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United States General Accounting Office  
Washington, D.C. 20548

General Government Division

B-283314

October 13, 1999

The Honorable Dan Miller  
Chairman, Subcommittee on the Census  
Committee on Government Reform  
House of Representatives

Subject: 2000 Census: Information on the Implications of a Post Census Local Review Program

Dear Mr. Chairman:

This letter responds to your request for information on how census operations and data accuracy could be affected if the Census Bureau were to include a coverage improvement program known as Post Census Local Review (PCLR) in the 2000 Census. Used in the 1990 Census, PCLR gave local governments an opportunity to review the Bureau's housing unit counts for their jurisdictions for any discrepancies and suggest corrections if warranted. Census Bureau representatives and local officials worked together to resolve the discrepancies—sometimes by conducting additional field verification.

PCLR is not part of the Bureau's current plans for the 2000 Census. However, the Local Census Quality Check Act (H.R. 472), currently pending before Congress, would require the Bureau to use PCLR for each decennial census taken after the date of enactment. The Bureau already has two programs that give localities the ability to ensure a more complete count of their jurisdictions prior to Census Day. The Census Address List Improvement Act of 1994<sup>1</sup> gave rise to the Local Update of Census Addresses (LUCA) program, which gives local and tribal governments the opportunity to review and suggest changes to relevant portions of the Bureau's master address list. Moreover, a new coverage improvement program called the New Construction Program is to give local and tribal governments the opportunity to identify newly constructed housing units.

Enclosure I contains our responses to your specific questions on the implications of implementing a PCLR in the 2000 Census. To respond to your questions, we interviewed Bureau officials responsible for the 2000 Census who were aware of the Bureau's use of

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<sup>1</sup> P.L. 103-430, Oct. 31, 1994.

PCLR in the 1990 Census. We also reviewed Bureau program and evaluation documents and drew from our previous work on the conduct and results of the 1990 PCLR program.

On August 13, 1999, we requested comments on a draft of this letter from the Secretary of Commerce. The Secretary provided us with written comments on September 17, 1999 (see encl. III), which we address in enclosure II.

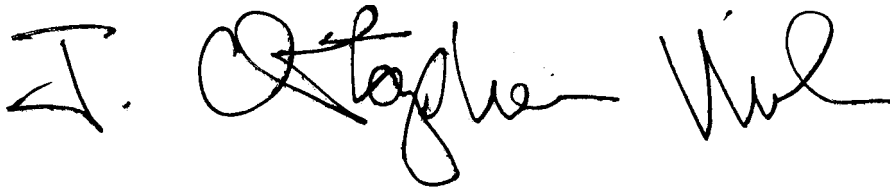
We did our work in Washington, D.C., and Suitland, MD, between May and July 1999 in accordance with generally accepted government auditing standards.

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We are sending copies of this letter to the Honorable Carolyn B. Maloney, Ranking Minority Member of this Subcommittee; the Honorable William M. Daley, Secretary of Commerce; and the Honorable Kenneth Prewitt, Director of the Bureau of the Census. Copies will be made available to others on request.

Please contact me on (202) 512-8676 if you have any questions. Major contributors to this letter were Robert N. Goldenkoff and Victoria E. Miller.

Sincerely yours,

A handwritten signature in black ink, appearing to read "J. Christopher Mihm". The signature is written in a cursive style with a large, stylized initial "J" and "M".

J. Christopher Mihm  
Associate Director, Federal Management  
and Workforce Issues

# GAO Responses To Questions From Chairman Miller Concerning The Use of a Post Census Local Review in the 2000 Census

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The following are responses to the questions received from the Honorable Dan Miller, Chairman, Subcommittee on the Census, House Committee on Government Reform, dated April 16, 1999.

**Question #1: What effect will the implementation of a PCLR program have on the implementation of other programs already scheduled for the 2000 Census?**

The extent to which a PCLR program would affect other operations already scheduled for the 2000 Census is unclear. Although Bureau officials believe that PCLR could affect the completion of the Accuracy and Coverage Evaluation (ACE), as well as other subsequent operations, the results of the 1990 Census suggest that the effect on the quality of ACE estimates could be minimal.<sup>1</sup>

Under the proposed PCLR legislation, H.R. 472, the deadline for resolving local governments' challenges to census housing unit counts would be November 1, 2000. However, in order to meet this deadline, the Bureau believes that PCLR would need to be completed by October 1, 2000. Otherwise, the Bureau says there would be insufficient time to accurately review the incorporation of the PCLR results into the census totals while adhering to congressionally mandated deadlines. In order to complete PCLR by October 1, 2000, the Bureau said it would need to adjust certain census operations, including suspending coverage improvement operations already planned for the 2000 Census earlier than originally scheduled.

A key component of ACE involves matching data from the ACE sample to the data obtained during the initial census enumeration (known as the E-sample). Differences are generally to be reconciled by an additional interview with a household member. The ACE matching and reconciliation process is scheduled to begin October 2, 2000. However, Bureau officials told us that the Bureau would need to incorporate all PCLR changes into the E-sample prior to starting the ACE matching and reconciliation operation. Thus, the Bureau would need to delay the start of the ACE matching and reconciliation process until all local governments' challenges were resolved in November 2000.

On the basis of the Bureau's experience in 1990, however, it appears that the Bureau's contention that PCLR should be completed prior to starting the ACE matching and reconciliation process might be too rigid. In 1990, during a coverage evaluation operation called the Post Enumeration Survey (PES), the Bureau collected PCLR and other coverage improvement data past the start of the matching and reconciliation process and was able to incorporate portions of it to improve the quality of PES estimates.

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<sup>1</sup> ACE is a program that measures coverage error in the census through an independent survey of a sample of households.

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Although the Bureau cut short plans to incorporate all “late” coverage improvement data into the original count in order to complete PES on schedule, a Bureau evaluation of the 1990 PES showed that excluding the remaining data had a small effect on the PES estimate of accuracy and would have decreased the undercount only slightly if it had been included. In 1990, the overall effect of including the late data was to reduce the net estimated undercount from 2.08 percent to 2.01 percent, or 0.07 percentage points.

Although ACE, like PES, is to measure census coverage, according to the Bureau, ACE results are to be an integral part of the census results, whereas PES was used for evaluative purposes. As a result, the Bureau believes that adding any operations late in the census cycle could jeopardize the quality of census data.

**Question #2: Will the implementation of a PCLR program increase or decrease the accuracy of the census counts before any adjustment is applied due to a coverage and evaluation survey?**

On the basis of the 1990 Census, PCLR could add small numbers of housing units and people to the count if implemented in 2000 and make a small contribution to increased accuracy. According to Bureau evaluations, in 1990, 80,929 housing units were added as a result of PCLR. This represented a 0.08 percent addition to the housing unit count. Of those additional housing units, 58.7 percent were occupied, 29.6 percent were vacant, and 11.7 percent were deleted by later census operations because they were determined not to be housing units. In terms of people, PCLR added about 124,900 individuals (0.1 percent) to the population count. However, according to Bureau officials, evaluations of 1990 late census data collection activities (which included PCLR) indicated that in addition to adding correct enumerations, these activities generated a high rate of duplicate or erroneous enumerations. Before adjustment, these duplicate or erroneous enumerations have the effect of reducing the net undercount, but not of improving the overall accuracy of the census.

**Question #3: If the Bureau projects any such decrease in accuracy, are there any specific scientific studies that back this assertion?**

The Bureau has not studied the effect that PCLR could have on the 2000 Census.

**Question #4: Given the fact that the ACE will only be conducted in 10,000 out of 5,000,000 populated census blocks and significant PCLR corrections for missed housing units should only be reported for a fairly small number of blocks (somewhere around 50,000 to 100,000 out of 5,000,000 blocks), what effect will a PCLR have on the timely field implementation and analysis of the ACE?**

The effect that PCLR would have on the timely implementation and analysis of ACE could not be determined because, according to Bureau officials, information on the extent of overlap

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between 1990 PES and PCLR blocks is not readily available for comparison purposes.

PCLR could delay the ACE matching and reconciliation process if the Bureau requires that all PCLR data be included in the ACE E-sample. However, as we note in our response to Question #1, this requirement might be too stringent because, on the basis of 1990 evaluations, there would not be a significant reduction in the PES estimate of accuracy if the PCLR data were not used in ACE.

**Question #5: What are the actual overlaps between the two processes?**

In terms of scheduling, there would be no overlaps between PCLR and ACE because Bureau officials said that if the Bureau is required to do PCLR in 2000, it would delay the ACE matching and reconciliation process to accommodate PCLR operations. Resolving discrepancies between Bureau and local governments' housing unit counts could delay ACE matching and reconciliation activities by about 6 weeks, according to Bureau officials. As noted in our response to Question #1, the PCLR operation would not be scheduled to end until November 1, 2000—4 weeks after the ACE matching and reconciliation operation is scheduled to begin October 2, 2000. The Bureau estimates that ACE matching and reconciliation operations would be delayed by this 4-week period plus at least an additional 2 weeks for incorporating the PCLR data into the census count—thus causing a delay of at least 6 weeks.

**Question #6: Other than the cost factors that have already been projected by CBO, what other benefits or problems do you envision with the incorporation of a PCLR in the 2000 Decennial Census?**

Although we have not comprehensively analyzed the full implications of implementing a PCLR program in 2000, on the basis of our prior work on the 1990 PCLR program,<sup>2</sup> discussions with Bureau officials, and review of 1990 PCLR program evaluations, PCLR has several potential benefits and problems. Among its potential benefits, PCLR could do the following:

- It could allow local government officials a last chance to review and correct housing unit counts within their jurisdictions before the census is over. In 1990, 9,847 out of 39,198 eligible governments (or 25.1 percent) participated.

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<sup>2</sup> Decennial Census: Status of Housing Coverage Check and Postcensus Local Review Programs (GAO/T-GGD-90-63, Sept. 25, 1990).

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**Enclosure I**

**GAO Responses To Questions From Chairman Miller Concerning The Use of a Post Census Local Review in the 2000 Census**

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- It could correct some errors in the Bureau's files showing the exact geographic location of an address (known as geocodes) and delete nonexistent housing units from the Bureau's master address list. In 1990, 198,347 housing units were geographically transferred, and 101,887 housing units were deleted from the Bureau's records.
  - It could add people and housing units to the overall census count.
  - It could identify pockets of missing addresses.

Among PCLR's potential problems:

- It has unknown implications for timely and accurate completion of other census operations because of an uncertain volume of challenges from local governments. The 1990 volume of challenges was relatively low—local governments formally challenged the housing unit counts of 270,650 out of 6.5 million blocks (4.2 percent). Nevertheless, according to Bureau officials, adding PCLR, or any other unplanned operation, to the operational requirements of the 2000 Census at this time could cause serious delays and undermine the ability of the Census Bureau to complete an accurate and timely census. The Bureau believes that the risks of adding a new operation, when weighed against the relatively few additions to the census count that likely would come from PCLR, argues against adding PCLR to the 2000 Census.
- It could create logistical problems. For example, printing maps for local governments asking to participate in the review, on an ad hoc basis, would be an added operation and expense.
- If it follows the 1990 pattern, there will be lower participation among middle and smaller-sized governments because they lack the available resources of larger cities.
- It is more expensive than some other Post-Census Day coverage improvement programs in terms of housing units and people added to the final census count. In 1990, the \$9.6 million the Bureau spent on PCLR translated into \$118.67 per housing unit added and \$76.89 per person added. By comparison, the costs of some other Post-Census Day coverage improvement programs are shown in table I.1. However, when measured by the total number of corrections made, PCLR costs drop to \$25.19 per housing unit corrected. In 1990, PCLR added 80,929 housing units, deleted 101,887 housing units, and corrected 198,347 geocoding errors for total housing unit corrections of 381,163.

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**Enclosure I**

**GAO Responses To Questions From Chairman Miller Concerning The Use of a Post Census Local Review in the 2000 Census**

**Table I.1: Cost of 1990 Post-Census Day Coverage Improvements**

<b>Coverage improvement</b>	<b>Total cost</b>	<b>Per housing unit added</b>	<b>Per person added</b>
Vacant/delete/movers check	\$67,589,000	\$69.05	\$44.90
Recanvass	\$14,684,000	\$105.97	\$82.40
Post census local review	\$9,604,000	\$118.67	\$76.89
Primary selection algorithm review	\$2,880,000	Not Applicable	\$8.22
Parolee/probationer coverage improvement	\$5,800,000	\$232.00	\$12.95
Other search/match forms	\$6,319,000	\$253.76	\$10.38

Source: Bureau of the Census.

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# Agency Comments and Our Evaluation

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The Secretary of Commerce provided written comments on a draft of this letter. He stated that Commerce had fundamental concerns about the position we are taking in response to Chairman Miller's questions.

Specifically, the Secretary commented that our response appears to indicate that PCLR would affect only the ACE survey. However, he stressed that PCLR, or any other unplanned operation, could corrupt many other 2000 Census operations in addition to ACE because all of the systems and procedures in place for the census are highly integrated.

Our draft pointed out the possibility that PCLR could affect other census operations in addition to ACE. In response to Question #1, for example, we noted that PCLR could affect the completion of both ACE and other subsequent census operations. Moreover, in our response to Question #6, we noted that PCLR has unknown implications for timely and accurate completion of other census operations because of an uncertain volume of challenges from local governments. However, because the Secretary emphasized this point in his comments—amplifying on remarks made to us by Census Bureau officials during our initial audit work—we added language to our response to Question #6 to more fully reflect Commerce's concern that adding unplanned operations at this point in the census cycle could cause serious disruptions.

The Secretary also noted that although the proposed PCLR legislation would require the Bureau to complete PCLR by November 1, 2000, Commerce believes that PCLR would need to be completed by October 1, 2000. Otherwise, there would not be sufficient time to accurately review the incorporation of the PCLR results into the 2000 Census tabulations while adhering to congressionally mandated deadlines. The Secretary noted that to complete PCLR by October 1, 2000, the Bureau would need to consider various adjustments to 2000 Census operations, including suspending other coverage improvement operations earlier than planned. Commerce believes that this could put the quality and integrity of census data at risk. Moreover, Commerce stated that the coverage improvement operations already planned for the 2000 Census have been shown to be more effective in improving the accuracy of census data than PCLR.

As noted in our draft, during the 1990 Census, the Bureau collected PCLR and other coverage improvement data past the start of the matching and reconciliation process and was able to incorporate portions of it to improve the quality of PES estimates. Also, as noted in our response to Question #6, one factor that would affect timely completion of already scheduled operations is the number of challenges from local governments in the PCLR program. In 1990, that volume was relatively low. However, we added language in our response to Question #1 to reflect Commerce's position that PCLR may have to be completed earlier than the proposed legislation's deadline in order to incorporate PCLR results into the census count.

Also, we recognize that the Census Bureau has included several coverage improvement

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operations in the 2000 Census that, according to 1990 data, appear to have added to the housing unit and population counts. In this regard, table I.1 compares the cost of several 1990 Post-Census Day coverage improvement programs.

The Secretary further commented that we did not acknowledge that two operations already planned for the 2000 Census—LUCA and the New Construction program—will provide local governments with opportunities to review and suggest corrections to the Bureau’s address list. These programs did not exist during the 1990 Census, and, thus, a PCLR program has less potential to make a positive contribution to the quality of the census than was the case in 1990.

Our draft did acknowledge that the Bureau already has two programs that give local governments the ability to ensure a more complete count of their jurisdictions. The second paragraph of our letter to Chairman Miller discusses the Census Address List Improvement Act of 1994, which required the Bureau to give local governments the opportunity to review relevant portions of the Bureau’s master address list. The Bureau was responding to this mandate when it created LUCA. We added language to our letter to better reflect this. Our letter also notes how the Bureau’s New Construction program is to give local and tribal governments the opportunity to identify newly constructed housing units.

The Secretary also commented that the environment in which the Bureau is conducting the 2000 Census is very different from the 1990 Census, noting, for example, that the 1990 PES was initially designed for evaluative purposes, while the ACE is to be integral to the census results. The Secretary also stated that during the 1990 Census, several operations were added late in the decennial cycle, including the method of handling late additions we referred to in our response to Question #1. The Secretary commented that the 2000 Census design will not include such operations, because the risk of failure is too high.

We added language to our response to Question #1 that clarifies Commerce’s position on these points. However, we note that although the 1990 PES may initially have been designed for evaluative purposes, the PES was actually done with the intent of providing adjusted census figures for possible use. In this sense, the PES, like ACE, was seen as an integral part of the 1990 Census.

# Comments From the Secretary of Commerce



**THE SECRETARY OF COMMERCE**  
Washington, D.C. 20230

SEP 17 1999

Mr. J. Christopher Mihm  
Associate Director  
Federal Management and Workforce Issues  
General Government Division  
U.S. General Accounting Office  
Washington, D.C. 20548

Dear Mr. Mihm:

The Department of Commerce appreciates the opportunity to comment on the General Accounting Office (GAO) draft document entitled, *GAO Responses to Questions From Chairman Miller on the Use of a Post Census Local Review in the 2000 Census*. The Department's comments on this draft report are enclosed. We hope that your final report will incorporate points made in these comments. To the extent that it does, the text or summary of our comments should change accordingly.

Sincerely,

A handwritten signature in black ink, appearing to read "William M. Daley".

William M. Daley

Enclosure

Comments from the U.S. Department of Commerce  
Bureau of the Census

U.S. General Accounting Office report entitled *GAO Responses to Questions From Chairman Miller on the Use of a Post Census Local Review in the 2000 Census*

After carefully reviewing this document, the U.S. Census Bureau has fundamental concerns regarding the position that the General Accounting Office (GAO) is taking in response to Chairman Miller's questions. The Census Bureau believes that introducing a Post Census Local Review (PCLR) program at this late date could cause serious disruptions in many Census 2000 operations, including the Accuracy and Coverage Evaluation survey. Moreover, the GAO's report repeatedly references a completion date of November 1, 2000, for the PCLR. While this is the date that Chairman Miller includes in his proposed PCLR legislation (H.R. 472), the Census Bureau believes that a PCLR operation would need to be completed by October 1, 2000. Otherwise, there would not be sufficient time to accurately review the incorporation of the results of the PCLR operation into the Census 2000 tabulations while adhering to congressionally mandated deadlines. In order to complete the PCLR operation by October 1, 2000, the Census Bureau would need to look at a whole host of adjustments to Census 2000 including suspending coverage improvement operations earlier than planned. This would put at risk the quality and integrity of census data. In fact, the coverage improvement operations planned for Census 2000 have been shown to be far more effective in improving the accuracy of census data than a PCLR operation.

The GAO seems to indicate that introducing PCLR will only affect the Accuracy and Coverage Evaluation survey. This is not the case. Adding PCLR, or any other unplanned operations, to the operational requirements of Census 2000 at this time could cause serious delays and undermine the ability of the Census Bureau to complete an accurate and timely census. Because all of the systems and procedures in place for Census 2000 are highly integrated, any attempt to introduce a new operation at this stage runs the risk of corrupting many other Census 2000 operations. Changing existing systems to accommodate this new operation would risk damaging the overall quality of Census 2000 data in potentially large and unforeseen ways. It is worth noting that the Census Bureau's position is supported by the Department of Commerce Office of Inspector General and the Department of Commerce Information Technology Review Board. Both have consistently stressed that any changes in Census 2000 operating systems at this stage may cause serious disruptions detrimental to the overall success of the decennial census. In addition, previous reports by the GAO have pointed to the need to finalize the

census design early so as to make all the elements mesh together effectively. This point is missing in the list of problems outlined in response to Question #6.

Moreover, the GAO report fails to acknowledge the increased involvement of local governments in reviewing and finalizing the address list. The Local Update of Census Address program and the New Construction program will provide local governments with opportunities to revise the address list that did not exist in the 1990 decennial census. Consequently, there is even less potential for a PCLR program to make positive contributions to the census than there was in 1990.

With respect to the Accuracy and Coverage Evaluation survey, in response to Question #1, the GAO states that *"on the basis of the Bureau's experience in 1990, however, it appears that the Bureau's contention that PCLR should be completed prior to starting the ACE matching and reconciliation process might be too rigid. In 1990 . . . the Bureau collected PCLR and other coverage improvement data past the start of the matching and reconciliation process and was able to incorporate portions of it to improve the quality of PES estimates."* In response to Question #4, the GAO makes the same point, stating that *"on the basis of 1990 evaluations, there would not be a significant reduction in accuracy if the PCLR data were not used in ACE."*

This discussion fails to acknowledge the very different environment in which the Census Bureau is conducting Census 2000 relative to the 1990 decennial census. The Census Bureau is neither conducting the same census operation as in 1990, nor is the Accuracy and Coverage Evaluation survey the same operation as the Post Enumeration Survey (PES). The 1990 PES was initially designed for evaluative purposes, and not as an integral part of census operations. The 1990 census also included the addition of several ad hoc processes late in the decennial cycle, including the method of handling late additions referred to by the GAO. Census 2000 by design will not include such operations, as the risk of failure is seen to be too high. (The GAO will recall that in 1990 a serious computer error produced inaccurate PES results. That error was discovered and corrected only after the incorrect results were published. This illustrates the need for careful planning and testing.) As stated before, in planning for Census 2000, the Census Bureau developed integrated systems and procedures and does not believe that new operations can be added at this late stage without introducing the potential for serious and unforeseen damage to the overall quality of census results for every purpose.

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