order to address these operational and organizational challenges.[5] For its part, the Bureau has stated that to contain costs and maintain quality, bold innovations in both planning and design of the 2020 Census will be required, and has launched a number of change initiatives. Some of these efforts are directed at transforming the Bureau's organization, while others focus on reexamining the fundamental approach to the 2020 Census.

Although bold reform plans are critical steps in the right direction, the Bureau's past experience has shown that the more difficult challenge will be sustaining those efforts throughout the course of the decade. Indeed, preparations for both the 2000 and 2010 Censuses started with ambitious plans that gave reason for optimism that major improvements were on the way. However, in the subsequent ramp-up to those enumerations, the Bureau had difficulty identifying and implementing promising innovations, progress on reforms slowed, and as Census Day drew closer, the success of those head-counts became an open question.

Lesson Learned 1: Reexamine the Nation's Approach to Taking the Census

In our April 2011 testimony, we noted that based on the results of prior enumerations, simply refining current methods—some of which have been in place for decades—will not bring about the reforms needed to control costs while maintaining accuracy given ongoing and newly emerging societal trends such as concerns over personal privacy and an increasingly diverse population.[6] Consequently, the Bureau will need to reconsider the nation's approach to the census including rethinking such activities as how it plans, tests, implements, monitors, and evaluates enumeration activities. The Bureau concurred and its 2020 Census business plan states that the Bureau needs substantial innovation to achieve its cost and quality targets and to meet its strategic goals.

[5]GAO-11-496T.

[6]GAO-11-496T.

As one example, with respect to its research and testing efforts, the Bureau plans to use the American Community Survey—an ongoing Bureau survey of population and housing characteristics that is administered monthly throughout the decade—as a vehicle to test certain decennial census processes and information technology (IT) systems. According to the Bureau, this approach will enable it to conduct many small tests throughout the decade in a production environment instead of relying on a small number of large, expensive tests as was the case in past decennial planning cycles. According to the Bureau, refining systems in the American Community Survey reduces the risk of building one-use systems for the decennial that need to operate flawlessly the first time they are put into production.

With respect to implementing the census, among other activities, the Bureau is researching potential electronic methods of promoting the census and collecting data, including with the Internet via social networking sites, e-mail, and text messages, as well as with automated phone systems. For the 2010 Census, the Bureau initially investigated the use of an Internet response option but dropped plans based on concerns over information technology security, and after completing a cost-benefit analysis that led the Bureau to conclude that Internet data collection would not significantly improve the overall response rate or reduce field data collection.

The Bureau is also researching how it can use administrative records to reduce the cost of certain decennial activities. Administrative records from government agencies, including driver licenses and school records, can be used to identify persons associated with a particular household address. Administrative records could save the Bureau money because they could help reduce the need for certain costly and labor-intensive door-to-door visits by Bureau employees to collect data in-person from non-respondents. During the 2010 Census, the Bureau made only limited use of administrative records. Expanding their use to supplement respondent data on a national level will present a certain degree of risk, and issues concerning data quality and access to records must first be resolved.

With so many innovations underway at the Bureau, strong and continuing stewardship at the senior level will be critical for ensuring they stay on track moving forward. However, the announced resignation of the Director coming up this August could mean that it will be a number of months before an agency head appointed by the President and confirmed by the Senate will be in place.

As with the heads of all federal agencies, it will be important for the Bureau Director to possess the requisite leadership and management skills and background to successfully address the challenges facing the Bureau in the years ahead. On the basis of our knowledge of past and present census operations and a review of readily available literature, certain general stewardship roles that the Director, as a senior executive, will play in managing the institution, and their related qualifications, merit particular attention in this regard. These roles and qualifications are not necessarily unique to the Bureau, and it is unlikely that any one person will excel in all of these areas. That said, based on our knowledge of past and present census operations and review of available literature on leadership—particularly of federal agencies—we identified the following characteristics of a successful leader:

- *Strategic leader.* As the head of the Census Bureau, the Director is responsible for, among other activities, (1) leading change and (2) leading people. In leading change, the Director will be expected to build a shared vision or long-term view for the organization among its stakeholders, as well as be a catalyst for developing and implementing the Bureau's mission statement and strategic goals, and be cognizant of the forces affecting the Bureau. Moreover, in addition to the decennial census, the Bureau is also responsible for a number of other vital national data gathering and statistical programs such as the American Community Survey. As a result, it will be important for the Director to ensure the Bureau's information products continue to meet the current and emerging needs of its numerous and diverse customers, including Congress, state, local and federal government organizations, and a wide array of other public and private organizations.

  In leading people, the Director should ensure that human resource strategies, including recruitment, retention, training, incentive, and accountability initiatives are designed and implemented in a manner that supports the achievement of the organization's mission and goals and addresses any mission critical skill gaps. In particular, it will be important for the Director to motivate headquarters, field, and temporary staff to ensure they function as an integrated team rather than a stovepiped bureaucracy.

- *Technical professional.* It is logical to expect that the Director would have at least a general background in statistics or a related field. Although no one person will have the full range of knowledge needed to answer the many methodological and technical questions that the

Director may face, it is important that he or she have sufficient technical knowledge to direct the Bureau's statistical activities. In addition, the Director should manage for results by developing and using performance measures to assess and improve the Bureau's operations.

- *Administrator.* Like other agency heads, the Director is responsible for acquiring and using the human, financial, and information technology resources needed to achieve its goals and mission. The Director should, for example, be capable of setting priorities based on funding levels. Further, because the Bureau's product is information, the Director should ensure that the Bureau leverages technology, such as the Internet, to improve the collection, processing, and dissemination of census information.

- *Collaborator.* It will be important for the Director to continually expand and develop working relationships and partnerships with those in governmental, political and professional circles to obtain their input, support, and participation in the Bureau's activities. For example, it will be important for the Director to continue working with local government officials to have them play a more active role in taking the census.

Lesson Learned 2: Assess and Refine Existing Operations Focusing on Tailoring Them to Specific Locations and Population Groups

We previously found that leveraging such data as local response rates, census socio-demographic information, as well as other data sources and empirical evidence, might help control costs and improve accuracy by providing information on ways the Bureau could more efficiently allocate its resources. For example, some neighborhoods might require a greater level of effort to achieve acceptable results while in other areas those same results might be accomplished with fewer resources.[7]

The 2010 Census had several census-taking activities tailored to specific population groups. As one example, the Bureau budgeted around $297 million on paid media to raise awareness and encourage public participation in the census. To determine where paid media efforts might have the greatest impact, the Bureau developed predictive models based on 2000 Census data and other sources. Other efforts included mailing a

[7]GAO-11-496T.

bilingual English/Spanish questionnaire in some areas, and sending a second "replacement" census questionnaire to about 53 million households in areas with historically lower response rates. Preliminary Bureau evaluations suggest that some of these targeted efforts contributed to an increased awareness of the census and were associated with higher questionnaire mail-back response rates.

For the 2020 Census, the Bureau is considering expanding its targeting efforts to activities such as address canvassing, an operation where Bureau employees go door-to-door across the country verifying street addresses and identifying possible additions or deletions to its address list. This operation is important for building an accurate address list. In the 2010 Census, address canvassing was conducted at the vast majority of housing units. For the 2020 Census, the Bureau believes it might be able to generate cost savings by using existing address records for those neighborhoods that have been stable, and only canvass those areas where significant changes have occurred.

We previously found that studying the value added of a particular operation, such as the extent to which it reduced costs and/or enhanced data quality, could help the Bureau make more cost-effective use of its resources. As one example, in addition to address canvassing, the Bureau has several other operations to help it build a complete and accurate address list. This is to help ensure that housing units missed in one operation get included in a subsequent operation. However, the extent to which each individual operation contributes to the overall accuracy of the address list is uncertain. This in turn makes it difficult for the Bureau to fully assess the extent to which potential reforms such as targeted address canvassing or other operations might affect the quality of the address list. Indeed, the Bureau's formal program of assessing and evaluating various 2010 Census operations and activities, with which it expects to have completed over 100 studies by early in 2013, has only a few studies designed to produce information describing the return on investment. Designing future studies to better isolate the return on investment would help the Bureau further tailor its operations to specific population groups and locations and potentially generate substantial cost savings.

Lesson Learned 3: Institutionalize Efforts to Address High-Risk Areas

A key priority for the Bureau will be to continue to address those shortcomings that led us to designate the 2010 Census a high-risk area in 2008, including strengthening its ability to develop reliable life-cycle cost estimates and following key practices important for managing information technology (IT) so that they do not recur in 2020.[8] In February 2011, we removed the high-risk designation from the 2010 Census because of the Bureau's progress and strong commitment to and top leadership support for addressing problems, among other actions.[9] The Bureau has made progress in these areas. However, additional efforts are needed.

- *Processes for developing a life-cycle cost estimate.* In our January 2012 report, we found that the Bureau had not yet established policies, procedures, or guidance for developing the 2020 Census life cycle cost estimate and is at risk of not following related best practices.[10] A reliable cost estimating process, according to our *Cost Estimating and Assessment Guide*, is necessary to ensure that cost estimates are comprehensive, well documented, accurate, and credible.[11] The Bureau intends to use our cost guide as it develops cost estimates for 2020 and follow best practices wherever practicable; however, as we reported, the Bureau has not yet documented how it plans to conduct its cost estimates and could not provide a specific time when such documentation would be finalized. Developing this necessary guidance will help ensure the Bureau has a reliable life-cycle cost estimate, which in turn will help ensure that Congress, the administration, and the Bureau itself can have reliable information on which to base decisions.
- *IT management issues.* As the Bureau prepares for 2020, it will be important for it to continue to improve its ability to manage its IT investments. Leading up to the 2010 Census, we made numerous recommendations to the Bureau to improve its IT management procedures by implementing best practices in risk management,

[8]GAO-08-550T.

[9]GAO, *High-Risk Series: An Update*, GAO-11-278 (Washington, D.C.: Feb. 16, 2011).

[10]GAO, *Decennial Census: Additional Actions Could Improve the Census Bureau's Ability to Control Costs for the 2020 Census*, GAO-12-80 (Washington, D.C.: Jan. 24, 2012).

[11]GAO, *GAO Cost Estimating and Assessment Guide: Best Practices for Developing and Managing Capital Program Costs*, GAO-09-3SP (Washington, D.C.: Mar. 2, 2009).

requirements development, and testing.[12] The Bureau implemented many of our recommendations, but not our broader recommendation to institutionalize these practices at the organizational level. The challenges experienced by the Bureau in acquiring and developing IT systems during the 2010 Census further demonstrate the importance of establishing and enforcing a rigorous IT systems development and management policy Bureau-wide. In addition, it will be important for the Bureau to improve its ability to consistently perform key IT management practices, such as IT investment management, system development and management, and enterprise architecture management. The effective use of these practices can better ensure that future IT investments will be pursued in a way that optimizes mission performance. We have ongoing reviews of the Bureau's early 2020 Census planning for its IT investment management, as well as its information security program, which we expect to report out in the months ahead.

Lesson Learned 4: Ensure that the Bureau's Management, Culture, and Business Practices Align with a Cost-Effective Enumeration

As we noted in our May 2012 report, the Bureau's early planning and preparation efforts for the 2020 Census are consistent with most leading practices in each of three management areas we reviewed—organizational transformation, long-term planning, and strategic workforce planning.[13] For example, the Bureau is in the middle of a major organizational transformation of its decennial operations, and consistent with our leading practices, top Bureau leadership has been driving the transformation through such activities as issuing a strategic plan for the 2020 Census, incorporating annual updates of its business plan, and chartering an organizational change management council comprised of Bureau-wide executives and senior managers. The Bureau also has focused on a key set of principles as it begins to roll-out the transformation strategy to staff, and has created a timeline to build momentum and show progress. Although the decennial directorate is progressing with its organizational transformation, the person responsible for this effort—the Bureau's organizational change manager—is

[12]For example, GAO, *Information Technology: Census Bureau Testing of 2010 Decennial Systems Can Be Strengthened*, GAO-09-262 (Washington, D.C.: Mar. 5, 2009); GAO-08-79; and *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).

[13]GAO, *2020 Census: Additional Steps Are Needed to Build on Early Planning*, GAO-12-626 (Washington, D.C.: May 17, 2012).

responsible for a number of tasks, including transformation planning and implementation, and leading two working groups. At this point in the process, the amount of change-related activity the Bureau is considering may exceed the resources the Bureau has allocated to plan, coordinate, and carry it out. As a result, the planned transformation efforts could be difficult to sustain.

We also noted in May 2012 that the Bureau is taking steps consistent with many of the leading practices for long-term project planning, such as issuing a series of planning memorandums in 2009 and 2010 that laid out a high-level framework documenting goals, assumptions, and timing of the remaining four phases of the 2020 Census.[14] The Bureau also created a high-level schedule of program management activities for the remaining phases, documented key elements such as the Bureau's decennial mission, vision, and guiding principles, and produced a business plan to support budget requests, which is being updated annually. These are important steps forward that, if continued, could help the Bureau's planning stay on track for 2020. However, the Bureau's schedule does not include milestones or deadlines for key decisions needed to support transition between the planning phases which could result in later downstream planning activity not being based on evidence from such sources as early research and testing.

Also in the area of long-term planning, to help incorporate lessons learned, in 2011 the Bureau created a recommendation follow-up process, built around a database it created containing various oversight and internal Bureau recommendations. Not having a formal process for recommendation follow-up for prior censuses made it difficult to ensure that recommendations were considered by those at the Bureau best able to act on them. The Bureau has provided these recommendations to relevant Bureau research and testing teams and is beginning to take steps to hold the teams accountable for reporting on how they are considering them.

The Bureau is also taking steps consistent with leading practices for strategic workforce planning, including identifying current and future critical occupations with a pilot assessment of the competencies of selected information technology 2020 Census positions. However, the

[14]GAO-12-626.

Bureau has done little yet either to identify the goals that should guide workforce planning or to determine how to monitor, report, and evaluate its progress toward achieving them, which could help the Bureau identify and avoid possible barriers to implementing its workforce plans.

While the Bureau's efforts are largely consistent with leading practices in each of these areas, in our May 2012 report, we noted that additional steps could be taken going forward to build on these early planning efforts. Specifically, we recommended that the Director take a number of actions to make 2020 Census planning more consistent with key practices in the three management areas, such as examining planned transformation activity to ensure its alignment with resources, developing a more-detailed long-term schedule to smooth transition to later planning phases, and setting workforce planning goals and monitor them to ensure their attainment. The Department of Commerce concurred with our findings and recommendations and has taken steps to address our recommendations. For example, to support to its organizational transformation activities the Bureau has added additional staff and contractor support.

Concluding Observations

The Bureau is moving forward along a number of fronts to secure a more cost-effective 2020 enumeration. Many components are already in place, a number of assessment and planning activities are underway, and the Bureau has been responsive to our past recommendations. Further, the Bureau is generally applying key leading practices in the areas of organizational transformation, long-term project planning, and strategic workforce planning, although additional efforts are needed in the months ahead. In short, the Bureau continues to make noteworthy progress in reexamining both the fundamental design of the census as well as its own management and culture.

While this news is encouraging, it is still early in the decade, and the Bureau's experience in planning earlier enumerations has shown how ambitious preparations at the start of the census life-cycle can derail as Census Day draws near. Thus, as the Bureau's 2020 planning and reform efforts gather momentum, the effectiveness of those efforts will be determined in large measure by the extent to which they enhance the Bureau's ability to control costs, ensure quality, and adapt to future technological and societal changes. Likewise, it will be important for Congress to hold the Bureau accountable for results, weighing-in on key design decisions, providing the Bureau with resources the Congress believes are appropriate to support that design, and ensuring that the

progress made to date stays on track. The Bureau's initial preparations for 2020 are making progress. Nonetheless, continuing congressional oversight remains vital.

Chairman Carper, Ranking Member Brown, and Members of the Subcommittee, this concludes my prepared statement. I would be pleased to respond to any questions that you may have at this time.

GAO Contacts and Staff Acknowledgements

If you have any questions on matters discussed in this statement, please contact Robert Goldenkoff at (202) 512-2757 or by e-mail at goldenkoffr@gao.gov. Other key contributors to this testimony include Richard Hung, Ty Mitchell, Lisa Pearson, Mark Ryan, and Timothy Wexler.

Census: Planning Ahead for 2020

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United States Senate Committee on Homeland Security and Governmental Affairs
Subcommittee on Federal Financial Management, Government Information, Federal Services and International Security
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Chairman Carper, Ranking Member Brown, and distinguished members of the Subcommittee, thank you for the invitation to discuss the effort to produce more complete and cost-effective enumeration by the Census Bureau in 2020.

MITRE is a long-standing partner for systems engineering and enterprise modernization with the Department of Defense and many civilian agencies and departments within the U.S. Government, including the Departments of Homeland Security and Veterans Affairs, the Centers for Medicare & Medicaid Services, the Internal Revenue Service, and the Federal Aviation Administration.

MITRE is a not-for-profit company and our sole activity is the operation of federally funded research and development centers, known as FFRDCs, which we operate for the benefit of federal government sponsors. Our expertise is scientific research and analysis, development and acquisition, and systems engineering and integration. The government establishes FFRDCs for the purpose of addressing long-term complex problems. Our operating model is unique and intentional, designed to preserve our ability to serve in the public interest with objectivity, independence, and freedom from commercial interests.

I'm sharing insights with you today from my perspective as a system engineer and technologist, derived from my experience in large and complex systems programs and as a contributor to several scientific advisory boards in the national interest. It is also our privilege at MITRE to serve with talented engineers and other professionals who supported the Census Bureau in its efforts to prepare and conduct the 2010 census, and we continue to work with Census today as they prepare for 2020. Our role in helping to mitigate large risks that developed during the 2010 program informs my comments today.

Because the decennial census is such an enormous undertaking in terms of both volume and complexity, the Census Bureau invests in technology in an effort to achieve efficiencies and increase accuracy. Today, the single most important management question for the Census Bureau —and indeed all government departments and agencies—is how to effectively and affordably capture value from technology innovation.

It is important to recognize that technology is never a complete solution. Technology "way points" are transient, fast-moving, and risky. Investments must be accompanied by changes in the roles of people and the work processes they implement. Operating models and governance structures must be designed to support flexibility in order to take advantage of emergent technologies.

So how can the Census Bureau navigate this rapidly changing ecosystem? By starting with a vision—a guidepost—for what is possible in 2020, in 2030, and beyond. This vision must anticipate change but be anchored on principles of affordability, continuous improvement for quality and on-going integration of thoroughly tested advances in technology.

A Future Census

In this vision, the Census Bureau avoids the need for a massive end-of-decade mobilization of people and fiscal resources by using technology effectively, eliminating paper, maintaining high-quality and current geographic resources, maximizing the use of administrative records and maintaining the trust of the people by ensuring security and privacy of the collected data. It includes:

- Paperless operation, enabled by technology, using devices and applications to streamline navigation, address operations, field-based enumeration, and administrative tasks. Without the physical storage space and logistics required for massive amounts of paper, the census infrastructure can be radically reduced and re-envisioned.
- Shared use of administrative data will enable routine, real time corrections of missing addresses and additions of new residential developments, which makes field operations deployment more efficient.
- Cloud computing, digital ubiquity and wireless communications which transmit and receive data from cloud systems will lower infrastructure costs and increase efficiency for all aspects of enumeration. U.S. residents will be able to use text, voice or mobile apps to securely and conveniently respond to the census questionnaire, and field operations may be liberated from the capacity limitations of person-to-person outreach.
- Security and privacy is assured at all levels within the system through the application of best security practices and protecting the data throughout its lifecycle.

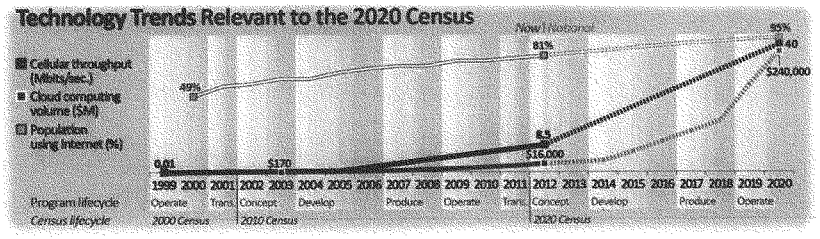
Drivers and Enablers

Technology Trends

The good news is that there is, today, no existing or predicted shortage of hardware, middleware and software to enable more efficient and accurate census-taking. We are in the midst of geometric growth of technologies and usage.

However, there are challenges. Technology selection and implementation are an order of magnitude more complex than they were in the previous planning and R&D cycle. The market cycle time for design to widespread adaption of emergent, transformational capabilities with technology has compressed, in our view, from five years to less than two.

A snapshot of today's capabilities would show a wide range of technologies that did not exist or were not mature in planning for the 2010 census, such as mobility platforms, wireless coverage, use and capacity, cloud computing, internet availability and use, biometrics, autonomous systems, global positioning and remote sensing. By 2020, we at MITRE join many others in predicting that these technologies will feel as antiquated as a rotary dial phone…replaced by commercial availability of quantum computing, advanced robotics, ubiquitous digital devices in clothing and automobiles, artificial intelligence and massive predictive analytics, among others.



Technology trends that are relevant to the 2020 census include:

- Today, approximately 75 percent of US square miles are covered by one or more wireless services, and 98 percent of the population has access to wireless broadband services.[1]
- The percentage of U.S. population using the Internet has grown from 44 percent in 2000 to 77 percent in 2010 and will likely reach 95 percent by 2020.[2]
- The speed, capacity and coverage of digital networks increased by an order of magnitude in the past decade, to over 12 megabits per second.
- Forrester Research projects the global market for "cloud computing"—services delivered over the Internet—is going to increase from $41 billion in 2011 to $241 billion in 2020.[3]
- Today, citizens regularly use online services for banking, purchase transactions, bill paying, and other secure data exchanges. At the state level: 98 percent offer online tax filing; 92 percent offer online renewal of vehicle registration; 78 percent accept online requests for copies of birth, death, marriage, divorce, and adoption certificates; 58 percent accept payments for fines online; 58 percent offer online interactive customer service; and 48 percent offer a website designed for smartphone users.[4]
- GPS and other personal location tracking technologies were capable of locating a device as small as a mobile phone within a few dozen meters in 2010. The quality, accessibility, and volume of personal location data will improve and expand.

During the 2001-2004 planning cycle for the 2010 census, mobile computing technology was not mature. Separately, secure internet response channels were not a part of the census design solution. Today, however, the Census Bureau is well positioned to take advantage of these now mature and prevalent technologies.

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[1] Federal Communications Commission Fifteenth Report (FCC 11-103) Implementation of Section 6002(b) of the Omnibus Budget Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Mobile Wireless, including Commercial Mobile Services.

[2] Pew Internet and American Life Project. Adult Usage over Time Trend Data.

[3] Forrester Research. Sizing the Cloud – A BT Futures Report. Understanding and Quantifying the Future of Cloud Computing [for 2011].

[4] Center for Digital Government. Digital States Survey [for 2010].

Census Bureau Capabilities

The Census Bureau is strengthening its core capabilities by implementing recommendations resulting from the lessons of decennials past. These improvements will benefit not only the 2020 census, but all future surveys and censuses. A few examples include:

- An enterprise investment management process for prioritization of all Census Bureau investments in order to ensure alignment to strategic goals and objectives.
- Development of common standards and infrastructure, virtualization, privacy and security policies, and a mobile computing strategy that becomes the blueprint for advancing the use of information technology on future surveys and censuses.
- The use of project and system development lifecycles to define key decision points and phase gate reviews to ensure appropriate progress has been made before proceeding to the next phase of development.
- The development and utilization of a program work breakdown structure to form the framework for a fully integrated master schedule of all tasks to be performed to support more effective cost estimation, budget formulation and execution, and overall program performance.

In addition, the approach to risk management has been significantly strengthened, and the Census Bureau has begun analyzing alternative solutions to inform design and investment choices using modeling, operational scenario analysis and analysis of alternatives techniques.

Recommendations

The decennial census is characterized by a high degree of complexity and uncertainty. The complexity is based on the interactions and interdependencies among people, organizations, technologies, tools, techniques, procedures, and economics. The Census Bureau invests in technology as a means toward both achieving efficiencies and increasing accuracy, but given the technology growth curve any design that is currently feasible will almost certainly be surpassed by innovations occurring before 2020.

Engineering for a Data Rich Ecosystem

The internet has evolved over the past 10 years from a tool for data transport and unstructured data exchanges into today's rich semantic web. Now, structured data transactions exist that allow data sharing and reuse across applications and the entire enterprise. The result is the most uniquely data rich communication environment in history. The ubiquity of online access and experience within the American population creates an exciting, but infinitely complex, technology trade-space for the designers of future decennials.

The Census Bureau can use existing technology to move from exploration to aggregation, from discovery to synthesis. It can engineer itself to take maximum advantage of the data rich ecosystem—a web of interdependent data connections.

The technology exists today for a paperless census, and the technology will likely exist in 2020 for a fully automated census. This requires systems thinking, systems engineering expertise, and coordinated investment planning. The Census Bureau can continue to build on the successful foundation of traditional systems engineering methods and tools to complement its strong mission-oriented math and statistics skills.

However, government funding for technology investments is typically based on a return-on-investment (ROI) assessment of point solutions. MITRE believes the Census Bureau is well positioned to re-define itself and its approach to supporting technology. It can move away from point-solution perspective and toward a true business enterprise, modeled and planned as an integrated and continuously evolving system that incorporates people, interfaces and data.

Technology itself is not a panacea, nor can systems be implemented in isolation. As noted earlier, the most efficient solution will meet business needs through technology married to well-designed operations. This enabling technology spawns changes in personnel roles and business processes as well. In our experience at MITRE, planning, acquiring, and coordinating the changes to this combination of people, processes, and technology is the most significant predictor of implementation success and value realization for technology investment. This is the "system-of-systems" view.

MITRE's extensive experience with the Internal Revenue Service, Federal Aviation Administration and others leads us to observe that government is most effective in enterprise modernization when ownership and control of the technical baseline exists within the agency. The technical baseline provides the requirements framework and the reference design where adaptations and changes, and their consequences, are forecasted and controlled across the entire enterprise.

The technical baseline describes all essential aspects of a complex system. It includes requirements, components, interfaces, performance parameters, activity flows, and use cases. This technical baseline can be used to capture, maintain, and trace requirements; drive acquisitions; specify components; define system tradeoff analysis; drive system verification and testing; and coordinate system integration. Standardized methods for capturing and sharing these technical baselines have been developed by international system engineering bodies and have been adopted by numerous industry system developers. They are mature and ready for application to the census. The technical baseline permits continuous trade space analysis in order to optimize the total solution.

We observe that successful programs use enterprise engineering and the technical baseline as a compass for navigating the uncertainty and complexity of tomorrow's technological advances.

Based upon our observations of success, MITRE recommends that the Census Bureau take the following steps in the near term:

- Invest adequately early in the lifecycle to develop an overall design with iterative improvement throughout the planning decade. By defining the design space early in the research and testing phase, the Census Bureau can determine the key questions, risks, and issues that need to be addressed by the research projects to provide the evidence needed to support the design decisions. This will enable all of the stakeholders to reach a preliminary design that addresses the uncertainty and risks.
- When considering the initial design, set aggressive goals for self-response through automated channels. This approach, which drives investment, has been successfully applied at other agencies, such as the IRS.
- Leverage solutions that are available within other government agencies. Leveraged solutions begin with solution reuse, and go on to include shared solutions (e.g., government cloud, shared hosting, shared applications, etc.) and user-focused integrated services.

- Use industry, academia and federally funded research partners to perform environmental scans, red/blue teams for security and privacy, forecast technology trends and advise on successful engineering practices. Take advantage of the breadth of engineering expertise available externally.

Align the Budget Cycle to Realities of Technology Planning and Acquisition

As our MITRE CEO Al Grasso has noted previously to this Subcommittee, succeeding in a rapidly changing environment requires a balance between discipline and flexibility. The planning-centric investment and acquisition environment of today is based on process discipline, but management must have the tools and authorities to shift investments and resources as conditions change, opportunities arise, and risks present themselves and are identified. This balance is important in an effective technology governance model.

Aligning the budget process with the technology cycle offers the flexibility to shift resources to address changing needs and increase agility. Furthermore, streamlining governance and ensuring accountability strengthens the role and authorities of agency leadership and allows it to execute important responsibilities. However, these actions will fall short if the link and timing between the investment decision process and the budget formulation process is not addressed to afford increased flexibility.

MITRE continues to recommend that the government adopt a consolidated, portfolio-based IT budgeting model. This model will allow the flexibility for agency leaders to adapt funding to react to changes in technology requirements. This should include multi-year authority and the authority to fund the up-front systems engineering and alternatives analysis necessary to evaluate and estimate the scope, cost, and schedule for their proposed investments without prior approval. Overall program success is highly correlated to early investment in concept development and system engineering. This up-front investment requirement for effective planning and field testing is non-trivial, perhaps up to 20 percent of the total lifecycle costs of an acquisition. It is critical to successful execution, but not available to management with today's budget process.

Adoption of the technical baseline widens the aperture on the opportunities for IT investment and extends the "design-test-acquire" planning horizon. This longer-range perspective improves outcomes for the portfolio of technology investments because the planning and investment cadence permits spending on contemporary risk mitigation techniques (beta testing, agile [iterative] development, identification of trade-space and negotiation of open-source and non-proprietary solutions, etc.). With a more flexible budgeting model, capability development for the decennial census could be undertaken on a continual improvement basis rather than a point-in-time delivery basis.

Closing Remarks

In conclusion, MITRE is a committed partner to the Census Bureau for the successful completion of the 2020 census and other Census Bureau initiatives.

I thank the Subcommittee for this opportunity to discuss the 2020 census preparation and would be happy to answer questions.

THE NATIONAL ACADEMIES
Advisers to the Nation on Science, Engineering, and Medicine

Panel to Review the 2010 Census
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before the

Subcommittee on Federal Financial Management, Government Information,
Federal Services, and International Security
Committee on Homeland Security and Governmental Affairs
U.S. Senate

July 18, 2012

Good afternoon, Mr. Chairman, Ranking Member Brown, and members of the subcommittee. Let me first thank you for the opportunity to testify before you today. I am Jack Baker, a member of the National Research Council[1] Panel to Review the 2010 Census. This panel was sponsored by the Census Bureau to provide feedback on methodological and operational aspects of the 2010 Census as well as to provide expert advice on how to design a more cost-effective 2020 effort. It is comprised of numerous experts in the fields of operations research, information technology, systems engineering, statistics, and demography—chosen to provide a broad perspective ranging among government, academia, and the private sector. In April 2011, the panel's chair (Dr. Thomas Cook) addressed this subcommittee and reviewed the findings of the panel's first interim report: *Change and the 2020 Census, Not Whether But How.* Today, I will update this subcommittee on developments since then that speak more directly to the Bureau's current planning efforts with respect to preparing for a more cost-effective 2020 Census. Some of these appear crucial, and worthy of strong Congressional support, for achieving a goal of successfully maintaining and even reducing Census costs without jeopardizing its quality.

I come to you from the perspective of an experienced demographic methodologist who has been involved in a number of pre-2010 data preparation programs as well as subsequent efforts to both evaluate the coverage of the census and to plan for improved future usage of

[1] The National Research Council is the operating arm of the National Academy of Sciences, National Academy of Engineering, and the Institute of Medicine of the National Academies, chartered by Congress in 1863 to advise the government on matters of science and technology.

spatial data resources (such as the Geographic Support Systems Initiative). As was the case when Dr. Cook testified to the subcommittee, I am sure that you understand that my expressed opinions in this testimony (and particularly in addressing any questions you may have) are my own, and should not be construed as formal guidance from either the panel or the Academies.

The panel's work on both reviewing 2010 and advising on 2020 planning is ongoing, but it is fair to say that the panel supports the basic conclusion from its first interim report: with eight years remaining before the 2020 Census, it is very possible for the Census Bureau to conduct the next census in a way that achieves large-scale reductions in cost (per housing unit) while maintaining quality. Last year, Dr. Cook testified about the necessity of attitudinal and perspective shifts on the Census Bureau's part in relation to this planning effort, and the need of a sufficient commitment to and prioritization of the planning process. Though I will not repeat it here, that guidance remains extremely valid.

In the panel's first interim report, we identified four priority topic areas for research and development, leading to an improved 2020 census:

1. The application of modern operations engineering to census field data collection operations;
2. Emphasizing multiple modes of response to the census, including response via the Internet;
3. Using administrative records-based information to supplement a variety of operations, and;
4. The continuous improvement and updating of the Bureau's geographic resources.

I would like to offer some general comments on the 2020 research and planning processes, and then focus on the last-mentioned of these topic areas.

From my perspective, the Census Bureau has been surprisingly receptive to the notion that ongoing testing, experimentation, and reformulation are important aspects of the 2020 planning process. The Bureau is moving to implement a more "adaptive" process of operational planning and field management for its data collection programs, to be tested and implemented first in the Bureau's major demographic surveys and then eventually to form the basis for 2020 census systems. I think that the Bureau's steps in this regard—developing a system in which survey respondents may be transferred to different response modes and approaches by interviewers, based on past contact attempts and contextual information—will allow the sort of exploratory thinking that our panel feels is crucial to addressing the challenges that lay ahead. I hope, and expect, that this same kind of approach may migrate into other census operations such as updating geographic resources like the Master Address File (MAF) or structuring field contacts in general (such as in nonresponse follow-up).

I think that this process of reformulating census-taking as a more organic, adaptive process rather than a string of only-loosely-integrated operations is a crucial step. For decades, the Bureau has tended to layer on more and more operations—often in the name of improving overall quality—without stepping back to consider costs, benefits, and cost-quality tradeoffs. (An earlier National Research Council panel made the same argument, with more supporting detail, in its 2010 final report *Envisioning the 2020 Census*.) I think that a management framework built on "adaptive design" can allow both a much more nimble consideration of the relationships

between census cost and census quality as well as a more detailed understanding of redundancies of effort (and resulting need to prioritize). Making this planning effort—and the research and development activities that will directly inform it—a funded priority with appropriately-committed Bureau resources is a must. In the long run, cost-savings and quality maintenance will only come with prior planning, and I believe that short-term up-front costs associated with this 2020 planning process is a worthwhile investment with major long-term cost offsets.

Effective means for updating the Bureau's geographic data resources are a key aspect of any census design effort. I think it is very clear that shifts in response modes to the census (converting many, if not most, responses on paper questionnaires to Internet responses), coupled with a more adequate use of administrative records databases could reduce census costs considerably. But I think it equally clear that those gains would be undermined if the Bureau's geographic resources were not up to par. Census respondents must be linked to specific physical locations (for purposes of apportionment and redistricting), and this requires high-quality spatial data resources that allow individual census forms to be linked to precise geographic coordinates.

One major element in 2020 census planning is a choice that the Census Bureau will have to make in the middle of this decade, and that is the extent to which it will conduct Address Canvassing prior to the 2020 census. As you know, the Bureau conducted Address Canvassing for 2010 one year earlier, in 2009, sending enumerators to every block in most of the country to verify or correct address list entries; this was the one 2010 census operation that was able to make use of handheld computers. Looking ahead to 2020, the Census Bureau has launched its Geographic Support Systems Initiative, which I and my panel colleagues have followed with great interest and which we endorsed in broad outlines in our first interim report.

As this work progresses, I make the following suggestions:

- First, *the Bureau should not enter into its geographic research with a preconceived notion that either MAF or TIGER is an unassailable "gold standard."* To be clear, I am not suggesting that the Bureau is currently laboring under such a notion; indeed, I think that the Bureau has been quite candid in noting shortcomings and in suggesting the need for quality metrics. This is just to say that change and improvement are only possible if it is acknowledged that there is room for improvement.
- There are significant limitations at present to the use of purely commercial mapping resources (e.g., Google Maps, Nokia/Navteq, databases maintained by ESRI) in the census context, or even the address list resources of the U.S. Postal Service). What I think is important is that *the Bureau's geographic research should focus on the coverage properties of MAF/TIGER and those of alternative resources*. The census has to accurately represent all subgroups of the nation's population, and some of these groups live in locations or housing stock where standard addressing procedures are lacking and where field enumeration practices can be extremely challenging; this is as true of populations in intensely remote locations (e.g., Alaska Natives) as it is of residents of intricately built-up locations (e.g., individual blocks in New York City). Very little is actually known about the quality of spatial data or its impact on the accuracy of a census, or the subsequent demographic estimates that derive from those data.

- Finding the right balance between field work (direct address canvassing or "map spotting") and drawing from existing computerized resources will be difficult; my own sense is that neither of the "pure" outcomes of zero canvassing or 100 percent canvassing is going to be satisfactory. So, I reiterate my hope: *the Census Bureau should consider the same kind of "adaptive"/responsive/flexible approach for updating its geographic resources as it hopes to implement in its field operations.* That is, by considering the coverage properties of various alternative data sources for some subgroups or geography types and balancing those with the cost/quality trade-offs associated with new field data collection methods, I hope that the Bureau can avoid the same "one size fits all" approach that has driven census operations in the past. The geography and housing/address stock of downtown Chicago is different from that in pueblos in New Mexico, and the best means of ensuring up-to-date geographic coverage in those areas will vary, too.
- *The ability to effectively plan is predicated on the ability to commit Bureau resources into prospective testing of alternative field data collection methods and to appropriately assess the impact of alternative methods on coverage of addresses.* Retrospective testing (looking at past patterns of coverage and the operations that produce it, for example) can be a powerful way to address questions about how operational procedures relate to Census coverage and to model the trade-offs between costs for data collection and anticipated coverage. However, only prospective testing provides the promise of assessing alternatives that have not been previously considered.
- In the maintenance of its geographic resources as in the reshaping of its field operations, the panel noted in its first interim report that *the Census Bureau can learn a great deal from outside the Bureau—from private and public sector organizations faced with similar challenges as well as from statistical agencies in other countries.* That is, the Bureau should consider the techniques used by commercial map vendors in updating their products, draw from the experience of firms such as UPS, and study the specific operations conducted by agencies like Statistics Canada.

In closing, I understand that recent developments involving the American Community Survey (ACS) are a secondary topic for today's hearing. As a regular user of ACS data for a wide range of projects, I would be remiss if I did not take this opportunity to state my own personal hope that the Senate will undo the appropriations amendments passed in the House to make ACS response voluntary rather than mandatory and then to cut off funding to the ACS altogether. And I would welcome the chance to answer any questions regarding uses of the ACS. But—in keeping with the main theme of the hearing—I would like to close by stating my belief that a healthy, vigorous ACS is critical to an improved 2020 census, and essential to a worthwhile and effective planning process for that 2020 census. Of the Census Bureau's other major activities, the ACS is a particularly strong test-bed for 2020 census approaches and systems. ACS field operations include a nonresponse follow-up component that permits address list updating by field data collection staff, particularly in rural areas where the regular MAF updates (from the U.S. Postal Service) are thought to be weakest; hence, the ACS is an ideal forum for testing geographically-targeted updating of the address list base to areas of suspected

undercoverage. The "methods panel" in the ACS gives the Bureau an opportunity to pilot-test revised questionnaire wording or formatting of concepts. And, perhaps most fundamentally, implementation of an "adaptive" data collection process in the ACS is not just a useful test-bed but a critical proving ground, before such process rolls out in the 2020 census. Utilization of ACS as a test-bed is not a new idea—Director Groves and many other outside observers have suggested precisely that—but I think it is a critical one for decision-making aimed at optimizing coverage in light of cost constraints. Of course, the ACS cannot function as a test-bed for 2020 if it does not exist (or exists in a severely hobbled form) after enactment of fiscal year 2013 appropriations, and so (again, my personal opinion) I urge the Senate to support continuance of the ACS.

I thank you again for the opportunity to testify before you today and I welcome your questions.

Census: Planning Ahead for 2020

Testimony of Andrew Reamer, Research Professor
George Washington Institute of Public Policy, George Washington University

Subcommittee on Federal Financial Management, Committee on Homeland Security and Governmental Affairs, U.S. Senate

July 18, 2012

Chairman Carper, Ranking Member Brown, Senator Coburn, and other distinguished Members of the Subcommittee:

I appreciate the opportunity to talk with you about recent developments regarding the Census Bureau's American Community Survey, specifically the House-passed prohibition on spending FY2013 funds to conduct the ACS as well as House and Senate efforts to prohibit enforcing penalties for refusing or willfully neglecting to answer ACS questions.

I'll first discuss why ACS termination would have a destructive impact. I'll then talk about the significant negative consequences of making the ACS voluntary, including increasing rather than eliminating the problems that voluntary ACS proponents want to solve. I'll then offer a series of recommendations that I hope will address the interests of the various parties in the debate about mandatory response.

In my remarks, I'll refer to several materials that you have in the packets that were distributed to your offices on Monday.

The Value of the American Community Survey

Today, as has been the case for decades, small area census data are essential to the proper functioning of government, the economy, and communities. Annually updated ACS data are used by

- the federal government to
  - construct important geographic statistics, including
    - annual population estimates
    - total and per capita income
    - the housing component of the Consumer Price Index
    - metropolitan statistical area boundaries
    - occupational employment projections and classifications
  - inform the design, implementation, and evaluation of programs and policies in education, health, housing, transportation, small business development, human services, and environmental protection
  - distribute over $450 billion in federal domestic assistance to states and communities

  - provide benchmarks for enforcement of the Voting Rights Act and other civil rights laws

- state and local governments to
  - determine the best allocation of scarce fiscal and human resources in criminal justice, transportation, education, public health, and disaster management
  - calculate annual limits in the growth of state government revenue and spending
  - redraw legislative districts

- chambers of commerce and economic development partnerships to analyze regional strengths and weaknesses and encourage business attraction, expansions, and startups

- businesses of all types and sizes to identify markets, select locations, make investment decisions, determine product offerings, and assess labor markets

- nonprofit organizations such as hospitals and community service organizations to better understand and serve the needs of their constituencies

- researchers to identify social and economic dynamics that can guide public policy

- the public to understand changes in local socioeconomic conditions and to hold their elected officials accountable as appropriate

The origins of the ACS can be traced to Congressman James Madison's efforts to have the 1790 Census gather information on age, sex, the race of free persons, and occupation in order to inform public policy. He wished that future Congresses would see to the collection of census data beyond "bare enumeration . . . to adapt the public measures to the particular circumstances of the community . . . and [mark] the progress of the society. . . ." To date, Congress has fulfilled Madison's wish. (A longer discussion of the origins of the ACS can be found in the appendix.)

The implementation of the ACS in 2005 represents a great advance in the availability of current small area census data, as such data had been produced but once a decade since the nation's founding. As far back as 1872, President Grant asked Congress to authorize a mid-decade census because "the information obtained at the decennial period as to the material condition, wants, and resources of the nation is of little practical value after the expiration of the first half of that period."

My understanding is that there are no efforts in this chamber to terminate the ACS. Given the House's action, though, I will say that, in light of the widespread public, private, and nonprofit reliance on data from the ACS, its elimination would cause economic disruption and job loss, misapplication of scarce community assets and services, and increased waste, fraud, and abuse of government funds.

It is often suggested that the private sector could readily replace the government's effort. That is by no means the case. Only the federal government

- has the capacity and motivation to produce socioeconomic data that is current, objective, reliable, consistent over space and time, and available at each level of geography
- can cover a wide array of topics essential for the performance of congressionally-mandated functions
- provide the great public good of open data access
- produce a dataset that gives decision-makers and analysts the flexibility to produce nearly unlimited cross tabulations (such as male Hispanic military veterans over 35 with an advanced degree) to fit a multitude of purposes

Addressing Issues in the Implementation of the ACS

Consistent with census law since 1790, the government has the authority to impose a penalty on any adult who refuses or willfully neglects to answer ACS questions or deliberately provides false responses. The current census law says that the fine for not answering ACS questions can be up to $100, a range set in 1929. However, in the 1980s, this dollar amount was superseded by provisions of a comprehensive crime control law that establish a fine of up to $5,000 for any misdemeanor or infraction of federal law.

Since the implementation of the ACS, Members of Congress have heard several types of concerns from constituents who have received the ACS. First, some ACS questions are experienced as an invasion of privacy. Second, there is distrust about the government's use of the data. Third, the possibility of a fine of up to $5,000 for nonresponse feels coercive or terrifying. Fourth, the Census Bureau's practice of nonresponse follow-up is experienced as harassment.

The response of some Members to these complaints has been to propose removing the government's power to impose a fine for nonresponse, in effect making the ACS voluntary. However, moving to a voluntary ACS would have the perverse effect of increasing the number of constituent complaints and so aggravating the problem rather than eliminating it.

In 2003, at the direction of Congress, the Census Bureau conducted a field test on the difference in household response rate between a mandatory and voluntary ACS. The bureau's primary finding was that the mail-back response rate for the voluntary ACS was 20 percentage points lower than that for the mandatory ACS.

On the basis of this finding, in June 2011 the Census Bureau published a memo titled "Cost and Workload Implications of a Voluntary American Community Survey." The memo finds that "to support production of sufficiently reliable ACS small area estimates," the bureau would need to increase sample size by 23 percent, at an additional annual cost of $66 million (based on the 2009 workload). So, for example, each year an ACS form would be sent to 13,000 additional households in Oklahoma, just to pick a state.

Memo data suggest that the combination of the much lower mail-back rate and larger sample size would substantially increase the number of personal Census Bureau contacts with constituents. The memo says that a voluntary ACS at the 2009 sample size would require a 15 percent increase in the number of nonresponse households contacted by telephone and a 32 percent increase in the number of nonresponse households visited by Census Bureau field staff, at an additional annual cost of $28 million. Even so, the number of completed surveys would fall by

more than 15 percent, resulting in an estimated, and unacceptable, increase in variances (a measure of data reliability) of 23 percent.

Putting memo's various figures together, one can calculate that maintaining current data reliability under a voluntary ACS will require a 23 percent increase in the number of households getting the survey, an 18 percent increase in the number of households telephoned, and a 39 percent increase in households visited in person. I don't believe that this is the impact that proponents of a voluntary ACS are looking for.

Further, while the memo suggests that this expansion would cost $66 million annually, this estimate is lower than would be the case today, for one or both of two reasons. First, the analysis is based on the 2009 ACS sample size, not the larger 2012 sample size. (Congress supported sample expansion to allow the bureau to address declining data reliability due to population growth.) Second, the memo notes that "It is very possible that public reaction today could yield different results with significantly greater cost implications especially if there was considerable media attention given to the shift."

The memo concludes by saying that if Congress were to make the ACS voluntary and does not provide sufficient funding to maintain the current number of completed surveys, "the quality of survey estimates would be unacceptable and the ACS would not meet its responsibility to produce data of sufficient quality to replace the estimates from the census long form."

In light of these findings, particularly the increased burden that a voluntary ACS would place on Members' constituents, I will suggest an alternative approach, one that relies on the Census Bureau offering more carrots and reducing emphasis on sticks.

As noted earlier, two constituent concerns are invasion of privacy and distrust of government use of the data. It's worth noting that both these concerns have been raised by households and in Congress since 1790, and in some states, like Massachusetts and New York, since before the Revolution. These concerns did not deter prior Congresses from asking questions and making the responses mandatory.

It's also worth noting the periodic decrease in the percentage of households contacted to generate census small area estimates. From 1790 through 1930, every household had to answer every census question. The 1960 long form reduced the response burden for most questions to one-fourth of households. By 2000, only one-sixth of households received the long form. Today, to generate ACS small area estimates, about one-eighth of households are contacted.

At the same time, constituent do have privacy and data misuse concerns. To address them, I first suggest that the Census Bureau provide constituents with far more information about the benefits of the data to their states and communities. Currently, ACS recipients receive only general statements such as:

> This survey collects critical up-to-date information used to meet the needs of communities across the United States. For example, results from this survey are used to decide where new schools, hospitals, and fire stations are needed. This information also helps communities plan for the kinds of emergency situations that might affect you and your neighbors, such as floods and other natural disasters.

I recommend that the Census Bureau provide the American public with web access to an up-to-date compilation of links to many thousands of uses of the ACS at the national, state, and local level. The bureau would

- use low-cost web spider technology to find these uses on public websites
- tag each use by geography (such as a state, metro area, or neighborhood) and type of use (such as for education, emergency planning, or business development)
- provide open web access to the database, allowing visitors to select their state, city, or ZIP code to get a listing, with links, of relevant ACS uses
- in the mailed ACS packet, include information on the web database of ACS uses and a list of 6-10 generally compelling uses, such as the state's use of the data to allocate federal highway funds and manage spending and revenues

My hope is that with readily accessible examples of personally meaningful uses of the ACS, recipients would be more open to filling out the survey to help their state and community.

To address constituent concerns about government misuse of ACS data, I encourage the Census Bureau to create an ACS analog to its well-received decennial census partnership program. The bureau would seek out, and provide training to, trusted national, state, and local third-party organizations that would be willing to provide individual constituents with information and reassurance on data confidentiality and limitations on use. The Census Bureau could provide local ACS partner contact information on its website and partnership program information in its mail packet. Partners also would be available to discuss how ACS data are used to benefit the local community.

To eliminate fear and sense of coercion raised by the possibility of a fine of up to $5,000, I suggest that Congress pass legislation that exempts the Census Bureau from the Title 18 criminal justice statute, allowing it to revert to fines of up to $100 for nonresponse and $500 for false statements. The Census Bureau finds that simply saying ACS response is legally required boosts the mail-back response rate to the desired level. At present, the bureau does not appear to believe that it needs to seek prosecution for nonresponse, as it has not done so since the 1960 Census.

My understanding from congressional staff is that a substantial number of constituent ACS complaints concern their experience of being harassed by Census Bureau field staff conducting in-person nonresponse follow-up. I strongly suggest that the bureau review and revise current staff protocols and incentives to the extent needed for nonresponse households to not feel harassed. The bureau might consider creating a hotline or ombudsman for constituents.

Finally, I ask that the Census Bureau increase its communications with Members regarding the ACS. Specifically, the bureau could provide regular updates on recent ACS uses in a Member's state or district, information about positive efforts to encourage constituent response, and, with each ACS release, the updated profile of each Member's state or district.

In these several ways, I think, constituent discomforts with the ACS can be addressed while avoiding steps that compromise the integrity of its valuable data.

Conclusion

In George Washington's first State of the Union message to Congress, he says

> Knowledge is in every country the surest basis of public happiness. In one in which the measures of government receive their impressions so immediately from the sense of the community as in ours it is proportionably essential. To the security of a free constitution it contributes in various ways - by convincing those who are intrusted with the public administration that every valuable end of government is best answered by the enlightened confidence of the people, and by teaching the people themselves to know and to value their own rights; to discern and provide against invasions of them; to distinguish between oppression and the necessary exercise of lawful authority; between burdens proceeding from a disregard to their convenience and those resulting from the inevitable exigencies of society; to discriminate the spirit of liberty from that of licentiousness - cherishing the first, avoiding the last - and uniting a speedy but temperate vigilance against encroachments, with an inviolable respect to the laws.

This statement is rich with relevance for management of the ACS—the importance of good information, gaining the trust of the people, and teaching the people to "distinguish between oppression and the necessary exercise of lawful authority" and "between burdens proceeding from a disregard to their convenience and those resulting from the inevitable exigencies of society."

I believe that, with this Subcommittee's guidance, the Census Bureau can find an approach that results in constituents experiencing a proper balance between individual rights and duty to community and nation.

Thank you for your time and look forward to your questions.

Appendix: History and the ACS

The origins of the ACS can be traced to Congressman James Madison's efforts to have the 1790 Census gather information beyond the "bare enumeration" of free people and the human property of free people, as required by the Constitution for apportioning taxes and representation among the States. In particular, Mr. Madison wanted to collect information on race, gender, age, and occupation. He said:

> (I)f this bill was extended so as to embrace some other objects besides the bare enumeration of the inhabitants; it would enable them [future Congresses] to adapt the public measures to the particular circumstances of the community. . . .This kind of information . . . all legislatures had wished for; but this kind of information had never been obtained in any country. . . . If the plan was pursued in taking every future census, it would give them [future Congresses] an opportunity of marking the progress of the society, and distinguishing the growth of every interest.

The House agreed with his request. The Senate did as well, with the exception of occupation.

In 1800, Thomas Jefferson, seeking to ascertain "sundry facts highly important to society," asked Congress to further enlarge the census questions to include citizenship and immigration status, occupation, and greater detail on age. Congress complied with the latter request.

Future Congresses found that they agreed with Madison. Throughout the 19th century and early 20th centuries, Congress regularly expanded the census data collected for the purposes of public policy. Because of questions added to understand and address the Great Depression, the 1940 census included the first supplementary sample survey. The long form was used from 1960 through 2000. The ACS debuted in 2005.

Presidents throughout the centuries have asked Congress to include certain questions for the purposes of public policy; touted census data, as Madison had predicted, to show the nation's dramatic growth; and used other data to identify pressing issues such as the pool of men available to fight (Jefferson), illiteracy (Garfield, Arthur, Coolidge), unemployment (Hoover), immigration policy (Truman, Eisenhower), rural telephone access (Truman), substandard housing (Kennedy, Johnson), poverty (Nixon), and education (Clinton).

In asking Americans to fill out their 1990 Census form, President Bush said

> Abraham Lincoln once observed: "If we could just know where we are and whither we are tending, we could better judge what to do and how to do it." The census helps to provide us with such insight.

Moreover, as early as 1872, President Grant asked Congress to authorize a mid-decade census because "the information obtained at the decennial period as to the material condition, wants, and resources of the nation is of little practical value after the expiration of the first half of that period." In 1976, for the same reason, Congress finally authorized a mid-decade census, but it was never funded. The ACS is the fulfillment of Grant's request.

Tracing the line from Madison to the ACS, we can see the "democratization" of census data as the nation advances in its ability to analyze and communicate. Initially, the data were used to

inform public policy. Increasingly throughout the 19th century, they were studied by social scientists. By the 1880s, an explicit purpose of census data was to inform business decision-making, particularly to improve market efficiencies and firm competitiveness overseas. In the 1960s, Congress began relying on "long form" census data to distribute federal domestic financial assistance. For the last 15 years, the Internet and increasingly advanced software have allowed anyone anywhere instantaneous access to ACS tables and public use data and the capacity to analyze them in sophisticated ways.

Post-Hearing Questions for the Record
Submitted to the Director Robert Groves
From Dr. Tom Coburn
"Census: Planning Ahead for 2020"
July 20, 2012

1. In your testimony, you discussed how the Census Bureau could improve its efficiency and accomplish its mission better if it had access to other federal agencies' data and information about citizens. Can you please describe what type of information sharing between agencies currently exists and what is needed? Please describe any legislative or regulatory changes that would need to be made to allow the Census Bureau to access other agencies' data and information.

Response:
The Census Bureau has broad authority to acquire administrative records from other federal agencies, state and local governments, and other organizations based on 13 U.S.C. § 6, which allows the agency to "acquire, by purchase or otherwise,...such copies of records, reports, and other material as may be required for the efficient and economical conduct of censuses and surveys...." The Census Bureau has traditionally relied on this authority to acquire such records from many agencies, such as the Social Security Administration, Housing and Urban Development, Indian Health Service, and the Centers for Medicare and Medicaid Services, as well as information from some states, such as Supplemental Nutrition Assistance Program, and commercial entities such as InfoUSA. In addition, the Census Bureau also receives federal tax information based on 26 U.S.C. § 6103(j), which specifically provides for the disclosure of federal tax information to the Census Bureau to assist with the "structuring of censuses and national economic accounts and conducting related statistical activities as authorized by law." It is important to note, when the Census Bureau acquires information from other entities, the information is protected. In addition to any statutory or policy requirements from the data provider, the Census Bureau protects information under 13 U.S.C. § 9, which protects confidentiality and limits the use of information solely for statistical purposes, just as it does for information collected by its surveys.

However, there are some impediments to receiving data from other federal and state agencies, most notably disclosure prohibitions. For example, the Family Educational Rights and Privacy Act of 1974 (FERPA) prohibits disclosure of personally identifiable information from education records to the Census Bureau for statistical purposes, unless that information has been appropriately designated as directory information (20 U.S.C. § 1232g). In addition, the Department of Education has been restricted in sharing information from the electronic versions of the Free Application for Federal Student Aid with the Census Bureau by the privacy restrictions contained in the Higher Education Act of 1965, as amended (20 U.S.C. § 1090(a)(3(E))). The National Directory of New Hires, a national database of wage and employment information used for child support enforcement, containing new hire, quarterly wage, and unemployment insurance information, is another example of administrative records which the Census Bureau cannot access (42 U.S.C. § 453), although H.R. 4282, currently pending in the Senate, would rectify this situation. Even where there is no statutory prohibition

on disclosure of program data for statistical purposes, the Census Bureau is often compelled to enter lengthy negotiations with the agency to address confidentiality and disclosure concerns. Acquiring data where a federal program is administered by individual states is even more difficult where there is no federal directive or guidance to share program data, and/or when a state statute further prohibits disclosure. The fact that the Privacy Act includes a specific statutory exception for disclosures "to the Bureau of the Census for purposes of planning or carrying out a census or survey or related activity pursuant to the provisions of Title 13" helps to mitigate federal agency concerns about the release of data to the Census Bureau. Nevertheless, these negotiations may be prolonged in the absence of specific authority in the program's statute to share information with the Census Bureau.

It is also important to note that the Census Bureau is not the only federal agency that cannot obtain data when there are statutory limitations, but such limitations apply to the Federal statistical system at-large. Legislative changes to improve access to administrative records for statistical purposes could include a new authority that would permit programmatic agencies to disclose information to statistical agencies for exclusively statistical purposes, which may require revisions to existing agency/program authorities. The Census Bureau is a member of the Interagency Committee on Statistical Policy (ICSP), which was codified in the Paperwork Reduction Act of 1995, is chaired by OMB's Chief Statistician, and includes heads of the major statistical agencies and representatives of some smaller statistical programs. The ICSP is currently identifying such authorities and opportunities to improve access to administrative data. These opportunities extend beyond the Census Bureau, which may be able to save billions of dollars in field infrastructure for the 2020 census if able to use data about many non-responding households from the ACS and administrative records, to many of the other principal statistical agencies, where for example, administrative data on school and course enrollment could decrease survey burden by the National Center for Education Statistics and where granting the Bureau of Economic Analysis and the Bureau of Labor Statistics access to the same administrative data as the Census Bureau could synchronize their business lists, significantly improving the consistency and quality of principal economic statistics while simultaneously reducing the burden on businesses.

2. During the hearing, the topic of how the Census Bureau can or should work with state governments to accomplish its mission was discussed. Can you please describe how the Census Bureau is working with state or local governments, how this could work better, and any legislative or regulatory changes that would need to be made to improve this cooperation?

Response:
In support of the Geographic Support System Initiative (GSS- I) and its upcoming national partnership program, the Census Bureau is working with tribal, state, and local governments in the implementation of five pilot projects.

In September 2011, the Census Bureau hosted a 2-day Census Address Summit. There were 60 attendees, including 44 external stakeholders representing Federal agencies and various state, county, and local governments. Summit goals included (1) educating partners on the GSS Initiative, (2) gaining a common understanding regarding the definition of an address, (3)

learning how the Census Bureau's partners are collecting, utilizing, and maintaining addresses, and (4) brainstorming about potential pilot projects that will contribute to the improved quality of the Master Address File.

Five pilot projects proposed at the Census Address Summit began in spring 2012; participants include Geography Division subject matter experts and tribal, state, county, and local government partners, as well as representatives from academia and non-profit organizations.

1. Address Authority Outreach and Support for Data Sharing Efforts - Goal: To research and develop an approach for identifying and creating an inventory of address authorities, which facilitates address data sharing activities and provides guidance on overcoming barriers (legal/policy) at the local level.

2. FGDC Address Standards and Implementation - Goal: To educate local authorities on the benefits, use, and implementation of the Federal Geographic Data Committee's United States Thoroughfare, Landmark, and Postal Address Data Standard (FGDC Address Standard).

3. Project for Federal/State/Tribal/Local Address Management Coordination - Goal: To create a formalized model to allow for the development, maintenance, and bi-directional (state-local-tribal and state-federal) sharing of high quality multiple use address data.

4. Data Sharing - Local, State, USPS, and Census - Goal: To create an address data sharing/exchange model that will allow for address data sharing between local governments, state governments, the USPS, and the Census Bureau. It will provide a business process that increases the accuracy and coverage of local government address lists, while streamlining the process of sharing those externally.

5. Capture of Hidden/Hard to Capture Addresses - Goal: To determine how to capture hidden addresses and/or hard to capture addresses in the MAF and make them useful for enumeration purposes.

   All five pilot projects began implementation in March 2012 with a planned completion date of December 31, 2012. Final Reports/Recommendations will be issued at that time and will contribute to the development of a national partnership program designed to continually update the Census Bureau's MAF/TIGER System.

We should note that we conduct all of these activities solely to assist the Census Bureau in its activities, in accordance with Section 9, Title 13 of the United States Code (the Census Act). Under this provision, the Census Bureau must use information collected from or on behalf of a respondent only for the statistical purposes for which the Census Bureau collected the information, must not disclose personally identifiable data, and may not permit anyone other than sworn officers or employees to examine census questionnaires or returns. Addresses are personally identifiable information collected from or on behalf of respondents. *Baldrige v. Shapiro,* 455 U.S. 345, 355 (1982). From time to time, Congress has exercised its authority to amend the Census Act to provide for exceptions that permit the limited sharing of address information. In 1994, Congress passed the Address List Improvement Act, authorizing access to

census address information by local governments to "verify the accuracy of the address information of the Bureau for census and survey purposes." The Census Bureau conducts the current Local Update of Census Addresses (LUCA) program in accordance with this law. However, the Census Bureau is also aware of the burden such cooperation and assistance places on local governments, as well as the competing needs for an integrated and national authoritative source for address information. The Census Bureau is open to further discussion on these matters.

3. During the hearing, we discussed the need for the Census Bureau to consider new strategies to encourage participation in the American Community Survey if it is changed to voluntary. Can you please share your ideas for an incentive-based approach to encouraging participation?

Response:
The Census Bureau periodically conducts evaluations and experiments to improve ACS efficiency, specifically methods to improve self-response. We would need to conduct additional research to determine if new messaging strategies (e.g., in postcards, letters, or other mailings) or other incentives could improve participation in a voluntary ACS. Research the Census Bureau conducted in 2003 included testing motivational and mandatory messaging on the envelopes and in the survey letters, and we recognize that additional research may be necessary. In 2013, the ACS will change its contact strategy to encourage response by the Internet. We expect this design to improve the timeliness of self-response and convert response from mail to internet; however, we are not certain how a change to voluntary response would affect this new mode of data collection and contact strategy. Many of the 2010 Census communications strategies are impractical in a sample survey setting because the survey is only being sent to a small portion of the population. The Census Bureau would need to conduct focus groups and other research, as well as work with local partners to develop possible new approaches. Promising approaches would need to be tested in large-scale experiments to examine impacts on response.

4. What does the Census Bureau spend on mapping? Please provide an estimate for what was spent on mapping for the 2010 cycle, what is spent annually, and what is expected to be spent on the 2020 Census.

Response:
In FY 2012, the Census Bureau expects to spend $3.5 million on mapping. In response to this question, the Census Bureau has interpreted "mapping" to mean the production and dissemination of electronic or paper maps. The Cartographic Products Management Branch within the Geography Division is responsible for this work. Their tasks include:

- Designing and producing cartographic products to support the data dissemination requirements of censuses and surveys.
- Designing, developing, and implementing state-of-the-art mapping systems (using COTS and in-house software) to meet data product mapping requirements.
- Developing and maintaining mapping systems that meet requirements for customized cartographic products on demand.

It is important to note that mapping is only one piece of the Census Bureau's geographic infrastructure. In FY 2012, the Census Bureau expects to spend $67.7 million on this infrastructure. The Census Bureau maintains a foundation of geographic data within the Master Address File/Topologically Integrated Geographic Encoding and Referencing (MAF/TIGER) System. The MAF contains address information such as house number, street name, unit designator, city, state, and zip code. The TIGER Database contains spatial data such as roads, hydrography, boundaries and their identifiers and names. Together, these systems provide the ability to relate an address to a specific geographic location. This relation is necessary to ensure the correct allocation of population and housing for censuses and surveys. Accurate allocation of population and housing is critical for the accurate apportionment of the U.S. House of Representatives, congressional and legislative redistricting, and the allocation of federal funds. All geospatial data and maps produced by the Census Bureau are derived from the MAF/TIGER System.

5. In a 2011 hearing, you said that the Census Bureau was reducing costs by "actively partnering" with the commercial mapping industry. During last week's hearing, you expressed openness to the idea of such partnerships, but did not indicate whether this was currently being done or a part of the 2020 Census strategic plan. Will the Census Bureau work to reduce costs through partnerships with private sector mapping sources and the use of commercially available maps?

Response:
In April 2011, the U.S. Census Bureau issued a Request for Information (RFI) regarding the availability and feasibility of creating a partnership between the Census Bureau and a government contractor through market research focused on exchanging geographic data commonly used by both partners. Specific objectives of the partnership follow:

Objective 1: To focus on sharing information including, but not limited to:

- The contents of each organization's respective databases.
- The quality of information in the databases; how does each partner measure/evaluate?
- The quality of the sources of the data; what is acceptable quality, how does each partner measure/evaluate?
- The coverage of data and data sources.
- Each organization's knowledge about data collection, sources, feature updating, etc.

Objective 2: To design a potential feature data exchange process by:

- Realigning existing roads, if necessary, in either database.
- Adding new features, if necessary, in either database.
- Work related to this objective would encompass:
    - Selecting a county with transportation features of varying positional accuracy, some of which exist only in the MTdb and some of which exist only in the partner's database.
    - Determining how roads can be matched between databases based on geographic position and attributes.
    - Determining the attributes of importance.

- Determining the criteria for identifying which database has the best positional accuracy, by feature type.
- Determining whether it is necessary to realign existing roads prior to moving forward with updating new roads.
- Identifying new roads and update appropriate databases.
- All the above will contribute to developing a process to facilitate updating of databases.

Three private sector mapping sources responded to the RFI – Nokia/NAVTEQ, TomTom, and Esri. The Census Bureau began working with Nokia/NAVTEQ in February 2012 to address each objective. The Census Bureau will initiate work with the other two mapping sources in 2013.

6. During last week's hearing, many of the witnesses suggested that one way to improve response to a "voluntary" ACS was through the use of a partnership program similar to what was used in the 2010 Census. Can you please discuss any plans the bureau may have in regards to this solution?

Response: The Census Bureau currently has developed local and national partnership programs and plans to build on 2010 Census efforts, although on a smaller, more targeted scale appropriate to the survey's sample size. Partnership specialists, located in our regional offices, are trained on ACS data collection and data dissemination, and these individuals work with local officials, business, non-profit organizations, advocacy groups, media, and other interested parties to educate them on all aspects of the ACS and encourage participation among their constituencies. Census Bureau staff, both at Headquarters and in the regional offices, also work with national organizations and associations representing a range of interests and constituencies in a similar manner. A new initiative is underway to improve and increase both efforts, focusing specifically on the benefits and return on investment for survey participation, and to help respondents understand the uses of ACS data.

Post-Hearing Questions for the Record
Submitted to the Commerce Inspector General Todd Zinser
from Dr. Tom Coburn
"Census: Planning Ahead for 2020"
July 20, 2012

1. **In your testimony, you discussed how the Census Bureau could improve its efficiency and accomplish its mission better if it had access to other federal agencies' data and information about citizens. Can you please describe what type of information sharing between agencies currently exists and what is needed? Please describe any legislative or regulatory changes that would need to be made to allow the Census Bureau to access other agencies' data and information.**

Information Sharing Between Agencies and the Census Bureau

Congress has authorized the Department of Commerce and, ultimately, the Census Bureau to acquire and use information available from any sources by purchase or otherwise—from states, counties, cities, or other units of government, or their instrumentalities, or from private persons and agencies—for the conduct of statistical activities instead of direct inquiries.[1] Congress has provided additional legislative support for these activities with the Bureau's specific exemption in the Privacy Act of 1974 (as amended).[2] The Bureau actively uses these authorities to collect information and minimize respondent burden.

The Census Bureau receives billions of records each year from a variety of other federal agencies to conduct its own demographic and economic statistical programs, as well as statistical activities it conducts for other federal agencies,[3] through the Statistical Administrative Records System (StARS). The Bureau began building this system in the mid-1990s, and agencies currently providing data for this system of records include the Departments of Agriculture, Education, Health and Human Services, Homeland Security, Housing and Urban Development, Labor, Treasury, and Veterans Affairs, as well as the Office of Personnel Management, the Social Security Administration, the Selective Service System, and the U.S. Postal Service.[4] In addition, StARS includes data from state governments and private entities.

Most federal agencies, state governments, and private organizations collect and maintain basic information on the individuals and businesses they serve. Their records typically include the type of contact information (e.g., names, addresses, and telephone numbers) that could be used to improve the efficiency and effectiveness of statistical programs such as the decennial census. In addition, organizations maintain a wide array of other information that they have individually determined to support their mission. The types of information

[1] 13 U.S.C. § 6.

[2] 5 U.S.C. § 552a(b)(4).

[3] Censuses, surveys, and other statistical studies as authorized by 13 U.S.C. §§ 1 – 402 and 15 U.S.C. § 1525.

[4] As defined in its Privacy Act System of Records notice *COMMERCE/CENSUS-8, Statistical Administrative Records System* (74 FR 12834-02).

vary by source agency and program within those agencies. Therefore, the records the Bureau maintains in StARS may contain the following types of information:

- *Demographic information* such as date of birth, sex, race, ethnicity, household and family characteristics, education, marital status, tribal affiliation, and military veteran status;
- *Geographical and respondent contact information* such as name, address, telephone number, and geographic codes;
- *Mortality information* such as cause of death and hospitalization information;
- *Health information* such as type of provider, services provided, cost of services, and quality indicators;
- *Economic information* such as housing characteristics, income, occupation, employment and unemployment information, health insurance coverage, federal program participation, assets, and wealth; and
- *Business information* such as business name, revenues, number of employees, and industry codes.

Data Use Constraints

The Census Bureau's receipt of information from supplying agencies has required years of negotiations. Each data-providing agency, guided by its own statutes and policies regarding acceptable disclosure and use, places constraints on the information it supplies. When the Bureau uses records from multiple agencies to conduct a specific operation, the interplay between these legal constraints can be quite complex and limiting. As a result, the Bureau has only used administrative records in a limited fashion in prior decennial census operations. In some cases any presentation of data that describes the source of the record would violate a confidentiality provision. The merger of information from multiple data sources, such as the Internal Revenue Service and the Bureau, while removing information that describes a specific record's source, protects confidentiality. According to the Bureau, in a recent request for information from the Department of Education, there is a question as to whether that department can even provide information to the Census Bureau due to the privacy requirements mandated by the Family Educational Rights and Privacy Act.[5]

The Census Bureau has its own constraints on the return of information to other federal agencies. Agency information that it merges with data collected under the authority of Title 13 cannot be returned to that agency in an identifiable form, even if that entity is another federal statistical agency.[6] Legal exceptions have been required to authorize the sharing of information for statistical purposes. One exception was permitted with the Census Address

[5] 20 U.S.C. § 1232g; 34 C.F.R. Part 99.

[6] 13 U.S.C. § 9.

List Improvement Act of 1994,[7] which allowed the Bureau to share address information with local government entities for the conduct of the decennial census and other statistical activities, provided they signed a confidentiality agreement.

Another important example of a Congressional mandate to share data is the Confidential Information Protection and Statistical Efficiency Act of 2002.[8] This Act provided a baseline of confidentiality protections for statistical information in Subtitle A; it also authorized the Census Bureau, the Bureau of Economic Analysis, and the Bureau of Labor Statistics to share business data for the efficient and consistent representation of businesses and the national economy in Subtitle B. Much of the business data held by the Census Bureau comes from the Internal Revenue Service, and the Bureau adds value through processing, coding, and merger with its own economic data collections.

All agencies operate under confidentiality and data sharing constraints that have been developed and promulgated after more than a century of federal laws and Supreme Court decisions. The United States has grappled with the often contradictory priorities of the government's need for information, to effectively and efficiently provide appropriate representation and services to its populace, and an individual's right to privacy and protection from harm. The conduct of a census or a statistical survey, by its very nature, places burden on respondents and impacts their privacy. However, this need for statistics versus the burden placed on respondents is balanced by legislative controls such as the Paperwork Reduction Act.

Considerations that Could Improve the Census Bureau's Efficient Production of Information

Agencies are only custodians of personal and business information that is owned by the people of the United States, and the use of that information is directed by Congress. The federal statistical system uses those records to create important economic indicators, as well as demographic and socio-economic statistics, to help inform the apportionment of representation, determine policy, and direct resources. In addition, these statistics inform the populace and provide businesses with the information they need to make sound decisions that eventually fuel our economy. Given the staggering cost growth experienced over prior decennials, the Census Bureau needs a new method of conducting the decennial census to reduce costs while maintaining or improving accuracy.

It is in the government's interest to foster a thriving statistical system even in a constrained budget environment, and the Census Bureau is a key component of our national statistical system. The government's ability to enhance the use, or reuse, of information that people and businesses have already provided reduces the burden placed on them to respond to questionnaires and reduces intrusion of their privacy. Agencies have already incurred the cost of collecting and processing the information they house. Reusing existing data minimizes the cost incurred by the government to collect data for statistical activities.

[7] P.L. 103-430.

[8] P.L. 107-347, Title V.

We are not recommending that the Census Bureau conduct a cost-effective decennial census solely through the use of existing data. It is important that individuals have the capacity to inform the government where they live and provide the basic characteristics required for a functioning representative democracy. However, if individuals are not directly contacted in the decennial census process, or they do not to provide their information, they can still be enumerated through information the government already holds.[9] In addition, existing information can help the Bureau develop more cost-effective and efficient census and survey data collections. There are potential ways to improve the statistical system, and reduce costs, while minimizing the impact on individual privacy:

1. *Congress should consider whether address information could be shared more freely and continuously among agencies, including state and local governments, for the purpose of statistical operations.* Address and map information is widely available on the internet and through data vendors. These data alone do not impact the privacy of individuals. However, the confidentiality constraints under which the Census Bureau operates do not allow the sharing of this type of information with other agencies and leads to inefficient and perhaps ineffective government-wide operations. This new approach might require legislation and the further development and promulgation of address and mapping standards.

2. *Congress should consider a legislative requirement for federal agencies to provide unclassified information to the Bureau for the sole purpose of producing relevant, high-quality statistics.* Even though the Census Bureau has the legal authority to request data from other federal agencies for statistical activities, those agencies are not required to provide the information to the Bureau. Furthermore, when agencies do provide information, it comes with legal constraints on data access and use and often requires labor intensive negotiations. New legislation requiring federal agencies to provide the Bureau their information could reduce this burden and enhance statistical operations—including, but not limited to, the decennial census and the long-form replacement American Community Survey.

3. *Congress should consider legislation that transfers the custodial requirements from the source agency to the Census Bureau when that agency provides its information.* Agencies are very diligent about data confidentiality and appropriate use of information they collect, maintain, and eventually provide to the Census Bureau. Serving as custodians of the public interest and national records, these agencies continue to encounter the burden of overseeing and reporting on the Bureau's use of the data they have provided. This burden remains with agencies, despite the fact that the Bureau's confidentiality protections are more restrictive than the protections applicable to most federal unclassified information. New legislation would help eliminate this burden.

[9] As provided by 13 U.S.C § 6.

2. **Do you think that the Census Bureau's strategy for mapping is efficient? Could the Census Bureau improve its efficiency by using commercially available maps? Please provide any recommendations for how the Census Bureau could improve its mapping strategies.**

   OIG has not specifically conducted an analysis of the Census Bureau's strategy for the acquisition and use of commercially available products either to replace or improve its own maps. Our evaluation efforts have focused on addresses, the critical means for locating and enumerating the population in the decennial census. As required by Congressional apportionment and redistricting, the Bureau maps link each address and other living quarter identifiers to a specific spot on a map through a process called geocoding. These addresses and map also provide tallies for political and statistical geographic entities.

   In May 2012, we released our evaluation of the impact that various address-updating operations (including U.S. Postal Service address updates) have on the Census Bureau's combined master address file (MAF) and topologically integrated geographic encoding and referencing (TIGER) map database (combined, the MAF–TIGER database, or MTdb). In this report, we identified trends that introduced error in its production process.[10] In addition, we reviewed the process by which Bureau field staff and local governments provided address, map, and boundary updates in the 2010 decennial.

   We found that the Census Bureau's efforts to assess MTdb quality were unsuccessful in 2010. In addition, the Bureau did not realize its goal of updating address and map information from tribal, state, county, and local government partners. It must meet both of these goals to implement a 2020 decennial address-canvassing operation with reduced costs. Furthermore, as of June 2011, the MAF contained 3.5 million ungeocoded records—a number likely to rise, as it did during the 2010 decennial. Without maintenance of the MTdb by continuous geocoding throughout the decade, the Bureau will again have to rely on an expensive end-of-decade address-canvassing operation. Finally, the MAF updating process of accepting more recent address changes without adequate verification may result in a lower-quality address list.

   We recommended that the Census Bureau:

   1. Develop an MTdb measure for determining address list quality at a low level of geography that (a) provides a fair and equal opportunity for targeting selection, (b) drives selection and planning decisions, and (c) is well-documented and verifiable.

   2. Work with the Department to determine the feasibility of improving methods of sharing MTdb information throughout the decade with governmental entities (partners) to create a uniform, national address list.

[10] See U.S. Department of Commerce Office of Inspector General, May 2012. *High-Quality Maps and Accurate Addresses Are Needed to Achieve Census 2020 Cost-Saving Goals*, OIG-12-024-I. Washington, DC: Department of Commerce OIG.

3. Investigate and remedy the exclusion of 500,000 ungeocoded address records, which had been designated as valid U.S. Postal Service delivery addresses, from the 2010 decennial.

4. Conduct the necessary research, develop a proven methodology, and allocate the necessary funds to continuously reduce the number of ungeocoded records throughout the decade.

5. Develop and implement quality indicator tools, including use of administrative records,[11] to ensure that updates to the MAF are accurate.

Congress should continue to encourage the use of administrative records to improve the address list and reduce the number of visits to housing units that do not return the questionnaire. Although tribal, state, county, and local governments share address information with the Census Bureau, Title 13 forbids the Bureau from reciprocating with those partners—except for a few very narrow exceptions, such as the once-a-decade address-updating program. The Census Address List Improvement Act of 1994 did amend Title 13 to provide a limited exception to these restrictions for local governments, allowing two-way sharing of address information between the Bureau and officials designated by local government units. However, the program has several requirements, including an invitation and review phase, as well as an appeals process. The 2010 decennial's program occurred from January 2007 through March 2010. Although it may require legislative action, a more informal method of two-way sharing of address lists earlier in the decade could improve address updating and geocoding as well as the cost-effectiveness of the Bureau's demographic censuses and surveys throughout the decade.

[11] The Census Bureau receives administrative records from a variety of sources. Bureau use of these records in the address updating and verification process could substantially reduce the size and scope of expensive field operations in the 2020 decennial. See the first consideration, at the end of our first response, for a more detailed discussion of the potential legislative issues inherent in these uses of administrative records.

Written Statement of
Direct Marketing Association
Submitted for the Hearing Record

"Census: Planning Ahead for 2020 "

Subcommittee on Federal Financial Management, Government Information, Federal Services, and international Security
Committee on Homeland Security and Governmental Affairs
United States Senate

July 18, 2012

The Direct Marketing Association (DMA)[1] thanks Senator Carper and Senator Brown for this opportunity to present its views supporting the American Community Survey (ACS).

DMA members universally rely upon data to compete in the American and world markets. Reliable data allow marketers to determine to whom relevant marketing offers should be sent (by location, by demographic grouping, etc.). Without data available to marketers, consumers would receive fewer and fewer offers of interest and more and more non-relevant offers. This would increase the costs of commerce for marketers, and, thus, increase the costs of goods for consumers. In the current economic situation government should not create job losses or restrict job creation by increasing the costs of business operations. Nor should government reduce retail growth by increasing the costs of goods for American consumers.

There is no substitute for ACS data in the marketplace. The face of America changes significantly in the ten years between the decennial census, and ACS fills that gap. ACS directly provides or is the foundation of much of that data.

Lack of ACS data would have a disproportionate impact on small and startup businesses. These businesses do not have the resources to conduct extensive market research to determine to whom they should direct their advertising or where they should open their retail outlet. ACS provides those data. Due to the sample size and strata of ACS data, they are reliable to the town level. Any restrictions on ACS that would reduce the statistical reliability of town-level data would undermine significantly the efficacy of these data for many businesses, particularly small businesses.

To remain competitive in the information age the United States should foster the creation of new, secure and anonymous data to help businesses, federal, state and local governments better serve their customers and constituents. ACS data available to the public are anonymous and do not

[1] DMA is the leading global trade association of businesses and nonprofit organizations using and supporting direct marketing via communication channels, including mail, telephone, direct TV, radio, the Internet, email and mobile. Founded in 1917, the DMA currently has over 2,000 member companies and organizations across the United States and 53 foreign countries.

present personally identifiable information on any American. The Census Bureau has strong protections surrounding these data and a track record of keeping data secure for decades. Businesses do not obtain data on particular individuals from the Bureau through ACS.

DMA urges the Subcommittee to support ACS and to continue its existence.

Respectfully submitted,

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AAUW

Written Testimony of

Lisa Maatz, Director of Public Policy and Government Relations
American Association of University Women (AAUW)

United States Senate Subcommittee on
Federal Financial Management, Government Information, Federal Services,
and International Security

Hearing on
The 2020 Census and American Community Survey
July 18, 2012

Chairman Carper, Ranking Member Brown, and members of the subcommittee, thank you for the opportunity to submit testimony for the hearing on the 2020 Census and the American Community Survey.

On behalf of the nearly 150,000 bipartisan members and supporters of the American Association of University Women (AAUW), I am pleased to share AAUW's input on the importance of the American Community Survey (ACS) data. AAUW is proud of its 131-year history of breaking through barriers for women and girls and has always been a strong supporter of gender equity.

AAUW believes the ACS is an essential service, and that its funding should be preserved. We stand with many other groups in supporting the ACS and its important role.[i] AAUW fears that recent moves by the House of Representatives to strip the Census Bureau of ACS funding will endanger the federal government's ability to gather and disseminate important information used not only by the government, but by organizations such as AAUW.

One of AAUW's central priorities is promoting pay equity and closing the wage gap between men and women in the workforce. AAUW's member-adopted Public Policy Principles affirm our opposition to "all forms of discrimination" and commitment to "an economy that provides equitable employment opportunities."[ii] To further this goal, AAUW has published several original research reports analyzing the national gender pay gap as well as the gap in all fifty states and Washington DC. The ACS is the only source for this information.

AAUW uses the ACS data to calculate the wage gap at the state level. According to ACS data, in 2010 the pay gap was smallest in Washington, D.C., where women earned 91 percent of what men earned, and largest in Wyoming, where women earned 64 percent of what men earned.[iii] Differences at the state level are significant because it shows which sub-populations are better at implementing social, economic and legal policies to promote pay equity, and this understanding helps our organization fashion its advocacy and public education.

AAUW analyzed ACS data to determine the wage gap at the state level for members of the subcommittee. As you can see, the wage gap persists.

State Median Annual Earnings, Earnings Ratio (for Full-time, Year-round Workers, Ages 16 and Older, by State and Gender, 2010), and National Rank[iv]

State	Men	Women	Earnings Ratio	National Rank
Arizona	$43,594	$35,947	82%	8
Massachusetts	$56,959	$46,213	81%	9
Delaware	$49,013	$39,508	81%	11
Hawaii	$45,443	$36,242	80%	16
Wisconsin	$45,523	$35,490	78%	25
Ohio	$45,859	$35,284	77%	30
Missouri	$42,282	$32,481	77%	32
Oklahoma	$40,458	$30,901	76%	35
Alaska	$56,643	$42,376	75%	38
Arkansas	$39,082	$29,148	75%	41
Michigan	$48,953	$36,413	74%	42

The ACS captures the most accurate statistical portrait of the wage gap. Before the ACS, wage gap information was difficult to ascertain with certainty because the Census was conducted only every ten years even though salaries did not remain constant over that timeframe. A survey taken only once per decade misses a lot of economic fluctuation, particularly changes in the rate of inflation, cost-of-living, and the wage gap. For example, more frequent measurement of wage information is necessary to determine whether a particular public policy change or new law has any effect on the wage gap. Policies adopted in response to decade-old data do little to solve the problems they are meant to address.

Not only is ACS data useful for analysis, it's also necessary for activism. It's not enough to *tell* people that there's still a gender wage gap – you need to allow them to use the data. The ACS web based tools enables non-technical people to engage directly with the facts.

The ACS is the *only source* of objective, consistent, and comprehensive information about the nation's social, economic, and demographic characteristics down to the neighborhood level. The importance of high-quality, objective, and universal ACS data for public and private sector decision-makers cannot be overstated. AAUW strongly believes the ACS, and the valuable data it provides, should be protected.

Thank you for this opportunity to submit testimony to the committee on this important issue.

Sincerely,

Lisa M. Maatz
Director, Public Policy and Government Relations
American Association of University Women

[i] The Census Project. (May 16, 2012). *Letter to Senate Leadership on FY 2013 Census Bureau Funding, Including American Community Survey Funding May 16, 2012.* Retrieved July 13, 2012, from www.thecensusproject.org/letters/2012-05-21_Senate_Census_Budget_Ltr-SenateLeadership-Final-Signed.pdf

[ii] AAUW. (June 2011). *Public Policy Principles 2011-13*. Retrieved May 29, 2012, from www.aauw.org/act/issue_advocacy/principles_priorities.cfm#principles

[iii] AAUW. (2012). *The Simple Truth about the Gender Pay Gap*. Retrieved May 29, 2012, from www.aauw.org/learn/research/upload/simpletruthaboutpaygap1.pdf

[iv] U.S. Census Bureau, 2010 American Community Survey data.

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STATEMENT OF WADE HENDERSON, PRESIDENT & CEO
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HEARING ON
"CENSUS: PLANNING AHEAD FOR 2020"

SUBCOMMITTEE ON FEDERAL FINANCIAL MANAGEMENT, GOVERNMENT INFORMATION, FEDERAL SERVICES, AND INTERNATIONAL SECURITY

UNITED STATES SENATE

JULY 18, 2012
Washington, DC

The Leadership Conference on Civil and Human Rights (The Leadership Conference) appreciates the opportunity to submit a statement for the record on this important topic.

The Leadership Conference is a coalition charged by its diverse membership of more than 210 national organizations to promote and protect the civil and human rights of all persons in the United States. Founded in 1950 by A. Philip Randolph, Arnold Aronson, and Roy Wilkins, The Leadership Conference works in support of policies that further the goal of equality under law through legislative advocacy and public education.

The Leadership Conference is ideally positioned to address many of the most pressing issues affecting the successful implementation of Census Bureau programs, surveys, and initiatives. The Leadership Conference's coordinating role among so many diverse organizations allows for the sharing of different perspectives, as well as the development of broader strategies that occur within the purview of any individual organization. All of our work draws on the expertise of the cross-section of national organizations, and examines the impact of civil rights policy on a broad range of constituencies.

The Leadership Conference considers a fair and accurate census and comprehensive American Community Survey (ACS) to be among the most significant civil rights issues facing the country today. Our wide-ranging efforts to promote equality of representation and economic opportunity are informed by objective, inclusive data on America's diverse communities and populations. The Leadership Conference and member organizations appreciate the importance of fact-based analyses for identifying disparate access and outcomes and devising effective solutions.

American Community Survey
FY 2013 funding to support reliable ACS data is critical for sound government and business profitability, and the pursuit of national economic prosperity. We believe the president's FY 2013 budget request of $252.7 million sufficiently invests in the ACS program to ensure that the sample size is large enough to produce reliable and useful data for less populated geographic areas, such as towns and rural counties, and especially for less populous subgroups. This funding also would allow for improved telephone and field data collection; sufficient follow-up of unresponsive households in remote areas; and a comprehensive review of three-year and five-year ACS estimates. These activities are imperative for ensuring the ACS can continue to provide valid data about the socio-economic and demographic characteristics of the American people on an ongoing, annual basis.

The fact that the ACS has been the target of multiple legislative attempts to gut, undermine, underfund, and even do away with the survey altogether, is extremely troubling for The Leadership Conference and our members. For our members, the ACS is not an end in and of itself, but a foundation for future policies, allocations of funds, and political representation. The ACS' greatest strength is that it gives detailed information about us as a people. This, in turn, can show where populations are growing and new schools or hospitals may be needed. It can provide the impetus for government intervention in areas of high unemployment or influence local government to build a new highway or expand a public bus system. It's also the basis for the distribution of trillions of dollars in public – and private – investment.

Simply put, the loss of ACS data would thwart both public and private efforts to address the needs and interests of our diverse country.

That's because, for an ever-diversifying nation, the ACS provides the only accurate, reliable source of data that helps us understand who we are. For example:

- The Voting Rights Act relies on ACS data to determine which jurisdictions must offer multi-lingual ballots.
- The ACS collects information on place of birth, citizenship, year of entry, and language spoken at home in order to better serve the needs of immigrants and refugees.
- The ACS is our communities' major source of state and local data on poverty, household income, education level of the workforce, types of disabilities of local residents, and scores of other major indicators.

We are also troubled by efforts to convert the ACS from a mandatory to an optional survey, despite evidence indicating voluntary participation would not yield accurate and reliable data. For example, in 2003, Congress directed the Census Bureau to explore the possibility of making

the ACS voluntary. In two reports[1] and several more recent analyses, the Bureau concluded that mail response rates to a voluntary ACS would drop "dramatically," by more than 20 percentage points. Cooperation in traditionally low mail-response areas (which tend to equate with hard-to-count communities, such as people of color, low income families, people with disabilities, and rural households) declined even further when ACS response was voluntary. In addition, a significantly higher percentage of traditionally easier-to-count populations, such as non-Hispanic Whites, also failed to respond during the mail and telephone phases of the ACS. These findings suggest that the quality of estimates produced from a voluntary ACS would be severely jeopardized for all segments of the population and all types of communities.

Additionally, decline in mail response rates would force the Census Bureau to use more costly modes of data collection, such as telephone and door-to-door visits, thereby increasing the cost of the survey by thirty percent ($60 million at the time of the 2003 field test). Without an increase in funding in an amount necessary to overcome low initial response rates, the Census Bureau will be left with insufficient response to produce reliable data for smaller (e.g. rural communities; towns; urban neighborhoods) areas and population groups (e.g. people with disabilities; veterans; immigrant groups). Because optional response would significantly diminish the quality of estimates for less populous areas and smaller demographic groups, it is likely the Census Bureau would stop producing these data sets. That means we might not have these vital measures of the nation's socio-economic condition and progress for the majority of counties, for large swaths of suburban areas, and for diverse urban neighborhoods.

In short, making the ACS optional would undermine the only source of reliable data to guide decision-makers. For all of these reasons, losing the ACS—whether through decreased funding or making the survey optional—would have serious adverse consequences that could leave the nation in a precarious decision-making vacuum and hinder our economic recovery and future growth. And for The Leadership Conference and its 200-plus member organizations, losing this data would mean hurting every community and population we represent.

2020 Census

The ACS also plays a critically important role with respect to planning for the decennial census. We support the president's FY 2013 request for 2020 Census activities, which is nearly double the FY2012 funding level, from $66.7 million in FY 2012 to $131.4 million in FY 2013. As the Government Accountability Office has consistently documented, reasonable investments in census planning in the early part of the decade will help save hundreds of millions, and perhaps

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[1] "Meeting 21st Century Data Needs - Implementing the American Community Survey, Report 3: Testing the Use of Voluntary Methods" (Dec. 2003) (http://www.census.gov/acs/www/Downloads/library/2003/2003_Griffin_01.pdf) and an update, "Report 11: Testing Voluntary Methods -- Additional Results" (Dec. 2004) (http://www.census.gov/acs/www/Downloads/library/2004/2004_Griffin_02.pdf).

billions, of dollars in census costs down the road. The FY 2013 budget will also support the ability of the Census Bureau to design programs and operations for the 2020 Census that have residual benefits for other Census Bureau data collections.

The president's FY 2013 budget request may also allow for the resumption of the critically important Partnership Program, which was an integral component of 2010 census outreach efforts, especially with respect to hard-to-count populations. We believe that the Partnership Program is necessary in order to reach hard-to-count populations and ensuring their participation in future surveys and censuses. The Leadership Conference and its members are aware of numerous cases across the country where the vitality of local partnerships with Census Bureau staff played a critical role in the success of local outreach efforts around the 2010 census. In short, the Partnership Program ensures that timely and locally relevant information from the Bureau reaches community leaders, and that local enumeration efforts are able to use limited resources efficiently.

Conclusion

The civil rights movement of the 1960's was a fight to stand up and be counted at the voting booth and in the fullness of American life. And in today's data-driven society, we shouldn't need to fight again just to be counted by our census.

Given the enormous stakes, we applaud the subcommittee for holding this hearing, and hope that this information is helpful to you. Thank you for your leadership on this important topic.

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