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Accounting and Information
Management Division

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May 5, 1994

The Honorable Joseph I. Lieberman
Chairman
The Honorable Thad Cochran
Ranking Minority Member
Subcommittee on Regulation
and Government Information
Committee on Governmental Affairs
United States Senate

In response to your request and subsequent discussions with your office, we determined the status of the Bureau of the Census's planning for its new high performance computing center. Census plans to locate this center at the University of Maryland's Science and Technology Center in Bowie, Maryland. Our objective was to provide information on the status of the Bowie computer center's development.

To determine the status, we reviewed relevant documents, including the General Services Administration's (GSA) 1990 Prospectus Development Study for a new Census Bureau computer facility and associated office space at the existing Suitland Federal Center; a 1992 GSA prospectus proposing construction of a Census Bureau computer facility in Bowie, Maryland; a 1994 study, "The Applicability of High Performance Computing at the U.S. Bureau of the Census," by Advanced Resource Technologies, Incorporated; and draft memoranda of agreement between the Census Bureau and University of Maryland covering the Bowie computer center's operations and facility. We interviewed Census Bureau officials from the Administrative and Publication Services Division, Computer Services Division, Information Systems Planning Office, and Information Systems Support Office at the Census Bureau's headquarters in Suitland, Maryland. We also interviewed GSA officials, and officials from the University of Maryland's Computer Science Center and Office of the President.

BACKGROUND

In January 1992, GSA submitted a prospectus to the Congress stating that the Census Bureau's Central Computer Facility in Suitland, Maryland, could no longer accommodate the growing technological needs of the agency, or provide for future expansion. The prospectus further stated that the Bureau's needs could only be met with a new facility, and it proposed constructing a new computer facility in Bowie, Maryland. The site for the facility, which is located at the University of Maryland's Science and Technology Center, is to be donated to GSA by the State of Maryland.

The Bureau is proposing to operate its general purpose processing resources in the new "state-of-the-art" facility. The Bureau is also planning to acquire high performance computing resources and to share the facility with the University of Maryland as a high performance computing center.¹ In addition, the University is planning to construct a computer operations and training building adjacent to the new facility. The Bureau and University will be entering into memoranda of understanding during 1994 to share the facility as a high performance computing center.

Timing for the completion of the computer center will be critical. To prevent delays or disruption of initial work for the 2000 census, the Bureau told us its computers should be installed and operational early in calendar year 1997.

STATUS OF THE BOWIE COMPUTER CENTER

The Bowie computer center project is in the early stages of development. The following discussion describes the status of (1) memoranda of understanding between the University of Maryland and Census, (2) the Bowie computer center development schedule, (3) computer center appropriations, (4) an assessment of high performance computing applications at Census, (5) Census's assessment of the risks of the Bowie computer center, and (6) Census's assessment of the need for a backup computer center.

¹ High performance computing is the incorporation of new technologies, such as scientific workstations, supercomputer systems, high-capacity and high-speed networks, special purpose and experimental systems, and innovative applications and systems software, into the current computing environment.

Agreements Between the University and Census

Memoranda of understanding (MOU) between the University of Maryland and the Census Bureau are still in draft form. Bureau and University representatives met during 1993 to outline a broad plan and MOU covering joint activities in high performance computing. In addition, GSA and University representatives met during 1993 to develop an MOU for conveying the Bowie land to GSA for Census's use. Initially, the University wanted issues concerning the computer facility, the land transfer, and high performance computing operations covered in a single draft MOU. However, the Bureau's Associate Director of Information Technology and GSA's Assistant Regional Counsel for the Capital Region disagreed and wanted all references to high performance computing eliminated from the facilities MOU. GSA and the Bureau stated that a single MOU should not cover different areas, such as computer usage issues and site issues. The University subsequently agreed to separate the operational aspects of the high performance computing facility from that of the building by drafting separate MOUs.

On December 29, 1993, GSA's Assistant Regional Counsel forwarded copies of a draft facility MOU to the Bureau and University for review. In summary, the facility MOU states that Maryland will convey nine acres of land to GSA for Census use, and that GSA is to construct a building and parking spaces. The draft states that during nonbusiness hours, the Bureau will allow the University to use those parking spaces. The draft MOU also states that the University and Bureau agree to cooperate in site planning, allowing pedestrian and vehicular access, and maintaining the building and landscape.

The University also prepared a draft MOU, dated October 5, 1993, on computer operations. This draft states that the Bureau, subject to federal funding, will make its best effort to obtain high performance computing equipment. The draft also states that in consideration for the State of Maryland providing land for the facility, the University and Census Bureau will develop a plan for shared use of the computing resources. In addition, the draft MOU provides that the University and Bureau intend to establish joint research programs, with the University providing technical expertise.

Status of the Construction Schedule

As of the last week in April, the design for the computer facility was on schedule and was 95 percent complete, according to the computer facility project officer. A GSA project task schedule indicated that the final design is scheduled for completion by July 1994.

Solicitation for construction is scheduled to take place between July 14, 1994, and October 6, 1994, and the construction contract is expected to be awarded by November 4, 1994. Facility construction is planned to take over 2 years, from November 7, 1994, through December 16, 1996. Occupancy of the facility is scheduled to be completed by January 30, 1997.

Census officials stated that they want the Bowie computer facility to be fully operational early in 1997 to participate in census preparation activities, such as the "census dress rehearsal." The dress rehearsal, which will start in April 1997 and end in November 1998, will give the Bureau the opportunity to conduct operational tests of all methodologies, procedures, and systems that will be used during the 2000 census.

Funding for the Bowie Computer Center

In the last 3 years, the Congress has appropriated \$2.7 million to GSA's Federal Building Fund for the planning and design of the new center, and almost \$28 million for construction of the center. The Department of Commerce has not yet approved any Bureau funding requests for high performance computing. According to the Chief of the Bureau's Information Systems Planning Office, Commerce stated that the Bureau has not adequately established a need for high performance computing.

Applications for High Performance Computing

The Bureau has conducted a preliminary assessment of its need for and potential use of high performance computing. The Bureau contracted with Advanced Resource Technologies, Incorporated (ARTI) to prepare a report on the applicability of high performance computing technologies to the Bureau. This report, released in February 1994, relates the Bureau's mission needs to the high performance computing technologies

that ARTI believes are most appropriate. It also discusses the risks associated with each type of technology.

The report contains 14 recommendations related to high performance computing and associated issues. ARTI recommended that the Bureau accomplish the following:

- prototype different high performance computing technologies,
- define requirements for a system or systems to replace the current mainframe environment,
- encourage the use of commercial off-the-shelf software throughout all program areas and adopt certain software packages as standards for common functions,
- continue efforts to move toward a truly open computing environment,
- enforce data standardization and initiate a formal requirements definition of needed data, and
- implement a public access capability for census data.

ARTI also recommended that the Bureau develop a formal business plan and move forward with its planned collaborative agreement with the University of Maryland by developing an integrated plan for implementing a high performance computing environment.

The ARTI study is an evaluation of high performance computing technologies, not a justification for their acquisition. On the basis of the ARTI study results, the Bureau has requested approval from the Department of Commerce to start prototyping high performance computing technologies and plans to submit a supplement to its 1994 Information Technology Plan previously submitted to the Commerce Department identifying its high performance computing needs.

Assessing Risks for the
Bowie Computer Center

The Bureau plans to conduct a risk assessment of the Bowie facility once Maryland formally transfers the land to GSA. The purpose of a risk analysis is to make system owners aware of vulnerabilities and threats to an installation so they can act to minimize risk of future losses. For example, a risk analysis is important because the Bureau has responsibility for maintaining the confidentiality of its respondent data. An assessment of the Bowie facility risks should help the Bureau determine whether additional computer security safeguards will be needed to protect the census data because of the access the University will have to the high performance computing resources in the facility. In addition, this assessment should help the Bureau determine and document its contingency planning needs, including the need for a backup facility.

Assessing the Need for
a Backup Facility

At the present time, the Bureau does not plan to maintain a separate backup facility for the proposed Bowie computer center. The Bureau currently has a leased backup facility for the Suitland center in Charlotte, North Carolina. The lease for the Charlotte facility terminates in October 1997, and the Bureau has two 5-year renewal options, according to Bureau officials. Annual lease costs total about \$1.5 million. The Bureau plans to move the general purpose computing resources currently located in both the Suitland and Charlotte facilities to Bowie and terminate the lease for the Charlotte facility once the Bowie facility is operational.

Bureau officials believe that the planned modular design of the Bowie facility will provide sufficient protection of the computing resources to allow critical processing to continue in the event of a fire or other types of disasters to which the facility would most likely be vulnerable. The basic concept of the modular design is to build individual computer rooms that are totally separated from one another to minimize the spread of damage from a disaster. According to Bureau officials, this tentative decision was based on an informal,

undocumented assessment of the risks associated with the Bowie facility. The modular design, however, clearly will not protect against all types of disasters, for example, tornadoes or other natural disasters. Further, the Bureau cannot know the types of disasters to which the facility is most likely subject without the completion of the risk assessment. Bureau officials told us that they would make a final decision on the need for a backup facility after the risk assessment is completed.

OBSERVATIONS

The proposed Bowie computer center is a critical part of the Bureau's information technology planning for the 2000 census. The Bureau has a lot to accomplish within a short time frame and continued oversight will be necessary to ensure prompt completion of the computer center. The center must be constructed, equipment installed, and its operation stabilized in less than 3 years. Delays could have an adverse impact on the Bureau's preparedness for the 2000 census. Consequently, it is imperative that the Bureau work immediately toward finalizing all memoranda of understanding with the University of Maryland. In addition, we are concerned about the Bureau's tentative decision not to maintain a backup facility for the Bowie computer center. Such a decision should not be made without completing a comprehensive risk assessment. Therefore, it is important that the Bureau conduct its planned risk assessment as soon as possible after the land is donated and make its final decision based on assessment results.

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We conducted our review from September 1993 through April 1994. We discussed the contents of this letter with the Census Bureau's Associate Director for Information Technology. The Associate Director's views have been incorporated as appropriate.

We are sending copies of this letter to the Director, Census Bureau; Director, Planning Staff, General Services Administration; Office of the President, University of Maryland; Assistant Secretary for Administration, Department of Commerce; Office of Inspector General, Department of

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Commerce; and interested congressional committees. Copies will also be made available to others upon request. If you have any questions about this letter, please contact me at (202) 512-7487.

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