

GAO

Testimony

Before the Subcommittee on the
Legislative Branch, Committee on
Appropriations, U.S. Senate

For Release on Delivery
Expected at 10:30 a.m. EDT
Tuesday, June 14, 2005

CAPITOL VISITOR CENTER

Effective Schedule Management and Updated Cost Information Are Needed

Statement of Bernard L. Ungar, Director
Terrell Dorn, Assistant Director
Physical Infrastructure Issues



Mr. Chairman and Members of the Subcommittee:

We are pleased to be here today to discuss GAO's ongoing work on the progress of the Capitol Visitor Center (CVC) project. As requested, we will focus our remarks today on the Architect of the Capitol's (AOC) progress in achieving selected project milestones and in managing the project's schedule since the Subcommittee's May 17 hearing on the project.¹ We will also discuss the project's costs and funding, including the potential impact of schedule-related issues on the project's costs. Our observations today are based on our review of schedules and financial reports for the CVC project and related records maintained by AOC and its construction management contractor, Gilbane Building Company; our observations on the progress of work at the CVC construction site; and our discussions with CVC project staff, including AOC, its construction management contractor, and representatives of an AOC schedule consultant, McDonough Bolyard Peck (MBP). We did not perform an audit; rather we performed our work to assist Congress in conducting its oversight activities.

In summary, AOC's sequence 2 contractor, Manhattan Construction Company, has met 3 of 11 significant milestones scheduled for completion by today's hearing. The sequence 2 contractor missed the other 8 milestones for several reasons, such as unforeseen site conditions and a design problem. AOC does not expect these delays to affect the CVC project's scheduled September 2006 completion date because AOC believes that the contractor can recover the lost time. Furthermore, certain utility tunnel work is scheduled for completion about 5 months later than previously reported, but AOC does not expect this delay to postpone the project's completion date because AOC plans to use temporary equipment that will allow the project to move forward but will also increase its costs. However, largely because of past problems and risks and uncertainties that face the project, we continue to believe that the project is more likely to be completed in the December 2006 to March 2007 time frame than in September 2006, as shown in AOC's schedule. AOC and its construction management contractor have continued their efforts to address two of the areas we identified during the Subcommittee's May 17 CVC hearing as requiring priority attention—having a realistic, acceptable schedule and aggressively monitoring and

¹GAO, *Capitol Visitor Center, Priority Attention Needed to Manage Schedules and Contracts*, [GAO-05-714T](#) (Washington, D.C.: May 17, 2005).

managing adherence to the schedule. But AOC has not yet developed risk mitigation plans or, as the Subcommittee requested, prepared a master schedule that integrates the major steps needed to complete construction with the steps needed to prepare for operations. Until recently, AOC did not have funding to continue contractual support it had been receiving to help plan and prepare for CVC operations. We continue to believe that these areas require AOC's priority attention and that the project's estimated cost at completion will be between \$522 million and \$559 million, and that, as we indicated during the May 17 hearing, AOC will likely need as much as \$37 million more than it has requested to cover risks and uncertainties to complete the project. We believe that most of these additional funds will be needed in fiscal years 2006 and 2007, although exactly how much will be needed at any one time is not clear. We are recommending that this fall AOC update its estimate of the cost to complete the project.

Schedule Milestones and Management

AOC and its major construction contractors have made progress since the Subcommittee's May 17 hearing. As of May 31, the construction management contractor reported that the CVC project's construction was about 65 percent complete. The sequence 1 contractor, Centex Construction Company, which was responsible for the project's excavation and structural work, has continued to address punch-list items, such as stopping water leaks that continue to appear in perimeter walls. According to the construction management contractor, as of May 31, the sequence 1 contractor had completed almost all of the items on the punch list. AOC expects the sequence 1 contractor to be completely done with this list and off site by June 30, although the contractor may have to return later to address some issues. Furthermore, the sequence 2 contractor, which is responsible for the mechanical, electrical, plumbing, and finishing work, continued to make progress in these areas, including erecting masonry block, placing concrete, and installing finish stone, sheetrock and plaster, and granite pavers. The sequence 2 contractor also continued work on the utility tunnel.

As the Subcommittee requested, we worked with AOC on the selection of several sequence 2 milestones that the Subcommittee can use to help track the project's progress from the Subcommittee's May 17 hearing to July 31. These milestones are shown in appendix 1 and include activities on the project's critical path, as well as other activities that we and AOC believe

are important for the project's timely completion.² AOC's sequence 2 contractor completed 3 of the 11 activities listed in appendix 1 as scheduled for completion by today. The 11 activities include certain stone work in the Great Hall, a portion of the masonry wall in the auditorium, and certain utility tunnel work. According to AOC, the delays in 8 of these activities were caused by a number of factors, such as unforeseen site conditions, a design problem, and delays in completing certain masonry work that had to be completed before other work could be done. AOC does not expect these delays to postpone the project's scheduled September 2006 completion date because it believes that the sequence 2 contractor can recover the lost time.

Since the May 17 hearing, AOC learned that the utility tunnel, which was expected to be operational in October 2005, is not now likely to be operational until March 2006. According to AOC, this date slipped because of unforeseen site conditions and the need to do certain work earlier than originally anticipated. The sequence 2 contractor has indicated that the impact of this delay on the project's scheduled September 2006 completion date will be mitigated by the use of temporary dehumidification equipment. However, this mitigation approach will result in additional costs, as explained later in this statement. Also since the May 17 hearing, AOC's contractors have updated the project's master schedule, and the new schedule shows seven paths that are critical or are within 15 days of being critical. For example, the updated schedule shows millwork and finishing the auditorium to be within 10 days and 15 days, respectively, of being critical. Having so many critical or near-critical paths complicates schedule management and increases the risk of problems that could lead AOC to miss its scheduled completion date.

In our May 17 statement, we provided several observations on AOC's management of the project's schedules, including our view that problems in this area contributed to slippage in the project's scheduled completion date and additional project costs associated with delays. We also

²A critical path is a sequence of activities in a schedule that has the longest duration. There is no scheduling flexibility or slack time associated with the activities. This means that a delay in a critical path activity will delay the entire project unless a way is found to reduce the time required for other activities along the critical path. A schedule may have multiple critical paths simultaneously, and the critical path through a project can change as the project is updated and the time estimated to complete the tasks changes. Currently, AOC's schedule shows CVC's critical path running through wall stone and East Front stonework, and also shows other work elements, such as utility tunnel and millwork, as near critical (i.e. having little slack time).

discussed recommendations we had already made to AOC to enhance its schedule management. AOC had agreed with these recommendations and had generally begun to implement them, but, it still needed, in our view, to give priority attention to them to keep the project on track and as close to budget as possible. A brief discussion follows of the issues that need AOC's priority attention and the current status of AOC's actions to address these issues.

- **Having realistic time frames for completing work and obtaining fully acceptable schedules from contractors.** Over the course of the project, AOC's schedules have shown dates for completing tasks that project personnel themselves considered unlikely to be met. In addition, the master project schedule (prepared by AOC's construction management contractor) that AOC was using in May 2005 did not tie all interrelated activities together and did not identify the resources to be applied for all the activities, as AOC's contract requires. On June 10, the construction management contractor told us that it had reassessed the reasonableness of the activity durations and found that they reasonably reflected the time required to perform the activities. Last week, AOC provided us with a revised master schedule that the construction management contractor said (1) reflected significant improvement in the linkage of interrelated tasks and (2) provided sufficient information to manage the project's resources. AOC said that it planned to approve and accept this schedule subject to several conditions. Although our initial review of this revised schedule indicates that a number of improvements have been made, we have not yet had time to fully evaluate it. We will have a more complete assessment for the Subcommittee by its next CVC oversight hearing. Furthermore, as we said during the May 17 hearing, we continue to believe that AOC's scheduled September 2006 completion date is optimistic and that the project is more likely to be done in the December 2006 to March 2007 time frame, largely because of past problems, the risks to the schedule identified during our assessment of it in early 2004, and future risks and uncertainties facing the project. We plan to update our risk assessment for AOC's revised schedule and have our update completed in September 2005. Our update will include a review of activity durations.
- **Aggressive monitoring and managing contractors' adherence to the schedule, including documenting and addressing the causes of delays, and reporting accurately to Congress on the status of the project's schedule.** We noted in our May 17 testimony that neither AOC nor its construction management contractor had previously (1) adhered to contract provisions calling for monthly progress review meetings and schedule updates and revisions, (2) systematically tracked and

documented delays and their causes as they occurred or apportioned their time and costs to the appropriate parties on an ongoing basis, and (3) always accurately reported on the status of the project's schedule. AOC and the construction management contractor have been working with the schedule consultant to develop a new, systematic process for tracking, analyzing, and documenting schedule progress and delays, addressing schedule issues, approving proposed schedule changes, and reporting on the schedule's status. On June 7, AOC, the construction management contractor, the sequence 2 contractor, and the schedule consultant conducted the first monthly schedule status review session using the newly developed approach. If effectively implemented and sustained, we believe that this new approach should generally resolve the schedule management concerns we previously raised, although it is not yet clear how delays will be handled on an ongoing basis. We believe that the successful implementation of this new approach, including the effective handling of delays, depends heavily on the CVC project team's continuous commitment of sufficient skilled resources to schedule management. On June 9, the construction management contractor told us that a project control engineer who had been assigned temporarily to help manage the project's schedule would be working full time on the project starting June 13. We plan to closely monitor the implementation of this new approach, including the resources devoted to it, the handling of delays, and the accuracy of the information provided to Congress.

- **Developing and implementing risk mitigation plans.** In the course of monitoring the CVC project, we have identified a number of risks and uncertainties that could have significant adverse effects on the project's schedule and costs. Some of these risks, such as underground obstructions and unforeseen conditions, have already materialized and have had the anticipated adverse effects. We believe the project continues to face risks and uncertainties, such as unforeseen conditions associated with the project's remaining tunnels and other work, scope gaps or other problems associated with the segmentation of the project between two major contractors, and shortages in the supply of stone and skilled stone workers. Although we have recommended that AOC develop and implement risk mitigation plans for these types of risks and uncertainties, AOC has not yet done so. AOC has agreed, however, to begin to do this shortly, and, according to AOC's CVC project executive, is exploring possible approaches.
- **Preparing a master schedule that integrates the major steps needed to complete CVC construction and the steps necessary to prepare for operations.** A number of activities, such as hiring and training staff, procuring supplies and services, and developing policies and

procedures, need to be planned and carried out on a timely basis for CVC to open to the public when construction is complete. Although AOC has started to plan and prepare for CVC operations, as we indicated in our May 17 testimony, it has not yet developed a schedule that integrates the construction activities with those activities necessary to prepare for operations. The Subcommittee requested such a schedule during its April 13, 2005, hearing on AOC's fiscal year 2006 budget request. Because of a lack of funds, AOC had not been able to extend the work of a contractor that had been helping it plan and prepare for operations. Last week, AOC received the funding needed to re-engage this contractor, and AOC said that it would be working with the contractor to continue planning and preparing for CVC operations.

Project Costs and Funding

As we said during the Subcommittee's May 17 hearing, we estimate that the cost to complete the construction of the CVC project, including proposed revisions to its scope, will range from about \$522 million without provision for risks and uncertainties to about \$559 million with provision for risks and uncertainties. As of June 10, 2005, about \$483.7 million had been provided for CVC construction. In its fiscal year 2006 budget request, AOC asked Congress for an additional \$36.9 million for CVC construction. AOC believes this amount will be sufficient to complete construction and, if approved, will bring the total funding provided for the project's construction to \$520.6 million. Adding \$1.7 million to this amount for additional work related to the air filtration system that we believe will likely be necessary brings the total funding needed to slightly more than the previously cited \$522 million. AOC believes that it could obtain this \$1.7 million, if needed, from the Department of Defense. AOC's \$36.9 million budget request includes \$4.2 million for potential additions to the project's scope (e.g. congressional seals, an orientation film, and storage space for backpacks) that Congress will have to consider when deciding on AOC's fiscal year 2006 CVC budget request.

AOC has not asked Congress for the additional \$37 million (\$559 million minus \$522 million) that we believe will likely be needed to address the risks and uncertainties that continue to face the project. These include, but are not limited to, shortages in the supply of stone and skilled stone workers, unforeseen conditions, scope gaps, further delays, possible additional requirements or time for life safety or security changes and commissioning, unknown operator requirements, and contractor coordination issues. These types of problems have been occurring, and as of June 1, 2005, AOC had received proposed sequence 2 change orders with costs estimated to exceed the funding available in fiscal year 2005 for

sequence 2 changes by about \$400,000.³ AOC plans to help cover this potential shortfall by requesting approval from the House and Senate Committees on Appropriations to reprogram funds from other project elements that it does not believe will be needed for those elements. AOC can also request approval from these Committees to use part of \$10.6 million that Congress approved for transfer to the CVC project from funds appropriated for Capitol Buildings operations and maintenance.⁴

For several reasons, we believe that AOC may need additional funds for CVC construction in the next several months. These reasons include the pace at which AOC is receiving proposed change orders for sequence 2, the problems it is encountering and likely to encounter in finishing the project, and the uncertainties associated with how much AOC may have to pay for sequence 2 delays as well as when AOC will have fiscal year 2006 funds available to it. For example, AOC is likely to incur additional costs for dehumidification if the expected delay in the utility tunnel cannot be mitigated or AOC has to obtain temporary equipment to provide steam and chilled water to CVC. AOC may be able to meet this need as well as the other already identified needs by additional reprogramming of funds and by obtaining approval to use some of the previously discussed \$10.6 million.⁵ However, these funds may not be sufficient to address the risks and uncertainties that may materialize from later this fiscal year through fiscal year 2007. Thus, while AOC may not need all of the remaining \$37 million we have suggested be allowed for risks and uncertainties, we believe AOC is likely to need more funds in fiscal years 2006 and 2007 than it has already received and has requested to complete the construction of CVC's currently approved scope, although the exact amount and timing are not clear at this time. Effective implementation of our

³In our May 17 testimony, we reported that AOC had about \$700,000 remaining in its fiscal year 2005 funding for sequence 2 changes after deducting estimated costs for proposed changes it had received.

⁴Public Law 108-447, enacted in December 2004, provided that up to \$10.6 million could be so transferred upon the approval of the House and Senate Committees on Appropriations. In March 2005, AOC requested that about \$4 million of these funds be transferred to CVC, including some funds for construction-related work, such as design of the gift shop space. As of June 10, AOC had received approval to use about \$2.8 million of this \$10.6 million. None of the \$10.6 million was included in the \$483.7 million above.

⁵AOC plans to fund anticipated additional costs for the House connector tunnel, the Jefferson Building connection to the Library of Congress tunnel, and certain security-related work by requesting approval to reprogram about \$1.6 million from sequence 1 construction and the East Front Interface to these project elements.

recommendations, including risk mitigation, could reduce AOC's funding needs.

Recommendation for Executive Action

Given the development of a new project schedule, the pace at which sequence 2 change orders are being proposed, and the risks and uncertainties that continue to face the project, we recommend that, in the September to November 2005 time frame, the Architect of the Capitol update the estimated cost to complete the project. We believe that such information will be useful to Congress as it considers AOC's budget request for fiscal year 2007 as well as any other requests AOC may make for CVC funding. We expect to have our risk assessment of AOC's new project schedule done in September and believe that the information developed during this assessment will be important in estimating future costs. In addition, we believe that AOC will have more information on the possible costs of sequence 2 delays by that time. AOC has agreed to do this update.

Mr. Chairman, this completes our prepared statement. We would be happy to answer questions that you or other Subcommittee Members may have.

Contacts and Acknowledgments

For further information about this testimony, please contact Bernard Ungar at (202) 512-4232 or Terrell Dorn at (202) 512-6923. Other key contributors to this testimony include Shirley Abel, Maria Edelstein, Elizabeth Eisenstadt, Brett Fallavolitta, Jeanette Franzel, Jackie Hamilton, Bradley James, Scott Riback, and Kris Trueblood.

Appendix I: Capitol Visitor Center Critical Construction Milestones May 2005-July 2005

Activity	Location	Scheduled completion	Actual completion
Wall Stone Area 1	Great Hall ^{a,b}	5/11/05	6/06/05
Scheduled for completion between 5/17/05 and 6/14/05			
Wall Stone Area 3 Base Support	Great Hall ^a	5/20/05	5/20/05
Wall Stone Layout Area 4	Great Hall	5/20/05	6/06/05
Saw Cut Road at 2 nd Street	Utility Tunnel ^a	5/24/05	
Wall Stone Area 4 Base Support	Great Hall ^a	5/27/05	
Wall Stone Layout Area 5	Great Hall	5/27/05	5/27/05
Masonry Wall Lower Level East	Cong. Auditorium	6/03/05	5/25/05
Wall Stone Area 5 Base Support	Great Hall ^a	6/06/05	6/09/05
Wall Stone Layout Area 6	Great Hall	6/06/05	
Drill/Set Soldier Piles at 2 nd Street	Utility Tunnel ^a	6/08/05	
Wall Stone Area 6 Base Support	Great Hall ^a	6/13/05	
Scheduled for completion between 6/15/05 and 7/31/05			
Wall Stone Layout Area 8	Great Hall	6/20/05	
Masonry Wall	Orientation Theater	6/24/05	
Wall Stone Layout Area 9	Great Hall	6/24/05	
Wall Stone Area 9 Base Support	Great Hall ^a	7/05/05	
Wall Stone Installation Area 2	Great Hall	7/06/05	
Wall Stone Installation Area 3	Great Hall	7/06/05	
Wall Stone Installation Area 4	Great Hall	7/15/05	
Wall Stone Area 9 Base	Great Hall ^a	7/15/05	
Excavate/shore Station 0-1	Utility Tunnel ^a	7/21/05	
Concrete Working Slab 2 nd Street	Utility Tunnel ^a	7/26/05	
Waterproof Working Slab Station 0-1	Utility Tunnel ^a	7/29/05	

Source: AOC's April 2005 CVC sequence 2 construction schedule for the scheduled completion dates and AOC and its construction management contractor for the actual completion dates.

Note: Actual completion information was obtained on June 9, and AOC did not expect that the wall stone area 6 base-support work in the Great Hall would be done by June 13; it is now expected to be done after June 14.

^aThese activities are critical.

^bThis activity was scheduled for completion by the Subcommittee's May 17 hearing but was not done as of that date.

This is a work of the U.S. government and is not subject to copyright protection in the United States. It may be reproduced and distributed in its entirety without further permission from GAO. However, because this work may contain copyrighted images or other material, permission from the copyright holder may be necessary if you wish to reproduce this material separately.

GAO's Mission

The Government Accountability Office, the audit, evaluation and investigative arm of Congress, exists to support Congress in meeting its constitutional responsibilities and to help improve the performance and accountability of the federal government for the American people. GAO examines the use of public funds; evaluates federal programs and policies; and provides analyses, recommendations, and other assistance to help Congress make informed oversight, policy, and funding decisions. GAO's commitment to good government is reflected in its core values of accountability, integrity, and reliability.

Obtaining Copies of GAO Reports and Testimony

The fastest and easiest way to obtain copies of GAO documents at no cost is through GAO's Web site (www.gao.gov). Each weekday, GAO posts newly released reports, testimony, and correspondence on its Web site. To have GAO e-mail you a list of newly posted products every afternoon, go to www.gao.gov and select "Subscribe to Updates."

Order by Mail or Phone

The first copy of each printed report is free. Additional copies are \$2 each. A check or money order should be made out to the Superintendent of Documents. GAO also accepts VISA and Mastercard. Orders for 100 or more copies mailed to a single address are discounted 25 percent. Orders should be sent to:

U.S. Government Accountability Office
441 G Street NW, Room LM
Washington, D.C. 20548

To order by Phone: Voice: (202) 512-6000
TDD: (202) 512-2537
Fax: (202) 512-6061

To Report Fraud, Waste, and Abuse in Federal Programs

Contact:

Web site: www.gao.gov/fraudnet/fraudnet.htm

E-mail: fraudnet@gao.gov

Automated answering system: (800) 424-5454 or (202) 512-7470

Congressional Relations

Gloria Jarmon, Managing Director, JarmonG@gao.gov (202) 512-4400
U.S. Government Accountability Office, 441 G Street NW, Room 7125
Washington, D.C. 20548

Public Affairs

Paul Anderson, Managing Director, AndersonP1@gao.gov (202) 512-4800
U.S. Government Accountability Office, 441 G Street NW, Room 7149
Washington, D.C. 20548