

**PROGRESS OF CONSTRUCTION OF THE CAPITOL
VISITOR CENTER, 2006**

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE
COMMITTEE ON APPROPRIATIONS
UNITED STATES SENATE
ONE HUNDRED NINTH CONGRESS

SECOND SESSION

SPECIAL HEARINGS

FEBRUARY 15, 2006—WASHINGTON, DC
MARCH 15, 2006—WASHINGTON, DC
APRIL 27, 2006—WASHINGTON, DC
MAY 24, 2006—WASHINGTON, DC
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PROGRESS OF CONSTRUCTION OF THE CAPITOL VISITOR CENTER

WEDNESDAY, FEBRUARY 15, 2006

U.S. SENATE,
SUBCOMMITTEE ON THE LEGISLATIVE BRANCH,
COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 10:27 a.m., in room SD-138, Dirksen Senate Office Building, Hon. Wayne Allard (chairman) presiding.
Present: Senators Allard and Durbin.

OPENING STATEMENT OF SENATOR WAYNE ALLARD

Senator ALLARD. Good morning, everybody. I'm going to do one of the things that's unheard of around here and that's start early. We've got all our witnesses here. Hopefully, Senator Durbin will be able to join us a little later on in the subcommittee hearing.

Senator Durbin had an opportunity to have a very positive tour this last Monday, and he appreciated the opportunity, Mr. Hantman, to have that tour. We talked about it and I was encouraged by his comments and his observations as a result of that tour.

We meet today to take testimony on the progress of the Capitol Visitor Center (CVC). This is our eighth hearing on the Capitol Visitor Center in this Congress and the first of the new year. We will continue these monthly hearings to ensure proper oversight of this major historic construction project. We welcome back to the witness table after a several month hiatus the Architect of the Capitol, Mr. Alan Hantman, the CVC Project Director, Mr. Bob Hixon, and our Government Accountability Office (GAO) representatives, Mr. Bernie Ungar, and Mr. Terrell Dorn.

Since our last hearing in November, a number of very important activities have been completed or nearly completed, including an update of the schedule and a reassessment of the opening date, a thorough evaluation of the fire systems acceptance process, and review of the amounts needed to complete the project.

In addition, I understand you are close to selecting an executive director for the Capitol Visitor Center.

Many challenges lay ahead, however. There are some 18 critical path activities, there are a large number of project change orders continuing to come in, and the design in a number of areas is not finalized. We look forward to getting a full update today on these issues as well as progress on the stone delivery and installation and the status of major project milestones. So when my ranking member comes in, I'll turn to him and give him an opportunity to make a few comments on his visit on Monday and then give him

an opportunity to make an opening statement. We'd like to first recognize Mr. Alan Hantman for his testimony.

STATEMENT OF ALAN M. HANTMAN, FAIA, ARCHITECT OF THE CAPITOL

ACCOMPANIED BY BOB HIXON, PROJECT DIRECTOR, CAPITOL VISITOR CENTER, ARCHITECT OF THE CAPITOL

Mr. HANTMAN. Good morning, and thank you, Mr. Chairman. I welcome this opportunity to update you on the status of the Capitol Visitor Center project to discuss the key issues related to schedule, to budget, and to project progress.

At our November hearing, we committed to report to you on the two key issues that you just mentioned, the delays in the delivery and installation of interior stone, and the duration of the fire and life safety acceptance testing process. We stated then that by January we'd have a better understanding of how these issues would impact the project schedule and therefore determine with greater accuracy the completion date of the Capitol Visitor Center.

STONE DELIVERIES AND INSTALLATION

Regarding stone, Mr. Chairman, our contractors did receive some relief from the injunction in early December allowing the sequence 2 contractor to pursue alternate quarries as sources of stone. After a search and inspections of sample stone from several quarries were completed, a selection was made. And last week, Mr. Chairman, we began receiving the first shipments of stone from that fabricator. This week we've gotten additional shipments as well. This stone will be used in the east front where the visitor center transitions into the Capitol. Meanwhile, the fabricator has increased the pace of deliveries. He's now meeting his original commitment to deliver an average of 2.5 truckloads per week which is a significant improvement over October when there were a total of three truckloads for the entire month. In addition, the pace of installation has improved to approximately 1,000 stones per week. Most recently, Mr. Chairman, in the last couple of weeks, it's gone up to 1,100 stones per week.

We expect to see further progress when the base stonework, which is the most complicated, the most time-consuming portion of it, is completed early this spring throughout all areas that will receive stone. But despite these significant improvements, we're still some 20 truckloads of stone behind schedule which equates to approximately a 2-month delay. This has been a significant factor in the late accomplishment of many of the milestones we've been discussing over the course of these hearings. Now while the contractor may be able to recover some of this time, it would be imprudent and overly optimistic to plan on a significant recovery since there's a risk that additional issues may yet arise. Delays in stone installation will hold up the execution of follow-on work, such as the completion of ceilings, installation of floor stone, other finishes, and ultimately the installation and testing of the fire and life safety systems.

I'd also like to note, Mr. Chairman, as we've discussed before, that the Federal District Court Judge has appointed an attorney, a special master, to investigate the CVC stone issue. Last Friday,

the special master met with us, along with representatives of and attorneys for the firms involved in the litigation. We provided him with an inspection tour of the CVC. He's planning to have hearings the first week in March. He's also been visiting the quarries and the fabricator as part of his efforts to gather information to work toward a resolution of the dispute that has impacted the progress of our project.

FIRE AND LIFE SAFETY ACCEPTANCE TESTING

With regard to the fire and life safety acceptance testings, we met many times over the past months and completed an intensive review of the acceptance process and the prerequisites to get us there. Our evaluation revealed that life safety acceptance testing for the CVC will take 4½ months to complete, about 6 to 7 weeks longer than the 3 months originally anticipated. The CVC life safety systems are extraordinarily complex, Mr. Chairman. They include more than 5,000 smoke detection and alarm devices, security devices, a smoke evacuation system, state-of-the-art public address and warning systems, and the full integration of all these systems with emergency generators as well. This complexity is a result of the sensitivity of the building itself from a security perspective, the fact that it lies completely below ground, and that it serves as a place of public assembly. Our fire marshal has stated that there are no parallels to this project he is aware of. Existing codes do not really address our unique circumstances.

The bottom line is that the delays in the delivery and installation of the stone, along with the additional time required to complete the complex fire and life safety acceptance process, add approximately 3 to 3½ months to the overall project schedule. Therefore, we now expect a completion date of the CVC in March 2007. Immediately following the full acceptance of fire and life safety systems, several weeks are required for staff training with large groups of people before opening the facility for full capacity. Therefore, the CVC is projected to be available for a formal opening in April 2007, or any time thereafter that the Congress might find appropriate.

If I could just review those dates with you, Mr. Chairman. The first date talks about construction completion. We believe that virtually all of our hard construction work will be completed by December of this year. The food service areas in September, the orientation theaters as well. The orientation security lobbies, the visitor auditorium will be complete in October, the great hall and the exhibit galleries as well. In terms of the overall completion time in terms of December of this year, we believe that's where we're going to be. The fire testing and the final acceptance of that is going to span this timeframe, basically starting in November and coming into March 2007, about the middle of the month.

So we're projecting, Mr. Chairman, that the CVC will be available for a soft opening—and let me define what a soft opening is. Basically, staff training with large groups of people to work out any of the problems in visitor flow before the full complement of people would be welcomed in on a daily basis. So for that 30 days we expect that the staff itself will be able to exercise their training opportunities without significant outside people for say 10 days before the certificate of occupancy is there because they're staff members.

About 3 weeks after that point in time though the soft opening would involve bringing in people, large groups of people, to test the orientation theaters, to test the food service areas, the gift shops, and have people in ever-growing groups come on in, training the tour guides to be comfortable so that we're ready to open for the full complement of folks.

So the last date we're seeing here, Mr. Chairman, for the formal opening, we're projecting that in April 2007, or again any time thereafter that the Congress might choose. We could have a formal opening, a grand opening or dedication, as you might term it. The occupancy of the House and the Senate expansion spaces will occur following the acceptance of the life safety systems for these areas themselves and that in turn is going to follow the acceptance of systems in the CVC. So we're anticipating approximately 2 months and we have to work through some of the details with the fire marshal after the opening of the CVC for the exhibit space to be ready—I'm sorry, for the expansion space to be ready.

COST TO COMPLETE

Mr. Chairman, the project schedule extension will affect the overall project cost to complete. In November we concurred with a GAO statement that potential risks do exist and that additional funds would be necessary should these risks turn into reality, most notably, if completion occurs after 2006 or if significant additional change orders are required. After meetings with GAO and our construction manager, Gilbane, we anticipated that the delay, along with the additional change orders, the potential for future project risks could increase the project's cost to complete by approximately \$20.6 million. And this amount has been requested in our fiscal year 2007 budget. GAO's ongoing review, however, has resulted in a revised estimate of the cost to complete which adds approximately \$5 million to this amount for further time extension and contingency. Accordingly, Mr. Chairman, we'll work with you to perfect this adjustment, if you concur, in order to ensure that there are adequate contingencies.

PROJECT PROGRESS AND HIGHLIGHTS

With respect to project progress and highlights, Mr. Chairman, since the last hearing in November, as you stated in your opening statement, significant progress has been made in many areas of the CVC. For example, in the great hall, as shown on this board, wall stone is complete on three sides and stone is complete on all 16 columns. Crews completed stonework on the ceiling soffits, which are these connector points that tie the columns together. They did that in January, clearing the way for ceiling work to begin on the west side of the hall. Here we see scaffolding having been erected in the area where we're hoping that the Statue of Freedom mold will be going, the plaster cast of it. So here we see workers involved in the day to day activities and we're up to some 30 or so mason teams right now working in the visitor center. Stonework was also completed, Mr. Chairman, in the north and south orientation theaters in December, as shown here, and ceiling work is ongoing in both facilities. With much of the wall and the ceiling framing now complete, crews will soon begin installing the wood and the acoustic

fabric wall panels on the adjacent walls to make sure that the sound reverberation is controlled. Wall stone is also completed in the exhibition hall and the floor stone installation is expected to begin next week.

In December, Mr. Chairman, masons began setting the first floor stone in this corridor at the south end of the great hall and in another corridor leading to the congressional auditorium. These areas are nearly complete and workers are now applying grout between the stones. Also, inside the congressional auditorium, wall stone is essentially complete and crews are working in the adjacent corridors and atrium leading to the facility and ceiling work is beginning.

In the House and Senate expansion spaces, Mr. Chairman, the contractor is making good progress. Crews continue to install mechanical, electrical, and plumbing systems as you can see in this major view over here. Drywall is going up in many of the spaces. We can see workers actively involved in that. Wall framing and duct work is ongoing inside the new Senate recording studio on the upper level, while wall closing inspections are occurring on the middle level.

In January on the Senate plaza, workers completed the concrete work and the installation of pavers to a level sufficient to accommodate vehicular traffic for the State of the Union address. This zone has undergone a remarkable transformation, Mr. Chairman, from an uneven asphalt parking lot to a gently sloping granite-covered plaza. The view there today provides a good sense of what the overall plaza will look like basically at the conclusion of the job. And I'm also pleased to report, Mr. Chairman, that beginning next month the first of 85 trees will be planted on the east Capitol grounds. We're going, as you know, to be replacing the tulip poplars that Frederick Law Olmsted originally planted there in the 1880's. We've been growing these trees and they range from 18 to 27 feet in height and they're going to be planted down the gentle incline going to the screening area so we look forward to seeing that kind of finishing work coming up.

As discussed in past hearings and as you saw in your inspection tour, Mr. Chairman, another critical work zone is the utility tunnel along East Capitol Street. In January, workers completed the tunnel structure and have connected many of the steam and chilled water pipes inside the tunnel as shown here. Crews are expected to complete the backfill work at Second Street next week and moving west toward First Street they'll begin placing a 10-inch concrete slab to restore the roadway. Weather permitting, the contractor will complete concrete and asphalt placements early this spring and the street will then reopen to traffic.

EXHIBITS AND OPERATIONS

In addition to the construction progress, Mr. Chairman, the project is moving forward on other fronts, most notably, in the preparation and development of exhibits and interactive programs in the fabrication of the exhibit hall models. The prototypes of the exhibit cases were reviewed and approved in late January. The fabrication of both the exhibits and the models is on schedule. Meanwhile, a stone contractor has begun fabricating the marble panels

for the Wall of Aspirations. Also, the scripts for the House and Senate virtual theater films were presented last week to the Capitol Preservation Commission for review and for their comment. If we need additional filming, that will take place in April or May. On the operations front, we are currently receiving proposals for the food service contract and a selection is expected by mid-year. And, finally, as you mentioned, Mr. Chairman, we've completed the interviews with the finalist candidates for the executive director position and selection is expected very shortly.

In conclusion, much progress is being made, the quality of the work is very high, and it's a very exciting time to see so many aspects of the project coming together. Once again, thank you for this opportunity to testify today. I'd be happy to answer any questions.

[The statement follows:]

PREPARED STATEMENT OF ALAN M. HANTMAN, FAIA

Thank you, Mr. Chairman. I welcome this opportunity to update you again on the status of the Capitol Visitor Center project and to discuss the key issues related to schedule, budget, and project progress.

At our November hearing we committed to report to you on the two key issues impacting the project: the delays in the delivery and installation of interior stone, and the duration of the fire and life-safety acceptance testing process. We stated then that by January we would have a better understanding of how these issues would impact the project schedule and therefore, determine with greater accuracy the completion date of the Capitol Visitor Center.

STONE DELIVERIES AND INSTALLATION

Regarding stone, our contractors did receive some relief from the injunction in early December allowing the Sequence 2 contractor to pursue alternate quarries as sources of stone. After research and inspections of sample stone from several quarries were completed, a selection was made. Last week, we began receiving the first shipments of that stone from the fabricator. This stone will be used in the East Front where the Visitor Center transitions into the Capitol.

Meanwhile, the fabricator has increased the pace of deliveries and is now meeting their original commitment to deliver an average of 2.5 truck loads per week, a significant improvement over the total of three truck loads delivered the entire month of October. In addition, the pace of installation has improved to approximately 1,000 stones per week. We expect to see further progress when the base stone work, the most complicated and time-consuming stage of the stone installation, is completed early this spring. Despite these significant improvements, we are still some 20 truckloads of stone behind schedule which equates to approximately a two-month delay. This has been a significant factor in the late accomplishment of the milestones we discussed in November and at other hearings.

While the contractor may be able to recover some of this time, it would be imprudent and overly optimistic to plan on a significant recovery since there is a risk that additional issues may yet arise. Delays in stone installation will hold up the execution of follow-on work such as the completion of the ceilings, installation of floor stone, other finishes, and installation of fire and life-safety systems. I would also like to note that the Federal District Court judge has appointed an attorney—a "special master"—to investigate the CVC stone issues. Last Friday, the special master met with us (along with representatives of and attorneys for the firms involved in the litigation) and we provided him an inspection tour of the CVC. The special master has also visited the quarry and the fabricator and will hold a hearing the week of February 20 as part of his efforts to gather information and work toward a resolution of the dispute that has impacted the progress of the project.

FIRE AND LIFE-SAFETY ACCEPTANCE TESTING

With regard to the fire and life-safety acceptance testing, we met many times over the past months and completed an intensive review of the acceptance process and prerequisites. Our evaluation revealed that life-safety acceptance testing for the CVC will take 4½ months to complete, about six to seven weeks longer than the three months originally anticipated. The CVC life-safety systems are extraordinarily complex. They include more than 5,000 smoke detection and alarm devices, security

systems, a smoke evacuation system, a state-of-the-art public address and warning system, and the full integration of these systems with emergency generators. This complexity is a result of the sensitivity of the building, the fact that it lies completely below ground, and that it serves as a place of public assembly.

The bottom line is that the delays in the delivery and installation of stone along with the additional time required to complete the complex fire and life-safety acceptance process add approximately three to 3½ months to the overall project schedule. Therefore, we now expect a completion date of the CVC in March 2007. Immediately following the full acceptance of fire and life-safety systems, several weeks are required for staff training with large groups of people before opening the facility for full capacity. Therefore, the CVC is projected to be available for a formal opening in April 2007. The occupancy of the House and Senate expansion space will occur following acceptance of the life-safety systems for these areas, which will follow the life-safety acceptance testing of the CVC.

COST TO COMPLETE

The project schedule extension will affect the overall project cost-to-complete. In November, we concurred with GAO's statement that potential risks do exist and that additional funds would be necessary should these risks turn into reality; most notably if completion occurs after December 2006, or if significant additional change orders are required. After meetings with GAO and our construction manager, Gilbane, we anticipated that the delay, along with additional change orders and the potential for future project risks, could increase the project's cost-to-complete by approximately \$20.6 million, and this amount has been requested in our fiscal year 2007 budget. GAO's ongoing review, however, has resulted in a revised estimate of the cost-to-complete which adds approximately \$5 million to this amount for further time extension and contingency. Accordingly, Mr. Chairman, we will work with you to effect this adjustment in order to ensure that there are adequate contingencies.

PROJECT PROGRESS AND HIGHLIGHTS

Since the last hearing in November, we have made significant progress in many areas of the CVC.

For example, in the Great Hall wall stone work is complete on three sides and stone is up on all 16 columns. Crews completed stone work on the ceiling soffits late in January, clearing the way for ceiling work to begin on the west side of the hall. At the north and south ends of the Great Hall crews have completed the installation of escalator trusses.

Stone work was completed in the North and South Orientation Theaters in December and ceiling work is ongoing in both facilities. With much of the wall and ceiling framing now complete, crews will soon begin installing the wood and acoustic fabric wall panels. Wall stone is also complete in the Exhibition Hall and floor stone installation is expected to begin next week.

In December, masons began setting the first floor stone in a corridor at the south end of the Great Hall and in another corridor leading to the Congressional Auditorium. These areas are nearly complete and workers are now applying grout between the stones. Inside the Congressional Auditorium, wall stone is essentially complete and crews are working in the adjacent corridors and atrium leading to the facility and ceiling work is beginning.

In the House and Senate Expansion Spaces, the contractor is making good progress. Crews continue to install mechanical, electrical, and plumbing systems, and drywall now lines many of the interior spaces. Wall framing and ductwork is ongoing inside the new Senate Recording Studio on the upper level while wall close-in inspections are occurring on the middle level.

In January, on the Senate Plaza, workers completed the concrete work and installation of pavers to a level sufficient to accommodate vehicle traffic for the State of the Union address. This zone has undergone a remarkable transformation from an uneven asphalt parking lot to a gently sloping granite-covered plaza. The view there today provides a good sense of what the overall Plaza will look like. Beginning in March, the first of 85 new trees will be planted on the East Capitol Grounds.

As discussed in past hearings, and as you saw on your inspection tour, another critical work zone is the utility tunnel along East Capitol Street. In January, workers completed the tunnel structure and have connected many of the steam and chilled water pipes inside the tunnel. Crews are expected to complete backfill work at Second Street next week, and then, moving west toward First Street, they'll begin placing a 10-inch concrete slab to restore the roadway. Weather permitting, the contractor will complete concrete and asphalt placements early this spring and the street will then re-open to traffic.

EXHIBITS AND OPERATIONS

In addition to the construction progress, the project is moving forward on other fronts, most notably in the preparation and development of exhibits and interactive programs and the fabrication of the Exhibit Hall models.

The prototypes of the exhibit cases were reviewed and approved in late January and the fabrication of both the exhibits and models is on schedule. Meanwhile, a stone contractor has begun fabricating the marble panels for the Wall of Aspirations. Also, the scripts for the House and Senate Virtual Theater films were presented last week to the Capitol Preservation Commission for review and comment. Any additional filming required will take place this April or May.

On the operations front, we are currently receiving proposals for the food service contract. A selection for that contract is expected by mid-year. And finally, we have completed the interviews with the finalist candidates for the Executive Director position and a selection is expected shortly.

In conclusion, much progress is being made and the quality of the work is very high. It is an exciting time to see so many aspects of the project coming together. Once again, thank you for this opportunity to testify. I'd be happy to answer any questions you may have.

Senator ALLARD. Who's going to testify now? Mr. Dorn?

Mr. DORN. Yes.

Senator ALLARD. If you'd go ahead with your testimony, please.

STATEMENT OF TERRELL DORN, ASSISTANT DIRECTOR, PHYSICAL INFRASTRUCTURE, GOVERNMENT ACCOUNTABILITY OFFICE

ACCOMPANIED BY BERNARD L. UNGAR, DIRECTOR, PHYSICAL INFRASTRUCTURE, GOVERNMENT ACCOUNTABILITY OFFICE

Mr. DORN. Thank you, Mr. Chairman, for the chance for Mr. Ungar and I to come here and discuss our continued assistance to the subcommittee and its oversight of the Capitol Visitor Center construction. First of all, I'd like to acknowledge a couple of the GAO staff members that are here with us today to help us get these monthly testimonies together. Gloria Jarmon, Jeanette Franzel, Shirley Abel, John Craig, Brad James, Regina Santucci and Brett Fallavollita. Without their help we wouldn't be able to pull these things together and I appreciate their work.

As you pointed out in your opening remarks and as Mr. Hantman went into more detail about, a lot has happened since November. In fact, since November, we've had three schedule revisions and two cost estimates, but rather than comparing and contrasting cost estimates and schedule revisions, what we'd like to do is just get to the bottom line of our cost and schedule risk analysis and talk about a few take-aways.

First, on the schedule part of our risk analysis, what the analysis did was confirm what we said in November, that spring and summer is the probable opening time for the visitor center. More specifically, it says that mid-May the Capitol Visitor Center would be available for a capped opening where you would be able to have a reduced number of visitors through. It's something that Mr. Hantman has discussed also. And in early September, the expansion spaces would be complete and so the whole CVC project will be complete except for a few punch-list items that will probably remain for a while.

We are glad to see that the AOC has added a significant amount of float to the end of their schedule. They still believe construction will be done by the end of the year but in order to help plan for operations for you all and for the AOC they've added some time. I think that was appropriate and a good idea.

On the cost portion of our risk analysis, Mr. Chairman, without risks and uncertainties considered, our estimate now says that the cost to complete is going to be \$555 million for the construction of the Capitol Visitor Center. That's still within range of the \$559 million upper end of our last cost and schedule risk analysis, but it is about \$25.6 million higher than the appropriations to date. With the risks and uncertainties that the project is still facing, the project is likely to cost as much as \$585 million, however, we don't recommend that appropriations to that level be made at this time.

So what are the risks and the drivers that are pushing the schedule out and the cost up? The top three risks are things that you're going to be familiar with already, Mr. Chairman, the stone—interior stone wall installation, the life safety testing, the fire alarms, and the congestion or trade stacking, which Mr. Hantman has also alluded to. Also on the cost risks, the continuing delays that we're experiencing, even though the AOC didn't move the end date out for CVC construction, a number of the intermediate tasks have been pushed off to the right and what's happening is you're getting a lot of tasks that are now overlapping. When that happens you end up with congestion, inefficient operations, and the risk of additional safety problems. Also there's been a growing number of change orders as he's pointed out. You would expect at some point that the number of change orders, new ones coming in each month, would drop off but we haven't seen that yet.

So going forward, what do we need to do? AOC has responded very well to the issues raised in November. There's been a large number of hours spent with Gilbane and with the fire marshal, trying to address issues with the fire alarm system. They've agreed on sequences, they've agreed on some of the durations. They need to continue the risk planning and mitigation efforts, which again, they've improved quite a bit since the last hearing.

We need to pay particular attention to delivery and installation of the wall stone. As Mr. Hantman pointed out, for the past 2 months, the stone deliveries have increased up to about 10 or 11 loads per month, and that's what they need to stay even. It doesn't allow them to catch up the time that they've lost. We are still 20 loads behind. It's still probably too early to tell whether or not that trend's going to continue, particularly in the winter months, when it's going to be a little harder to quarry the stone and get it here.

We need to closely monitor the trade stacking that's going on. One example of that would be the floor stone. We saw a beautiful example in the AOC's progress picture of how nice that floor looks once it goes in, but there's a lot of other activities to do. In quite a bit of the CVC, we've got interior wall stone and other materials, escalators and things that came in and are ready to go but they're stacked on the floor waiting to be installed. That's preventing us from installing more floor stone. So, again, as we continue to move down the road, the congestion, and people trying to be in the same place at the same time, is going to cause problems.

The AOC needs to continue to carefully assess the scope of design changes to minimize the cost and schedule impact. There's been a few design changes recently in the exhibit area that they're well aware of and they're addressing. The number of design

changes and number of changes in general have not slowed down yet so that could be a problem down the road.

In summary, Mr. Chairman, it's going to take \$25.6 million in additional appropriations, in our opinion, to finish this project. Second, the CVC is going to open in spring and summer of 2007. And, third, the top risks that the AOC needs to continue addressing are wall stone, the trade stacking congestion, and monitoring the magnitude of these changes that are continuing to come in. That concludes my statement, Mr. Chairman, and Mr. Ungar and I are available to answer any questions.

[The statement follows:]

PREPARED STATEMENT OF BERNARD L. UNGAR

Mr. Chairman and Members of the Subcommittee: We are pleased to be here today to assist the Subcommittee in monitoring progress on the Capitol Visitor Center (CVC) project. Our remarks will focus on (1) our assessment of the risks associated with AOC's December 2005 schedule, and our estimate of a time frame for opening the project to the public; and (2) the project's costs and funding, including the potential impact of scheduling issues that have arisen since the Subcommittee's November 16, 2005, hearing on the CVC project's schedule and cost.¹

Our remarks 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 the CVC team (including AOC and its major CVC contractors), AOC's Chief Fire Marshal, and representatives from the United States Capitol Police (USCP). We also reviewed applicable appropriations legislation and AOC's construction management contractor's periodic schedule assessments and daily reports on the progress of interior wall and floor stonework.

With the assistance of a consultant, Hulett & Associates, we assessed the risks associated with AOC's December 2005 schedule for the base CVC project and used the results of our assessment to estimate a time frame for completing the base project with and without identified risks and uncertainties. In January 2006, we and our consultant interviewed project managers and team members from AOC and its major CVC contractors, USCP representatives, and AOC's Chief Fire Marshal to identify the risks they saw in completing the remaining work and the time they considered necessary to finish the CVC project and open it to the public. Using the project's November and December 2005 schedules (the most recent schedules available when we did our work), we asked the team members to estimate how many workdays would be needed to complete the remaining work. More specifically, for each major activity that the members had a role or expertise in, we asked them to develop three estimates of the activity's duration—the least, the most likely, and the longest time needed to complete the activity. Using these three-point estimates and a simulation analysis to calculate different combinations of the team's estimates that factored in identified risks and uncertainties, we estimated the completion date for the base project at various confidence levels based on AOC's December 2005 schedule. Finally, we reviewed AOC's schedule for the construction of the House and Senate expansion spaces, but did not assess the risks associated with the work.²

In addition, we estimated the likely cost of the project at completion, factoring in risks and uncertainties, using information obtained from our interviews, contract modifications, the proposed change order log maintained by AOC's construction management contractor, and the previously mentioned simulation analysis. We did not perform an audit; rather, we performed our work to assist Congress in conducting its oversight activities.

In summary:

¹ See GAO, *Capitol Visitor Center: Update on Schedule and Cost*, GAO-06-251T (Washington, D.C.: Nov. 16, 2005).

² We did not assess the risks associated with the schedule for the expansion spaces because the CVC team took longer than expected to complete the December schedule. We did not receive the final December schedule until January 27, 2006, and therefore did not have enough time to fully analyze the expansion space schedule before the Subcommittee's February hearing. Furthermore, CVC project staff told us that they had not yet had an opportunity to carefully assess the expansion space schedule.

Since the Subcommittee's November 16 CVC hearing, AOC and the CVC team have moved the project's construction forward and significantly revised the schedule, particularly for the base project. For example, they have reached agreement with AOC's Chief Fire Marshal on the schedule for testing the base project's life safety systems and have enhanced the manner in which the project's operations schedule is incorporated into the project's master schedule. In addition, they have reviewed and revised the schedule, postponing the opening dates for the CVC and the House and Senate expansion spaces by about 2 months each. Under AOC's revised schedule, the CVC would be open to the public in February 2007 with a temporary cap on visitor occupancy, and the expansion spaces would be open in April 2007. However, to allow for possible delays and start-up time for operations, AOC is proposing to open the CVC in April 2007 and the expansion spaces in May 2007, at which time the temporary cap on CVC occupancy would be lifted.

We concur with AOC about the need for postponing the opening dates, but do not believe that AOC has scheduled enough time to complete several of the project's critical tasks and to address the problems, challenges, risks, and uncertainties that AOC and the CVC team are attempting to address. If they are successful in addressing these issues, we believe that the CVC can be opened to the public with the temporary cap on visitor occupancy in May 2007 and that the expansion spaces can be opened beginning in mid-August to early September 2007. Congress may be able to begin occupying the expansion spaces earlier if AOC implements a phased opening plan it is considering. However, if AOC experiences major problems completing construction, such as with installing interior stone or testing major building systems, the work could be finished even later than we have estimated.

According to our current estimate, the total estimated cost to complete the entire CVC project is about \$555 million without an allowance for risks and uncertainties. This estimate exceeds our November 16, 2005, estimate by about \$12 million because we and AOC's construction management contractor are now projecting further delay-related costs. Changes in the project's design and scope have also been occurring, and more are likely. For example, the project's fire protection system has been evolving, and the system is now expected to cost more than previously estimated. To date, about \$528 million has been provided for CVC construction. Thus, we now estimate that another \$25.6 million will be needed to complete construction without an allowance for risks and uncertainties and taking into account funding from existing appropriations that AOC is planning to use. With an allowance for risks and uncertainties, we now estimate that the project could cost as much as about \$584 million at completion, or about \$25 million more than we estimated in November 2005. Estimated costs for the tunnel connecting the CVC with the Library of Congress are still within, but are now approaching, the \$10 million statutorily mandated limit.

AOC Has Moved Construction Forward, Revised the Project's Schedule, and Postponed Opening Dates

AOC and the CVC team have continued to refine the project's schedule since the November hearing and have made substantive progress in addressing the issues that we and the Subcommittee have raised, particularly concerning the base project's schedule. For example, the CVC team reviewed the sequence and duration of the activities scheduled for interior stonework, finish work, and work associated with the base project's fire protection system, including the acceptance testing to be done by AOC's Fire Marshal Division. To reflect the results of its review, the team revised the project's December 2005 and January 2006 schedules, and in collaboration with the team that is planning for CVC operations, enhanced the manner in which the operations activities are incorporated into the project's master schedule.³ AOC and its contractors' staff who are involved in planning for CVC operations agree that the January 2006 schedule identifies the related construction and operations activities. The CVC team has not yet fully reassessed the schedule for the expansion spaces and has not yet reached agreement with the Chief Fire Marshal on the requirements for acceptance testing of those spaces. Finally, the CVC team has continued to meet weekly to identify risks facing the project and to discuss mitigation strategies and actions. As of February 1, 2006, the team had identified 62 risks and developed mitigation strategies for all but 1, which had just been identified. The plans vary in their level of detail and stage of implementation.

According to AOC's December 2005 and January 2006 schedules, the CVC base project will be ready to open to the public with a temporary certificate of occupancy

³The January 2006 project schedule reflects revisions in various activities, but the completion dates for the CVC and expansion spaces did not change from the December 2005 project schedule.

on February 13, 2007, and the House and Senate expansion spaces will be ready on April 24, 2007. To allow for possible delays and start-up time for operations, AOC has proposed an April 2007 opening date for the base project and a May 2007 occupancy date for the expansion spaces. By the April opening date for the base project, AOC believes, all construction work in the CVC and East Front will be completed, but the CVC's occupancy at any one time will be temporarily limited to 3,500, compared with about 4,200, the normal anticipated occupancy level. This temporary limit will be necessary because the "horizontal exits," or passages, through the expansion spaces, which the life safety code requires for exiting the base CVC project, will not be available until later. These horizontal exits cannot be used until the fire alarm system in the expansion spaces has been fully tested and accepted—work that is not slated to be completed until after the base CVC is scheduled to open. Some additional work will likely be required to provide temporary emergency exit routes from the CVC, but the CVC team does not believe that this work or its costs should be substantial.

Mr. Chairman, a brief explanation of AOC's rationale for proposing a CVC opening with a temporary cap on visitor occupancy may be helpful at this point. The current project schedule calls for completing the construction of both the CVC and the expansion spaces before December 31, 2006, but would delay the start of acceptance testing the portions of the fire alarm system in the expansion spaces until such testing for the base CVC project is completed in February 2007. AOC is planning this approach because it believes that starting the acceptance testing for the expansion spaces earlier would prolong the completion of the acceptance testing in the base project and thereby delay the base project's opening to the public. More specifically, the fire protection devices for the atriums, which are a part of the horizontal exits ultimately required by code for full occupancy of the base project, would undergo acceptance testing with the expansion spaces, rather than with the base CVC project. To accommodate this change, AOC shifted the finish work in the atriums from the base CVC schedule to the expansion space schedule, and is planning to conduct the acceptance testing for the atriums and the expansion spaces at the same time, after the acceptance testing for the base CVC project is done. Until the acceptance testing for the expansion spaces has been completed, AOC's Chief Fire Marshal has said that the expansion spaces, including the exits through the atriums, cannot be used as emergency exit routes, and therefore AOC must take measures to provide temporary emergency exit routes from the base CVC project and reduce the number of occupants who can be in the base project until the exit routes are available.

Our Analysis Indicates Later Opening Dates in Light of Problems, Challenges, Risks, and Uncertainties

Our work to date in monitoring the CVC project and the results of our recently completed risk assessment of the project's schedule point to later opening dates than the schedule indicates. Although the schedule for the base project goes a long way toward responding to our concerns about the amount of time previously provided for a number of activities and extends their duration, CVC team managers and members we interviewed believe that certain work will take longer to complete than the revised schedule allows. For example, they believe that interior stonework and finish work for the base project and the East Front are likely to take longer. According to our risk analysis, which reflects the CVC team's input and assumes that AOC will successfully address the challenges it faces, the CVC is more likely to be ready for opening with a temporary certificate of occupancy between late April and mid-May 2007 than in February, as indicated in AOC's current schedule. AOC is now proposing an April 2007 opening date to provide time for possible construction slippages and operations preparation. The additional time AOC says is necessary for operations preparation after construction completion would mean that the CVC would be ready for opening with a temporary cap on visitor occupancy by about the end of May 2007, according to our analysis. Similarly, our analysis suggests that the House and Senate expansion spaces are more likely to be ready in mid August or early September 2007 than in April or May 2007. We believe the later time frames are more likely because (1) AOC has scheduled the acceptance testing of the expansion spaces after the acceptance testing of the base project and, according to our work, the base project testing will take longer than scheduled and (2) AOC's Chief Fire Marshal believes that the acceptance testing of the expansion spaces will take longer than scheduled.

We have discussed the results of our analysis with AOC, and it continues to believe that it will be able to meet its April and May 2007 time frames for the CVC and the expansion spaces, respectively. Furthermore, AOC said that it and the CVC team will continuously review the schedule to identify opportunities for improve-

ment. For example, AOC pointed out that it may be able to have the acceptance testing of the expansion spaces done in segments so that Members and staff will not have to wait for the entire facility to be tested before they can occupy their space. AOC also believes it may be able to revise the scheduling of some East Front mechanical work to save time. We agree that AOC should continuously look for ways to improve the schedule and that improvements may be possible. However, we also believe that AOC will be challenged to meet even the later opening dates we have identified given the problems, challenges, risks, and uncertainties the project faces. A discussion of these follows:

—*Delivery of stone and pace of stone installation remain critical.*—Although the CVC team has made progress in installing interior wall and floor stone, work on the wall stone has fallen behind schedule in several areas, and the project still faces significant challenges, risks, and uncertainties in this area. These include whether sufficient quantities of the appropriate wall stone will be received in time and whether the pace of installation will be sufficient to complete this work as scheduled. According to information provided by the sequence 2 contractor on February 10, the wall stone supplier still had a 20-truckload backlog and was not shipping wall stone at the scheduled rate, resulting in a delivery shortfall of about 6,000 cubic feet. According to AOC’s construction management contractor, stone supply is not affecting interior wall stone installation because a large quantity of stone is currently on site; however, the contractor is concerned about the ability of the stone supplier to meet current and future requirements that include stone for the East Front, adequate stone to maintain productivity, and the 20-truckload backlog. The pace of installation is also an issue. The sequence 2 contractor has recently increased the number of stone masons working on the project and has begun meeting the installation targets in its work plan. However, if the wall stone installation targets are not achieved, whether because the masons are less productive than planned or work spaces are not ready for stonework to begin, completion delays are likely. The sequence 2 contractor has already encountered work spaces in the service level, the orientation lobby, and the East Front that were not available for stonework because concrete was out of tolerance or masonry walls were not ready for wall stone to be hung. Finally, the sequence 2 contractor still needs to install about 120,000 square feet of floor stone in the CVC and could have problems meeting the scheduled completion dates if not enough masons are available, the amount of floor space available is insufficient because other finish work is not done, or other trades are working in the areas where floor stone is to be laid. As of February 10, AOC had not received a floor stone installation plan requested from the sequence 2 contractor, but the sequence 2 contractor said that it intends to finish the plan soon.

—*Stacking of trades could delay completion.*—Continued delays, particularly in wall stone installation, could adversely affect the sequence 2 contractor’s ability to accomplish all of the required finish work on schedule. The sequence 2 contractor has been making progress relative to its current plan for installing wall stone in the auditorium and the orientation lobby, but according to the current project schedule, wall stone installation is delayed in other areas, such as the East Front, the great hall, and the orientation theaters’ exterior walls. Furthermore, as of February 10, although the contractor had completed 10 of the 13 milestones relating to wall stone that are being tracked for the Subcommittee, none of the 10 was completed by the date set in the September 2005 baseline schedule, and only 4 were completed by the date set in the November 2005 schedule. (See app. I.) If delays continue, a stacking of trades such as we described at the Subcommittee’s November hearing could hold up finish work, such as drywall or ceiling installation, electrical and plumbing work, plastering, or floor stone installation.⁴ Such a situation could also increase the risk of accidents and injuries. The CVC team has also identified “trade stacking” as a high risk. The sequence 2 contractor acknowledges the risk, but said that it has structured its schedule to avoid the risk and plans to monitor progress closely to avoid problems. We acknowledge that these steps can be helpful; however, the more the wall stone schedule slips, the greater is the likelihood of “trade stacking,” since more and more work will have to be done in less time to meet

⁴Stacking of trades can occur when workers from different trades, such as stone masons, electricians, plumbers, or plasterers, have to work in the same area at the same time to meet a schedule, sometimes making it difficult to ensure sufficient space and resources for concurrent work.

the schedule. AOC's construction management contractor agrees that this is a serious potential problem.

—*Complex building systems remain a significant risk.*—The CVC will contain complex building systems, including systems for heating, air conditioning, and ventilation; fire protection; and security. These systems not only have to perform well individually, but their operation has to be integrated. If the CVC team encounters any significant problems with their functioning, either individually or together, during commissioning or testing, the project could be seriously delayed. AOC and the CVC team are aware of these risks and have been taking steps to mitigate them as part of their risk management process. Yet despite these steps, a significant problem could arise during commissioning or testing, and it is important that the team be prepared for such an event.

—*Building design continues to evolve.*—The CVC has undergone a number of design changes, and design changes are continuing for a number of building components, such as the exhibit gallery and the fire protection and security systems. Some of these changes have resulted in delays, such as in the exhibit gallery and in the East Front. In addition, designs or shop drawings for some elements of the project, such as aspects of the facility's fire protection systems, have not yet been fully approved and are subject to change. At this stage of the project's construction, one might expect the number of design changes to dwindle. However, this is not the case. For example, more than 20 design changes or clarifications were issued last month. Additional design changes are being considered, and the potential exists for such changes to further adversely affect the schedule.

—*Multiple critical activity paths complicate schedule management.*—In its report on the project's January 2006 schedule, AOC's construction management contractor identified 18 critical activity paths—4 more than in the contractor's report on the project's October 2005 schedule—that are crucial to meeting the scheduled completion date. In addition, the construction management contractor said that several noncritical activities have fallen behind schedule since November 2005, and a number of these have moved closer to becoming critical to the project's completion. As we have previously said, having a large number of critical and near-critical activities complicates project management and increases the risk of missing completion dates. We believe that the CVC team will be particularly challenged to manage all of these areas concurrently and to deal effectively with problems that could arise within these areas, especially if multiple problems arise at the same time.

Estimated Project Costs Exceed Funding Provided as of February 2006

We currently estimate that the total cost to complete the entire CVC project is about \$555 million without an allowance for risks and uncertainties and could be as much as about \$584 million with such an allowance. As table 1 indicates, our current estimate without an allowance for risks and uncertainties is about \$12 million higher than the estimate without such an allowance that we presented at the Subcommittee's November 16, 2005, hearing.⁵ This \$12 million increase is largely attributable to additional delay costs estimated by AOC's construction management contractor and actual and anticipated changes in the design and scope of the project.

TABLE 1.—COMPARISON OF NOVEMBER 2005 AND FEBRUARY 2006 CVC CONSTRUCTION COST ESTIMATES

[Dollars in millions]

Estimate	February 15, 2006	November 16, 2005	Difference
With risks and uncertainties	\$584	\$559	\$25
Without risks and uncertainties	\$555	\$543	\$12
Allowance for risks and uncertainties/Difference	\$29	\$16	\$13

Source: GAO analysis of AOC data.

In particular, changes in the project's fire protection system, which we discussed at the Subcommittee's October 18, 2005, CVC hearing, are now expected to cost

⁵ Our work identified one project element—the acquisition and installation of USCP's technical security equipment—that is now expected to cost less than budgeted. Although the \$12 million net increase reflects a decrease in estimated cost for this element without an allowance for risks and uncertainties, our \$584 million estimate recognizes that there is some risk associated with this item and thus includes funding for such risk.

more than previously estimated. Specifically, the system's acceptance testing is expected to be more extensive and to take place later than originally anticipated, and additional temporary construction may be required to ensure fire safety if the CVC is opened to the public before the Senate and House expansion spaces are completed. This additional construction would involve designing and installing—and then removing—temporary walls and perhaps taking other fire protection measures to create emergency exits from the CVC. As discussed in more detail earlier in this statement, the need for temporary construction may be reduced or eliminated if the fire safety acceptance testing of the expansion spaces and of the CVC can be performed concurrently, rather than over two separate periods, as would be likely if the CVC is opened to the public before the expansion spaces are completed. We discussed this issue during the Subcommittee's July 14, 2005, CVC hearing⁶ and recommended then that AOC estimate the cost of these temporary measures so that Congress could weigh the costs and benefits of opening the CVC before the expansion spaces are completed. AOC has agreed to provide this estimate to Congress when it has more information on the status of construction progress on the CVC and expansion spaces and the specific steps that will be necessary to provide adequate temporary exit routes.⁷

We now estimate that the total cost to complete the entire project with an allowance for risks and uncertainties could be as much as \$584 million, or about \$25 million more than we estimated in November 2005. This increase reflects the potential for the project to incur additional costs if difficulties arise in commissioning and testing its complex and sophisticated fire protection, ventilation, and security systems; significant problems with the building's design are identified and need to be corrected during construction; delays cost more than anticipated;⁸ and significant discretionary changes in the project's design and scope are requested.

To date, about \$528 million has been provided for CVC construction. This amount does not include about \$7.7 million that was made available for either CVC construction or operations.⁹ According to AOC, it expects to use about \$2 million of this amount for construction. To obtain the additional funding that it expected to need to complete the project's construction, AOC, in December 2005, requested \$20.6 million as part of its budget request for fiscal year 2007. This request was based, in part, on discussions with us and took into account our November 16, 2005, estimate of the cost to complete the project's construction without an allowance for risks and uncertainties and funding from existing appropriations. The request also reflected updates to our November estimate through mid-December 2005. At that time, the \$20.6 million request for additional appropriations, coupled with the additional funds that AOC planned to use from existing appropriations, would have been sufficient to cover the estimated cost to complete construction without an allowance for risks and uncertainties.

Our work since mid-December 2005 indicates that AOC will need about \$5 million more, or about \$25.6 million in additional funds, to complete construction without an allowance for risks and uncertainties.¹⁰ This increase reflects the number and magnitude of potential change orders that CVC team members and we believe are likely and additional costs associated with extending the project's expected completion date beyond March 31, 2007, the date contemplated in our last cost estimate. AOC generally agrees with our estimate, particularly with respect to having suffi-

⁶GAO, *Capitol Visitor Center: Update on Status of Project's Schedule and Costs*, GAO-05-910T (Washington, D.C.: July 14, 2005).

⁷The temporary work necessary will depend on various factors, such as whether the sprinkler and smoke control systems are fully functional.

⁸It is important to note that the delay-related costs included in our estimates have been made for budgetary purposes only and do not reflect an assessment of the government's responsibility for any delays. Furthermore, it should be recognized that estimating the government's costs for delays that occurred after November 2004 is difficult because delays have occurred for different reasons and it is unclear who ultimately will bear responsibility for the various delays that have occurred.

⁹Public Law 108-447, enacted on December 8, 2004, provided that up to \$10.6 million could be transferred from AOC's Capitol Building appropriation account for the use of the CVC project. The use of the amount transferred is subject to the approval of the House and Senate Committees on Appropriations. In June 2005, AOC received approval to use about \$2.8 million of this \$10.6 million, leaving a balance of about \$7.7 million that can be used in the future after a rescission amounting to \$84,800.

¹⁰AOC has asked for additional funds in its fiscal year 2007 budget request under its general administration budget for contractual support to its Fire Marshal Division which includes support for acceptance testing for the CVC. This request is not included in our cost-to-complete estimate or estimate of additional CVC funds needed for fiscal year 2007.

cient contingency funds available for necessary design or scope changes or for additional delay-related costs.

Estimated Construction Costs for Library of Congress Tunnel Close to, but under, Limit

Public Law 108–83 limits to \$10 million the amount of federal funds that can be obligated or expended for the construction of the tunnel connecting the CVC with the Library of Congress. As of February 14, 2006, AOC estimated that the tunnel’s construction would cost about \$9.8 million, and AOC’s total obligations for the Library of Congress tunnel construction work totaled about \$8.7 million. AOC’s remaining estimated costs are for potential changes.

On February 13, 2006, AOC awarded a contract for the work to connect the tunnel to the Jefferson Building. This work is costing more than AOC had estimated—a possibility we raised in our November 16 testimony before the Subcommittee. Because this work involves creating an opening in the building’s foundation and changing the existing structure, we believe that AOC is likely to encounter unforeseen conditions that could further increase its costs. Therefore, we included additional contingency funds for this work in our \$555 million estimate of the cost to complete the CVC project’s construction. Both AOC and we plan to monitor the remaining tunnel and Jefferson Building construction work closely to ensure that the statutory spending limit is not exceeded.

Mr. Chairman, in conclusion, AOC has responded to many of the schedule-related concerns we have identified, but its planned opening date for the CVC is still somewhat optimistic. For AOC to meet even our estimated opening time frame, we believe that it is critically important for the CVC team to do the following:

- Aggressively take all necessary and appropriate actions to install interior wall and floor stone as expeditiously as possible, including seeing that sufficient quantities of masons, stone, and work space are available when needed to meet the wall stonework plan and the forthcoming floor stone installation plan.
- Closely monitor construction to identify potential “trade stacking” and promptly take steps to prevent it or effectively address it should it occur.
- Reassess its risk mitigation plans to ensure that the team takes the steps necessary to prevent a major building system problem during commissioning or testing and has measures in place to deal quickly with problems should they arise.
- Carefully consider the necessity of proposed scope and design changes and attempt to minimize the impact of necessary changes on the project’s schedule and cost.
- Reassess the capacity of the CVC team (AOC and its contractors) to effectively manage and coordinate the schedule and work from this point forward, particularly with respect to the large number of activities that are currently critical, or close to being critical, to the project’s timely completion.
- Identify and consider the pros and cons (including the estimated costs) of opening the CVC and expansion spaces at about the same time and provide this information to Congress.

We have discussed these actions with AOC, and it generally agrees with them. It pointed out that it would be in a better position to assess the pros and cons of opening the CVC and the expansion spaces concurrently when construction is further along and it becomes clearer when the work will actually be done. This appears reasonable to us.

We would be pleased to answer any questions that you or Members of the Subcommittee may have.

APPENDIX I.—CAPITOL VISITOR CENTER CRITICAL CONSTRUCTION MILESTONES—NOVEMBER 16, 2005-FEBRUARY 15, 2006

Activity	Location	September 2005 scheduled finish date	November 2005 scheduled finish date	Actual finish date
Orientation Lobby	Perimeter CMU walls	10/13/05	12/02/05	12/29/05
East Front Subbasement	Interior CMU walls	10/02/05	12/06/05	.....
Exhibit Gallery	Wall Stone Area 2 base	10/31/05	12/07/05	12/23/05
Exhibit Gallery	Wall Stone Area 3 base	11/10/05	12/02/05	12/28/05
Orientation Lobby	Interior CMU walls	11/15/05	12/09/05	12/30/05
Exhibit Gallery	Wall Stone Area 1	11/16/05	12/16/05	01/06/06
Congressional Auditorium	Wall Stone Area 2	11/17/05	12/05/05	01/13/06
Congressional Auditorium	Wall Stone Area 3	12/05/05	02/06/06	01/13/06

APPENDIX I.—CAPITOL VISITOR CENTER CRITICAL CONSTRUCTION MILESTONES—NOVEMBER 16,
2005-FEBRUARY 15, 2006—Continued

Activity	Location	September 2005 sched- uled finish date	November 2005 sched- uled finish date	Actual finish date
Upper Level Assembly Room	Wall Stone Area 1	12/13/05	01/13/06	01/11/06
Exhibit Gallery	Wall Stone Area 3	12/14/05	01/16/06	01/06/06
Upper Level Assembly Room	Wall Stone Area 2	12/29/05	01/30/06	01/20/06
Upper Level Orientation Lobby	Wall Stone Area 1 Pedestals	1/11/06	02/09/06	
Upper Level Orientation Lobby	Wall Stone Area 2 Pedestals	1/23/06	02/21/06	.....
Utility Tunnel	Install Walls Sta. 1 + 00-2 + 00	11/04/05	12/06/05	12/23/05
Utility Tunnel	Install Roof Sta. 1 + 00-2 + 00	11/28/05	12/16/05	01/05/06
Utility Tunnel	Install Roof Sta. 0 + 00-1 + 00	12/05/05	12/21/05	12/07/05

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

LESSONS LEARNED REPORT

Senator ALLARD. I'd like to thank you for your testimony. Sitting here and listening and thinking about where we are in the project right now and where we're going to be hopefully 1 year from now, I thought that it would be appropriate for me at this time to give you a heads-up on something I'm going to be requesting toward the last part of our hearings and that is a lessons learned report. I'd hope that we could get such a report from GAO as well as the Architect, working with the contractor. I'd like to have the report reflect things that went well in the project and then things that didn't go so well and suggestions on how perhaps if there's another project in the Capitol complex that we can learn from our past experiences.

We've had, for example, a couple of projects in the State of Colorado that I have been involved with. Huge projects, billions of dollars. One of them we completed 1 year ahead of schedule and the other one we're just completing 2 years ahead of schedule saving hundreds of millions of dollars and the key thing is that we had incentive-driven contracts and we had some design-build features and so, I think future decisions from the Legislative Branch Subcommittee can be facilitated if we can make this a part of the subcommittee record. I'm hopeful that we can create a subcommittee record that would be useful for some chairman, two, three or four decades from now.

So I would appreciate you working with the subcommittee on that.

COST TO COMPLETE

Some specific questions that I have, now, the Architect announced back in November, there wouldn't be any additional funds needed to complete the CVC, and yet in your 2007 budget I notice that you've included \$20.5 million to complete the project. What specifically are these funds needed for and are you confident that this amount will be sufficient? And I'll be following up with a question for GAO which has a more pessimistic view of how much money it's going to require and I'm going to ask them to explain their position, also. So, Mr. Hantman, would you explain why you think you're going to need that extra \$20 million?

Mr. HANTMAN. Thank you, Mr. Chairman. Clearly, one of the things that occurred with the beginning of the work for the sequence 2 contractor is that there was a significant delay in their ability to start because of the delays of the sequence 1 contractor finishing the construction work, the columns, the issues of the foundations and all. So as part of this \$26 million, we're talking about \$7.2 million in potential additional delay costs. We had already put in, I think it was some \$15 million for that. So we're looking again at those risks and working together with GAO as well as Gilbane. We think that to cover those risks, make sure that we have the dollars available when we negotiate and we look at what were concurrent delays, what were sequential delays, what we owe versus what is basically just due in time as opposed to due in dollars, those are negotiations and evaluations that are yet to come. So it's taking a look forward in terms of the magnitude of those additional dollars. Bob, would you like to add to that?

Mr. HIXON. Shall I go through the whole list or—

Mr. HANTMAN. The highlights, I think.

Senator ALLARD. Could you make your full list available to the subcommittee, and just hit the highlights now.

Mr. HIXON. Yes, sir. Mr. Chairman, in summary, the key areas that we were looking at are the extension of the staff from an anticipated September completion date and then we were going beyond that period into December. Now we're at March and there will be some follow-on activities, so that's both the AOC, AEN construction managers, for \$2.4 million of that \$25 million. The House connector tunnel underpinning, we've had additional underpinning required, that's \$500,000; the delay in the start of sequence 2, we're increasing that by \$7.2 million; the delay during sequence 2 which is the expectation that we may have some liability in the delays and the contract, \$3 million; Jefferson Building bids came in at \$1 million above the budget; equipment for the AV, we've added \$100,000 for that, and change orders for the contingency is \$11.4 million. You add those pieces together, you have your \$25.6 million.

Senator ALLARD. Thank you. I wonder if Mr. Ungar can explain to us why your figures are different than what the architect's come up with. You've given us a range—

Mr. UNGAR. Right.

Senator ALLARD. What thinking went into that range that you gave us? I think your range was between \$25.5 million and \$50 million.

Mr. UNGAR. Yes, Mr. Chairman, I'd be happy to. We have reached agreement on the first \$25 million and the difference between the \$25 and the \$50 million has to do with the risk and uncertainties associated with the project. Through our analysis that we've just completed, we determined that there still are a number of these that are there and could cause additional cost increases in the future between now and the time the project is done.

For example, one thing we looked at was the pace of changes, the rate of changes coming through in terms of proposed change orders or actual modifications. As Mr. Dorn had indicated, they have not tapered off and so in our risk and uncertainty assessment, we've included additional funds over and above those that would typically be anticipated for changes primarily during sequence 2. These are

design changes or scope changes that would be forthcoming. The second aspect of that would be delay related costs. As AOC has mentioned, they've increased their estimate for what the Government might be responsible for. It could be that they're even larger than AOC's. Given the situation that exists, our risk amount includes additional provision for delay related costs. And that's basically the difference, changes and delay related costs.

CHANGE ORDERS

Senator ALLARD. Well, thank you. Now, I've noticed that—at least I was a little taken aback when we saw that the change orders were staying at such large numbers as we have. My understanding on a lot of the contracts when you start getting toward the end, you expect your change orders to drop off and I wondered if maybe the Architect as well as you, Mr. Ungar, could respond as to whether you think that this is a concern or not as we move forward with the project.

Mr. HANTMAN. Clearly, Mr. Chairman, nobody likes changes. The change specifically that Mr. Dorn mentioned in the exhibition area, there was a change which I think was a necessary one because the structure which supports the glass portion of the floor was arranged in such a way that the pieces of glass actually got to be fairly small and potentially friable, easily broken, so the structure was modified. The Aspirations Wall was relocated by a number of inches to give us bigger pieces of glass which meant the structure had to be redesigned. That made sense, it was something that had not been looked into in great detail before. Other changes, for instance, in the elevator pits. We had to excavate further than we originally anticipated so there's a change to that effect. Would you like us to highlight a few more of them?

Senator ALLARD. Do you expect that the change order will be greater than you might expect in a construction project like this or you think they're going to start to taper off now?

Mr. HIXON. The expectation we have is that they would have started tapering off already. We've had some systems that—electrical systems such as the dimming system that we found out that we've got some coordination issues. We should be beyond most of those now. We're very far into the coordination of the mechanical systems, fire alarm systems, so we should not have much more of that. We were hoping that would have been behind us already but we've stumbled over some recently. So we have had some increased costs but, yes, they should be dropping off now. We should be—because all the coordination should have taken place to resolve those issues. So we expect they will be dropping off but changes—I sign every change order that's processed so we're ensuring that they're all required, there's nothing that's being generated that is not a mandatory change order.

Senator ALLARD. Mr. Ungar, do you have a comment on those?

Mr. UNGAR. Yes, sir. Two things, first, we would agree with Mr. Hixon that we would hope that the change orders would start to slow up but when we looked, as we were doing our risk analysis, what was happening, it sort of scared us a bit. If you just look at the proposed change order log the construction manager maintains, for the last 3 months that log increased significantly. It went from

\$500,000 total proposed change orders in November, to \$800,000 in December, and to \$2.8 million in January. Now, it should be recognized that that can change. These are proposals and they may not all be all accepted and the dollar values can change but it certainly raised a concern about when is this going to slow down. So that was a major concern and what was helping drive our estimate to the higher end rather than the lower end.

And as an example of a specific change that's really been evolving, that's resulted in a significant increase in cost, is an area that we talked about a few hearings ago, and that's the fire protection system. As the project has progressed, changes have been identified, not that these are unnecessary changes but the design and the components have been changing. A few months ago we had estimated at that point that the cost increase for the fire protection system for both the expansion space and the CVC was around \$5 million. Now it looks like it's going to be over \$8 million and perhaps even higher than that. So we are concerned about this and hopefully it will slow down at some point soon.

Senator ALLARD. I would suspect some of this might be due to technology change. When the Capitol Visitor Center was first designed, you didn't know that you had certain technology. I can see this particularly with the fire systems and now all of a sudden you have new technology that nobody anticipated would be available.

Mr. UNGAR. Right.

Senator ALLARD. And while you have that new technology and building under construction, it makes sense to take advantage of that.

Mr. UNGAR. That's correct. The earlier increases, Mr. Chairman, were largely due to the addition of this filtration system, a security-related system, and a number of changes had to be made as a result of that. More recently, that hasn't been a problem, but initially that was a major factor in driving the cost increase.

FIRE SYSTEM TESTING

Senator ALLARD. While we're on the fire systems, Mr. Hantman, I'm curious as to when you're going to plan the testing of the fire systems. One concern that's been raised is whether there will be testing when the Capitol is in use? Are we looking forward to some disruption in regular business in the Capitol because of testing the fire system and then what about the expansion spaces in the Capitol Visitor Center and the opening dates? How is that going to be merged together?

Mr. HANTMAN. Thank you, Mr. Chairman. There is one zone which is the transition zone in the east front of the Capitol that physically is in the Capitol. That zone is really part of the building, although we're constructing as part of the CVC as the transition area now, and that area will have to be tested at night because the idea of disturbing the Capitol building itself through the testing of alarms and things like that, would be a real issue. So we're going to have to schedule that for nighttime testing and that's separate and distinct from the base building fire and life safety system in the CVC.

We have essentially, we could almost call them three buildings, Mr. Chairman. We have the central portion of the CVC, which is

the main area that visitors will be going through. Then we have the Senate expansion space and the House expansion space. In terms of operations, we are looking at a three panel solution now, fire safety panel solution. One, for the core central visitor center and one each for the House and the Senate. From an operations perspective, from a security perspective and life safety perspective going forward, this makes sense. We are going to be planning a trip to the fabricator of the control system to take a look at just how these three brains, if you will, three separate security panels, can interface. Once we get there, with the fire marshal, with all of our mechanical experts, and we take a look at how we can interface these, we'll be able to determine whether or not we can overlap to any significant degree the expansion space testing from the CVC testing.

What we've got planned right now is that the CVC testing itself, which we're currently scheduling at 4½ months, would have to be complete before we could start testing the expansion spaces. The question of how those panels in the expansion spaces, again, feed into the central panel and whether or not the fire marshal perceives that the brains in these are significant enough to be able to test separately and distinctly and not mar the testing for the central CVC is a main contingent element that's going to impact the timeframe and the lag between testing all those—the multiple systems. Bob, do you want to add to that?

Mr. HIXON. I think you've covered it very well. The systems, once the fire marshal begins accepting the system for the CVC, the panel cannot be—we can't add items to the panel. So once we begin our—commence the testing for the CVC fire alarm acceptance in November, we won't be able to add the expansion space into that panel which is why the two areas have to, the expansion spaces have to follow the CVC. And that's what Mr. Hantman was addressing as there may be an alternative, at this point we don't know that there is, but that's something that'll be investigated.

Senator ALLARD. I understand there might be some discussion about if the CVC and the expansion spaces completion occurs close together, whether you just hold off and open them all at once or if there's a longer lag time than expected, then perhaps you open the CVC under partial use.

I'd like to have you discuss that just a little bit, if you would.

Mr. HANTMAN. Absolutely, Mr. Chairman. One of the issues that's been occurring here, while we've lost time in the CVC because of the stone and the overall testing timeframe, unforeseen circumstances, we've actually been gaining time in the expansion spaces. Although originally we projected that 6 to 8 months after the CVC opening the expansion spaces would be ready for opening, that delta is closing. So the expansion spaces are proceeding very well primarily because they're sheetrock and stud walls and acoustic ceilings and they haven't started the stone work in the expansion spaces yet or the finishes there but they're proceeding very well.

So your point is well taken and we've discussed this with GAO and with Gilbane. As we get closer and we see what kind of progress is being made there, what makes the most sense. Does it make sense, in fact, to try to do them all together, which would

imply a delay in the opening of the CVC because we'd be waiting on some of the issues to occur in the expansion spaces so we could test it altogether. And as Bob indicated, rather than having that central panel have new elements added to it, we would actually be doing it all at the same time and the 4½ month timeframe itself would expand as well. So that's the kind of give and take that we'd have to be discussing in terms of the delay and potentially in the timing of the opening of the CVC while the expansion space might potentially be opened earlier and what are the positives and negatives about those options. And as we get closer to that, we'll be able to see, you know, what choices we really do have to make.

Senator ALLARD. Mr. Ungar, staying with the fire and life safety systems, my understanding is that the design for the life safety systems isn't 100 percent complete and how would you rate that as a problem? Give us some insight on your perspective on that.

Mr. UNGAR. Mr. Chairman, it's true that the shop drawings for the fire protection system have not been submitted yet. The fire marshal has not had a chance to completely review those, obviously, and it certainly could be a problem. Maybe Mr. Dorn would like to comment on the extent to which this is a major issue or a medium degree issue.

Mr. DORN. It's hard to say at this point what the degree of problems could be. What it does is just increase the level of uncertainty in all of this. Because those pieces of work are being done in a design-build manner under the main contractor, it's probably not unusual for the designs not to be fully completed at this point. I don't think that's too big of a problem. We've still got a ways to go but it does add uncertainty to what the final cost is going to be because there's risks there.

Senator ALLARD. Thank you. Senator Durbin, I don't know whether you're ready quite yet.

Senator DURBIN. I am. Thank you, Mr. Chairman.

SENATOR DURBIN'S STATEMENT

First, Mr. Chairman, thank you for these continuing hearings and I think they're becoming increasingly important as we near the completion of this project. The exact time when that will occur is obviously up for some debate here but I was happy that we were socked in with a snowstorm, meaning that I stayed in Washington over the weekend and had a chance Monday morning with Mr. Hantman to visit this new CVC. I will tell the public or anyone who's not been there, and most people here in the room may have already visited, but it is the first time I had been underground to see what was going on and it is a very impressive undertaking. When you consider the magnitude of this challenge. First, to build something that is a fitting complement to the greatest building in America is a daunting task, second, to make certain that it meets the needs of the American people who come to this place for an opportunity to see the seat of our Government and all of the history attached to it and, third, to try to build this in a context of the world that we live in that has changed even since we came up with this concept, a world that is much more dangerous and much more challenging in many respects. It's a big undertaking and I have been along with others, critics of the process from time to time and

will continue to be, I think that's my job. But I will say in fairness to all that are involved, I was very impressed and I think once completed the American people will feel that we have served them well. Maybe they wish we would have spent less money or done it faster but it will be, I believe, a fitting tribute to this great hill and America.

I will just say that there are a couple of things that are worth noting as well. Having sat here as a critic of the process and the people, I think self-criticism is in order, too. We still haven't figured out who's going to run this place. The politicians on Capitol Hill haven't come to a conclusion as to who'll be in charge. Senator Allard and I have talked about this informally. It's still unresolved. We don't know what part of the building will be under whose jurisdiction at any given moment and so I think we have a job to do. Being critical of others, we should be critical of ourselves. It's time for the leaders in Congress in both political parties to sit down and make some wise choices so that the supervision of this facility is seamless and it is a tribute to the people who come and visit. There's work to be done in this regard.

Mr. Hantman, you and I spoke about two particular issues that are raised here in this hearing. One, we hope will be moving forward with the appointment of a master to deal with this whole issue of the stone that's being used inside this Capitol Visitor Center and I sincerely hope that moves it forward. As I look at that as a former practicing lawyer, recovering lawyer as they say, former practicing lawyer, I don't know how we could have avoided this. When you get into a battle between a material-man and a subcontractor, it's hard to anticipate this might have happened and how to stop it and come to some good resolution, and maybe this master will achieve that.

The second part of it is also an interesting I think and valid point made by the chairman and the GAO and the Architect's Office on this whole life safety system and the complexity of it. As I took a look at this space as big as it is, and I understand it's about two-thirds the size of the Capitol building itself, and understood all of the challenges of an underground facility with all of the air intake and exhausts, heating, air-conditioning and the like, I can see that this would be a substantial challenge. Now, give me a moment or two, Mr. Hantman, if you will, about the progress in reaching that goal so that we have something that makes sense in light of the planning and specifications that are needed.

Mr. HANTMAN. Thank you, Senator Durbin, and I truly appreciate the time you took to walk through the project. I look forward to doing that as we, from a critical eye certainly, as we proceed toward completion.

When the CVC was originally designed, Senator, the original dictum was, build the CVC and we would have future expansion space for the House and future expansion space for the Senate. The original budget basically included foundations and structural slabs, but there was no design for what the Senate might decide to use that future space for; no design for what the House might decide. After 9/11, what we designed as a CVC with raw concrete expansion space became a dictum to finish it as soon as we could and additional dollars were appropriated for that.

This necessitated, as the program came forward, changes in the amount of air that was going to be pumped through the systems, additional air handling units, additional mechanical, additional electrical, especially as the use became better defined as not additional office space for the House or the Senate but as places of public assembly. This meant we would have a major hearing room on the House side, we would have major meeting rooms there. We have seven or eight hearing rooms, meeting rooms actually on the Senate side, so this is public assembly space which required more means of egress for more people, bigger air flows, bigger supplies of electricity.

All of these things had to be changed while we already had a contract basically moving forward on the central visitor center portion of it. So the issue of fire and life safety was always one where we had anticipated that because we're an underground structure we didn't want to have stairways popping up all over the campus. We wanted to make sure that we were true to the historic nature of the building and to the landscape, the Olmsted landscape itself. So we went to great trouble to look at how we could basically make it safe for people in a fire or any kind of emergency to evacuate this building. And one of the means we determined would be most appropriate would be essentially to carve it into three sections, make fire safe walls between the expansion spaces and the central visitor center so that people could use that as a horizontal means of egress rather than vertical means of egress. If a fire is in, say, the central CVC, people could egress into the House expansion space or into the Senate expansion space. So the issue became more complicated once we wanted to finish off those spaces almost concurrently with the central visitor center because the construction of the expansion space lagged by 6 to 8 months. The authority and the funding for that came much later on.

So how could we still get people out of the central visitor center if we are still under construction with the House and Senate expansion spaces? What kind of panic alarms would you have to put on the doors between the spaces? What kind of security issues were there in terms of the public being freely able to go into spaces that might not have secure means at that point in time? All of those issues became issues we had to deal with a lot earlier than we thought we would with future expansion space coming in.

The schedule that we're talking about today, Senator, talks about expanding the 3-month testing period for fire and life safety to a 4½-month period because of the complexity of the systems. And I think I explained that we basically are a beta test site for the extreme level of security we have, mixing it in together with the fire and life safety criteria that we have for what is a place of public assembly underground. There are no models for this basically anywhere. In fact, I think the codes are going to have to revise sections of it. I've talked to somebody from NFPA, the National Fire Protection Association, and they really don't deal with issues in a very clear way that we've had to deal with and work out together with our professional engineers and with our fire marshal. We think with the timeframe we've given to this, Senator, we're going to be able to do the testing on this. Just before you walked in, we were talking about the expansion spaces and whether or not we're going

to have to do that in sequence or some of that can be tested concurrently. Those are issues we still have to work through, but we think the schedule for the CVC we're talking about right now will account for that timeframe.

WORKER SAFETY

Senator DURBIN. If I can ask one other question that came up in previous hearings and that's about worker's safety. We talked about that as we did the tour, and what is the status of worker safety at the CVC and what initiatives have been put in place to improve what was a record that I challenged at one of the earlier hearings?

Mr. HIXON. Senator Durbin, we've made a lot of progress in the safety program. Manhattan has been making a number of changes. Lately, the things that are going on is twice a month, every other week, we have training classes, such as in February, fall protection in scaffolding, in order to improve the training of the workers. They have had meetings with the foremen. They're about to unveil next week an incentive program that will provide for gift cards for workers and particularly for foremen who have safe crews to try and encourage them to work more safely. The results of what they've been doing is we still are having one to two incidents a month which is still higher than we would like to have. But, in the timeframe between January and July last year we had 7 lost time accidents of the 12 recordable accidents and between August and February we have 2 lost times in 9 over that same 7-month period, so there's been a significant improvement. There's a great emphasis being placed on safety by both the construction manager and the contractor so things have improved a great deal but we're still not satisfied with where they are and continue to look for ways to improve that.

Senator DURBIN. Are there people who go through the work site and just make a general observation of how things are going, debris practices, and can comment at that time to the workers or foremen that there should be some change in the way they approach it?

Mr. HIXON. Are there people doing that? Yes, sir. Manhattan has two safety officials on their staff right now who are going through ensuring that the workers have on their safety equipment; that they're working in a safe manner; that they're not leaving rolling stock on the floor for people to fall over. It's a continuing issue for them to press those things with the workers. Their men are removed from the job site if they're found to be working unsafely, or they're not tied off properly. They were tagging scaffolding for a while because their subcontractors were putting up scaffolding that Manhattan felt was not safe, so there's been a great deal of effort focused on this to try and improve it as much as it has, and they're still looking to get it a whole lot better.

Senator DURBIN. Mr. Ungar, Mr. Dorn, would you comment on that worker safety issue?

Mr. HANTMAN. Mr. Dorn will go ahead and respond to that.

Mr. DORN. We agree with Bob that the worker safety has improved on the job site. In particular, the lost time incident rate has gone down to 3.7, where it used to be 10.4, which is still higher

than the industry average of 3 but those numbers describe a dramatic improvement. One of the ongoing problems that we're continuing to see is housekeeping. That's been raised by Manhattan's safety people that are walking the job site. It is recognized as being a continuing problem.

HOUSEKEEPING

Senator DURBIN. What do you mean by housekeeping?

Mr. DORN. Housekeeping, as you mentioned, debris laying around on the job site. Some of that could be food from employees having lunch, it could be masonry block that was cut so you end up with some broken pieces laying around, things like that, and just orderly placing of stored materials. That's not as good as it could be. There's one incident recently where an employee, contractor employee, stepped on a nail. He didn't require hospitalization and didn't lose time from work, but needed a tetanus shot. So it can cause problems in that way. The other—

Senator DURBIN. I don't—see, that's the part I don't understand. Training workers and making sure they do things safely is understood but keeping a litter-free or debris-free work site seems to me as obvious as your parents saying clean your room. Isn't there—wouldn't that be something that could be executed pretty simply?

Mr. DORN. It is a requirement of the contract to keep the site clean. AOC made care to put that in the contract. It's a matter of enforcing that with the subcontractors. The less cleaning they do, the more money they make, so it needs to be drilled into them, sir.

Senator DURBIN. Pretty quick analysis of it. Mr. Hixon, why aren't we enforcing it?

Mr. HIXON. We're pressing on this continuously. It's every day they're generating debris, they're cleaning up the debris, but we continue to have more debris than we would like to have so this is an issue that is brought up on a regular basis.

Senator DURBIN. Thank you. Thanks, Mr. Chairman.

Senator ALLARD. Thank you. You've been a contributing member of this subcommittee and appreciate your comments and thoughts as we go through this hearing.

OPENING OF EXPANSION SPACE

I want to go back again to the expansion spaces and then the CVC about whether you can open those areas together or not. Are you doing some sort of a cost benefit analysis on that? If not, do you plan on doing one in the future?

Mr. HANTMAN. As I indicated, Mr. Chairman, as we get closer to seeing just how much time that the expansion spaces are making up or actually ahead of their schedule and as that delta between the projected opening of the CVC and the expansion spaces occur, the detail testing and evaluation plans can really look at what impact it would be in terms of formally changing the timeframe for the opening of the CVC. One of the choices might be to open the CVC later so that you can test the entire facility together as opposed to doing them sequentially. The best of all worlds, Mr. Chairman, would be as we look at the design build control system that is being developed for the facility, that we could do the testing concurrently. For instance, if we were to finish and start the testing

for the CVC in November and finish the work on the expansion spaces in late December or January, could we continue testing the CVC and also then concurrently start testing the expansion spaces or do we have to finish off the CVC testing before we can start the testing of the expansion spaces?

The alternative would be if we get closer to say, well, do we want to lose several months on the opening timeframe for the central portion of the CVC and open up everything together, and those are the kinds of things we need to talk about as we get closer to it. We do need to evaluate that and see what the impact is.

TRADE STACKING

Senator ALLARD. Senator Durbin here talked a little bit about trade stacking. You try to get these various trades to do things in a sequential order but since we've had to compress some things here because of some delays, do you view the trades stacking as a problem and are there ways in which we can mitigate that and is that a safety problem?

Mr. HIXON. Trade stacking is a great concern we have. As you watch the activities that have taken place as we've slipped work because the stone hasn't proceeded as quickly as it could, we now end up squeezing the ceiling and follow-on activities into a shorter period of time. They end up interfering with each other so that you end up with floor stone going in before the ceiling work goes in, which is not the most desirable order for it to go in. So these are efforts that the contractors take and to try and overcome the impacts of delays in the stonework. But it is a big concern that we could end up with too many people in an area trying to get their work performed, and that results in inefficiencies that—ultimately, would delay completion. We are not expecting any dropoff in quality which is also a potential issue you could have but what we are concerned about is you'll end up with too many people trying to work in the same place and they literally cannot get all their work done if there're too many of them in one location.

FLOOR STONE PLAN

Senator ALLARD. This is a follow up question. When will the Architect of the Capitol have a detailed plan similar to your wall stone plan for installing the floor stone? Do we not have a plan there?

Mr. HIXON. The request for the floor stone plan was issued a couple of weeks ago. It's been promised to be here shortly. They're expecting now that it'll be involved—we'll get it next week. I'm not absolutely sure we'll get it that quickly. The issue is they've got to coordinate the wall stone installation with the ceiling. I mentioned that we're getting wall stone—floor stone installed before ceiling work. That would mean you'd have to protect the floors and then go back and do the ceilings and how to coordinate that and also allow for the heavy equipment that's got to traverse the site from the great hall out into the other areas and not have it running over the floor stone that you've just installed.

So there's some coordination of all of their activities that's involved in this, not just a straight scheduled installation of the floor

stone. So they're working on that. We're hoping to get it next week but it may take a little longer.

STONE DELIVERY

Senator ALLARD. Okay. Thank you. Now, is the stone delivery keeping pace with the schedule at this point and can we expect it will continue at the 2.5 truckloads per week that's required to meet the schedule?

Mr. HIXON. The stone delivery is occurring in accordance with that 2.5. The contractor was looking for the fabricator to provide 4 truckloads a week in order to make up the backlog of 20 truckloads. To this point, that has not happened. There's a lot of interest by the special master and the court in how much stone is being produced in meeting their requirements. We're hoping and expecting that they will continue to provide stone at the 2.5 truck loads a week. We are not expecting that there'll be a dramatic improvement in that. The schedule that we have is based on the 2.5 truck loads a week continuing and not receiving the additional stone. If we receive additional stone, that would help the schedule.

OFFICE OF COMPLIANCE INSPECTION

Senator ALLARD. I only have a couple more questions left. This morning's Hill newspaper had an article in about the Office of Compliance and they want to inspect the Capitol Visitor Center before it's open. Do you expect that their review will add to any potential delays? I think it's a good idea but I'd like to hear your comments on that.

Mr. HANTMAN. We had a meeting, Mr. Chairman, last week with the Office of Compliance and we gave them a presentation on what the provisions were that we made for fire and life safety, for ADA, for all the issues that they're concerned with. My sense was that they were very impressed, that we've really gone above and beyond the call of duty here and made sure that from an ADA perspective, we have more elevators than I think most people would have put in, the ramps, the transition areas, the ability for folks to get in safely and around.

In fact, we had a tour with the Paralyzed Veterans of America just 2 weeks ago. I think they were very impressed with the provisions we've been making on that. So I think what we need to do, Mr. Chairman, is just, we've also given the Office of Compliance a tour of the visitor center. We'll give them plans of it, we'll work with them, let them understand what we are doing and how it works. I'm very comfortable with the fact that we have certainly met codes, we've done things in a very professional way in terms of the issues that they're concerned with because we are very concerned, certainly, that whatever we're building over here is going to be safe for the people who use it and for the Capitol.

INTEGRATION OF CONSTRUCTION AND OPERATIONS SCHEDULES

Senator ALLARD. Very good. Now, as of our last hearing, the construction and operations schedules were not linked in the total project schedule. Is the Capitol Visitor Center operations schedule

now fully integrated and linked with the Capitol Visitor Center construction schedule?

Mr. HANTMAN. The latest schedule that we're talking about as of this meeting today, Mr. Chairman, is something that we're looking at and we're working on with our consultants, Zell, and the operations and how that impacts potentially the hiring of people coming on.

I think what we need to do, Mr. Chairman, as you asked earlier, is get our executive director on board, have that person sit down with Zell, really look through the plan that we currently have, the approvals we currently have for hiring, and what the change in opening day that we're talking about now might have as an impact on the hiring of people and training of them in an appropriate way. So that's an ongoing process right now.

Senator ALLARD. And that's one of those issues I think would be very helpful as we're working through this budget for 2007, particularly.

Mr. HANTMAN. Yes.

Senator ALLARD. Okay. Any summary comments? Any conclusions that any of the witnesses want to share?

Mr. UNGAR. Yes, Mr. Chairman, we think that there are three things that are very important for AOC and the CVC team to focus on, just to summarize very briefly. First and foremost is the stone installation, the supply of stone, the pace of installation, and the floor stone schedule that you had asked Mr. Hantman about.

Second, the trade stacking, AOC and the team have got to stay on top of that or they could run into real problems. Third, the commissioning and the acceptance testing of the major systems and how well they function together is very critical, can really adversely affect the schedule and the cost if they run into major problems there. So those are three things that the team really needs to focus on and the subcommittee may want to follow up on in the next hearing.

Senator ALLARD. Mr. Hantman.

Mr. HANTMAN. Mr. Chairman, I just personally want to thank you for the interest, the involvement, and the focus that you bring to this the visitor center project. It's a critical historical project, and I welcome certainly Senator Durbin's comments about the quality work that we're doing and the way it will, in fact, work with the Capitol itself and serve future generations well. So we want to do it right. We're working on it, clearly, this is a very complex project, as the Senator indicated and we certainly concur, and certainly GAO has said that as well, and there are continued risks on it so we look forward to working together to make sure that we get it done as quickly, as efficiently, and has in terms of the best quality possible going forward. So, thank you, sir.

Senator ALLARD. Well, I want to thank the panel. I know that we take away from your daily schedules for you to be here to share with this subcommittee how the progress is going with the Capitol Visitor Center. And I know that sometimes you don't agree on some of the issues but that helps us understand the complexity of the problem, understand what's going on, and we don't expect two people to always agree.

I hope that these hearings have been beneficial and as I mentioned earlier, establishing a record of what's happening can also be helpful in future projects as we move forward, which is one of the purposes we want to accomplish toward the end of these hearings.

I would agree with what Senator Durbin had stated that this is going to be a wonderful thing when we get done and you've made that comment a number of times in your statements, Mr. Hantman, and I agree, but I think that my colleagues feel better if they have some oversight and I think the public in general feels better with oversight and there's more understanding of what problems you face and I think that helps all of us in working toward the ultimate goal to get this done within some reasonable budget restraints and on time and getting the project available so the public can begin to enjoy it. So thank you, again, for all your time and your effort.

SUBCOMMITTEE RECESS

The next hearing we're setting up for 4 weeks from today and it'll be at the same time and place. So, thank you all.

[Whereupon, at 11:35 a.m., Wednesday, February 15, the subcommittee was recessed, to reconvene subject to the call of the Chair.]

PROGRESS OF CONSTRUCTION OF THE CAPITOL VISITOR CENTER

WEDNESDAY, MARCH 15, 2006

U.S. SENATE,
SUBCOMMITTEE ON THE LEGISLATIVE BRANCH,
COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 11:15 a.m., in room SD-138, Dirksen Senate Office Building, Hon. Wayne Allard (chairman) presiding.
Present: Senators Allard and Durbin.

OPENING STATEMENT OF SENATOR WAYNE ALLARD

Senator ALLARD. The subcommittee will come to order. Today we're going to again have you Mr. Hantman, and Bob Hixon, Bernie Ungar and Terrell Dorn, and first of all we'll want to hear from you Mr. Hantman, on your testimony and then we'll turn to GAO.

Before I turn to the panel this morning, I just want to make a few comments. The good news is the interior wall stone installation has kept pace in the last month. Unfortunately, other areas such as floor stone installation have fallen behind and only five of nine milestones were completed in the last month. In addition, I'm concerned about the number of design changes that continue to be made and the increasing prospect of trade stacking. That's in relation to our visitor center.

Mr. Hantman, we'll now proceed with your testimony.

STATEMENT OF ALAN M. HANTMAN, FAIA, ARCHITECT OF THE CAPITOL

ACCOMPANIED BY BOB HIXON, PROJECT DIRECTOR, CAPITOL VISITOR CENTER, ARCHITECT OF THE CAPITOL

CAPITOL VISITOR CENTER PROJECT STATUS

Mr. HANTMAN. Thank you, Mr. Chairman, well I've already discussed and you've mentioned yourself the project's budget and the schedule in the budget testimony. We're reporting no change from what we discussed last month in our projections. We'll continue to monitor closely the two key issues affecting the project: the installation and fabrication of stone, the acceptance testing of the CVC's complex fire and life safety systems.

Regarding stone installation. The stone fabricator would need to ship approximately 4 deliveries of stone each week to catch up on the 20 deliveries of stone on which he is behind schedule. Since our last hearing it did not increase, but it did maintain, as you mentioned, some 10 truckloads per month. Therefore, we're reporting

no change in the March 2007 project completion date, and the April 2007 formal opening.

At the current pace, with 33 mason teams setting approximately 1,000 to 1,100 stones each week, stone installation will be complete in August which is consistent with the latest project schedule.

We're currently addressing budget needs related to the commissioning process for fire and life safety systems to accommodate additional staff, the fire marshal needs to conduct the tests in a timely manner.

Last month we agreed with GAO's statement that trade stacking can be an issue if delays in stone installation create a scenario where multiple trades are attempting to execute their work in the same area at the same time. To address this concern, the sequence 2 contractor has begun to develop detailed schedules for specific geographic areas in the CVC. For example, the food service area, the first work zone to be addressed will be delineated into several smaller work zones. Subcontractors will be given specific times when the space will be available. This helps each contractor plan their work more efficiently, keeps pressure on each contractor to perform their work within the timeframe specified.

Especially since there will be an understanding that other subcontractors have also been scheduled to work at specific times in the same work zone.

We expect to see the first detailed schedule plan for the food service area at the end of this month, with detailed schedules for other areas to follow. I should also point out that decreasing the need for multiple contractors to work in the same areas simultaneously also enhances worker safety by minimizing crowded positions and conditions.

CONSTRUCTION HIGHLIGHTS

Regarding overall safety on the CVC site the incident rate numbers again show improvement from previous months. The sequence 2 contractor continues to teach a 10-hour Occupational Safety and Health Administration (OSHA) course that addresses all aspects of worker safety. With 1-hour classes held each week. Once the OSHA course training is complete in 3 weeks, the contractor will resume teaching safety classes for specific trades.

As we monitor very closely the pace of stone installation and deliveries, many other activities are occurring and workers continue to make steady progress, Mr. Chairman, in all areas of the facility. I'd like to bring your attention to a few construction highlights since our hearing last month.

In the upper west lobby, adjacent to the east front, just beyond the orientation theaters, masons have installed 97 percent of the wall stone and crews are now working on ceiling framing and utility installation in this area. In the east front itself, crews have nearly completed all of the block work. These areas will soon be turned over to the stone masons. Since receiving some relief from the injunction last December, the stone contractor has been able to pursue an alternate quarry for sandstone, and that stone is now arriving for the east front.

Late in February, masons installed some of the sample stone from that quarry on a wall at the lower level at the east front. We

expect further stone installation to begin in earnest once the block work is finished in this area.

The most recent hearing held on March 3, with the special court master, resulted in new direction, Mr. Chairman, and he continues his efforts to resolve the dispute between the subcontractors.

As you can see on this board, Mr. Chairman, in the great hall, scaffolding now occupies more than 50 percent of the space, and crews have begun framing portions of the three barrel vaulted ceiling alcoves between the great hall skylights. I was down there yesterday, Mr. Chairman, and it's great to be able to see that framing going into place right now.

In the corridors, north and south of the great hall, painters are busy priming drywall, plaster walls and ceiling soffits. Plastic sheeting can now be seen covering walls in several areas to protect all the stone work while crews paint ceilings and complete other adjacent finishing activities.

Wall stone is also 97 percent complete in the exhibit gallery. And workers have nearly completed the assembly of the steel framework for an elevated glass floor in the center of the gallery. Earlier this month we gave the fabricator of the glass floor panels notice to proceed with production. So that whole void that we had in the center of that exhibition gallery area is being filled up now with the framing. We should see the glass coming in, in a reasonable amount of time as we get that finished.

As we reported last month, wall stone is complete in both orientation theaters, and ceiling framework is nearly complete as well. In late February, in the north orientation theater, workers hung eight 20 foot high steel panels that will slide in front of the projection screens. Later a cherry wood veneer will be anchored to the steel as a final finish on these panels and form a back drop for room functions other than just film.

Both the Senate and the House orientation theaters should be able to be used for other activities as well. Meanwhile work continues to progress well in both the House and Senate expansion spaces. While the contractor did experience some schedule slippage in February, when compared to the previous month, these areas are still tracking ahead of their contractual completion date of March 2007.

Primer painting is nearly complete on the middle level in the House space, and on the upper level of the Senate side. The metal stud framework for the Senate recording studio is nearing completion.

Crews are now installing drywall throughout this level. Outside, Mr. Chairman, along the north and south walls of the congressional auditorium, foundation work progresses well on the stepped walkways and concrete planter boxes that lead down into the CVC entrance.

During the next few weeks the first of 85 new trees for the east Capitol Grounds will be planted within these zones. These trees were selected 3 years ago, and have grown into robust specimens, between 18 to 27 feet high. When planted, they'll almost immediately begin to reestablish the alee of trees that Mr. Olmsted planted back in 1874.

Initially 32 tulip poplar trees will be planted this spring, with the remaining 50 trees and myriad shrubs to be planted this fall as the project nears completion.

On East Capitol Street, work on the utility tunnel that you visited last time, Mr. Chairman, is in its final stages, and tunnel close in work at the connection at Second Street is complete. The electrical duct bank above the tunnel is 95 percent complete and crews will begin later this month placing a 10 inch concrete slab above the tunnel.

Crews will begin this work at Second Street and move west toward First Street where tunnel close in work is near completion. Weather permitting, the contractor will complete concrete and asphalt placements during the next several weeks and East Capitol Street will reopen to traffic in late April, or early May.

On the operations front, we've begun to review proposals for the food service contract. A selection for that contract is expected by mid-year.

PREPARED STATEMENT

Mr. Chairman, this concludes my statement and once again thank you for this opportunity to testify. I'd be happy to answer any questions you might have.

[The statement follows:]

PREPARED STATEMENT OF ALAN M. HANTMAN, FAIA

Mr. Chairman, thank you for the opportunity to brief you in greater detail regarding the progress of the Capitol Visitor Center project. I've already discussed the project's budget and schedule in my fiscal year 2007 budget testimony. We are reporting no change from what we discussed last month in our projections. We will continue to monitor closely the two key issues affecting the project: the installation and fabrication of stone and the acceptance testing of the CVC's complex fire and life-safety systems.

Regarding stone installation, the stone fabricator would need to ship approximately four deliveries of stone each week to catch up on the 20 deliveries of stone on which he is behind schedule. Deliveries since our last hearing did not increase, and the contractor only maintained the original expected rate of 10 truckloads per month. Therefore, we are reporting no change in the March 2007 project completion date and an April 2007 formal opening. At the current pace, with 33 mason teams setting approximately 1,000 to 1,100 stones each week, stone installation will be complete in August, which is consistent with the latest project schedule.

We are currently addressing budget needs related to the commissioning process for fire and life-safety systems to accommodate additional staff the Fire Marshal needs to conduct the tests in a timely manner.

Last month we agreed with GAO's statement that trade stacking can be an issue if delays in stone installation create a scenario where multiple trades are attempting to execute their work in the same area at the same time. To address this concern, the Sequence 2 contractor has begun to develop detailed schedules for specific geographic areas of the CVC. For example, the food service area, the first work zone to be addressed, will be delineated into several smaller work zones. Subcontractors will be given specific times when the space will be available to them. This helps each contractor plan their work more efficiently and keeps pressure on each contractor to perform their work in the time frame specified. Especially since there will be an understanding that other subcontractors have also been scheduled to work at specific times in the same work zone. We expect to see the first detailed schedule plan for the food service area at the end of this month, with detailed schedules for other areas to follow. I should also point out that decreasing the need for multiple contractors to work in the same areas simultaneously also enhances worker safety by minimizing crowded conditions.

Regarding overall safety on the CVC site, the incident rate numbers again show improvement from previous months. The Sequence 2 contractor continues to teach a 10-hour OSHA course that addresses all aspects of worker safety, with one-hour

classes held each week. Once the OSHA course training is complete in three weeks, the contractor will resume teaching safety classes for specific trades.

Project Progress Update

As we monitor very closely the pace of stone installation and deliveries, many other activities are occurring and workers continue to make steady progress in all areas of the facility. I would like to bring to your attention a few construction highlights since our hearing last month.

In the upper west lobby adjacent to the East Front, just beyond the orientation theaters, masons have installed 97 percent of the wall stone and crews are now working on ceiling framing and utility insulation in this area.

In the East Front itself, crews have nearly completed all of the blockwork. These areas will soon be turned over to the stone masons. Since receiving some relief from the injunction last December, the stone contractor has been able to pursue an alternate quarry for sandstone and that stone is now arriving for the East Front. Late in February, masons installed some of the sample stone from that quarry on a wall at the lower level of the East Front. We expect further stone installation to begin in earnest once the blockwork is finished in this area. (The most recent hearing held on March 3 with the Special Master resulted in no new direction as he continues his efforts to resolve the dispute between the contractors.)

In the Great Hall, scaffolding now occupies more than 50 percent of the space and crews have begun framing portions of the three barrel-vaulted ceiling alcoves between the Great Hall skylights.

In the corridors north and south of the Great Hall, painters are busy priming drywall, plaster walls, and ceiling soffits. Plastic sheeting can now be seen covering walls in several areas to protect all the stone work while crews paint ceilings and complete other adjacent finishing activities.

Wall stone is also 97 percent complete in the Exhibit Gallery and workers have nearly completed the assembly of the steel framework for an elevated glass floor in the center of the gallery. Earlier this month, we gave the fabricator of the glass floor panels notice to proceed with production.

As we reported last month, wall stone is complete in both orientation theaters and ceiling framework is nearly complete. In late February, in the north orientation theater, workers hung eight 20-foot-high steel panels that will slide in front of the projection screen. Later, a cherry wood veneer will be anchored to the steel as a final finish on these panels to form a backdrop for room functions other than the orientation film.

Meanwhile, work continues to progress well in both the House and Senate expansion spaces and, while the contractor did experience some schedule slippage in February when compared to the previous month, these areas are still tracking ahead of their contractual completion date of March 2007. Primer painting is nearly complete on the middle level in the House space, and on the upper level of the Senate side, the metal stud framework for the Senate recording studio is nearing completion. Crews are now installing drywall throughout this level.

Outside, along the north and south walls of the Congressional Auditorium, foundation work progresses well on the stepped walkways and concrete planter boxes that lead down into the CVC entrance. During the next few weeks, the first of 85 new trees for the East Capitol Grounds will be planted within these zones. Mr. Chairman, these trees were selected three years ago and have grown into robust specimens between 18 and 27 feet in height, so when planted, they will almost immediately re-establish the sense of the allee of trees Frederick Law Olmsted intended for this area in his plan of 1874. Initially, 32 Tulip Poplar trees will be planted this spring with the remaining 50 trees and myriad shrubs to be planted this fall as the project nears completion.

On East Capitol Street, work on the utility tunnel is in its final stages and tunnel close-in work at the connection at Second Street is complete. The electrical ductbank above the tunnel is 95 percent complete and crews will begin later this month placing a 10-inch concrete slab above the tunnel. Crews will begin this work at Second Street and move west toward First Street where tunnel close-in work is nearing completion. Weather permitting, the contractor will complete concrete and asphalt placements during the next several weeks and East Capitol Street will reopen to traffic in late April or early May. On the operations front, we have begun to review proposals for the food service contract. A selection for that contract is expected by mid-year.

Mr. Chairman, this concludes my statement. Once again, thank you for this opportunity to testify. I would be happy to answer any questions you may have.

MEETING CAPITOL VISITOR CENTER MILESTONES

Senator ALLARD. Thank you for your testimony, Mr. Hantman, and I do agree with you that when we're all finished it's going to be a fabulous facility for everybody to enjoy. But I do have some concerns about your meeting some of the deadlines that you have set out. For example, this last month only five of the milestones were completed, and only three of those were on time. We need testimony from GAO, let's go ahead and do it, and then we'll get into questions.

STATEMENT OF TERRELL DORN, ASSISTANT DIRECTOR, PHYSICAL INFRASTRUCTURE, GOVERNMENT ACCOUNTABILITY OFFICE

ACCOMPANIED BY BERNARD L. UNGAR, DIRECTOR, PHYSICAL INFRASTRUCTURE, GOVERNMENT ACCOUNTABILITY OFFICE

Mr. UNGAR. Mr. Chairman, thank you very much, we're pleased to be here. Mr. Dorn will do our oral summary, and then we'll both be available for questions.

Mr. DORN. Thank you Mr. Chairman, as Mr. Hantman has already said, construction certainly moved forward over the past month. In addition AOC has followed up on some of our previous recommendations on developing detailed floor stone installation plans and also they're developing a plan to reduce the impact of trade stacking. I think those are both great things that the Architect and Manhattan are taking on, so that's some positive news.

Unfortunately, we continue to believe that their April opening date for the CVC and the May opening date for the expansion space are both optimistic. They're not allowing enough time for several critical activities to take place, or for risk and uncertainty as it continues to affect the project.

A number of red flags are out there popping in the stiff breeze today. For example the expansion space schedule has lost 4 weeks over the past month. The completion date didn't change in their schedule, but they lost 4 weeks of float. So that's a serious concern about the completion of the Senate and House expansion spaces. The number of critical paths increased from 18 to 20 last month. Out of those 20, 12 of them lost time. Out of the top 10 critical paths, 6 of them lost 2 to 4 weeks last month.

Gilbane also pointed out that Manhattan's earnings are too low to complete the project on time. Of our nine critical milestones, as you mentioned, only five were completed. And out of those, only three were completed on time or ahead of schedule.

They did not meet production targets last month for the wall and floor stone, they hit—about 90 percent of their target for the wall stone, and only about 45 percent of their target for the floor stone.

Our current estimate for the cost of completion is \$556 million without risk and uncertainties. This is about \$1 million more than last month, because AOC now estimates that they need additional funds for fire alarm testing. AOC is covering the cost in their general administration budget, not in the CVC budget. Our \$584 million high end estimate, including risk and uncertainty still remains the same. So in summary Mr. Chairman, the AOC needs to continue their good efforts at developing plans for the wall and floor

stone and their efforts to address a schedule delay analysis is also important. It's the same recommendation we made last month.

Thank you Mr. Chairman.
[The statement follows:]

PREPARED STATEMENT OF TERRELL DORN

Mr. Chairman and Members of the Subcommittee: We are pleased to be here today to assist the Subcommittee in monitoring progress on the Capitol Visitor Center (CVC) project. Our remarks will focus on the Architect of the Capitol's progress in achieving selected project milestones and in managing the project's schedule since the Subcommittee's February 15, 2006, hearing on the project.¹ As part of this discussion, we will address a number of key challenges and risks that continue to face the project, as well as actions AOC has taken or plans to take to address these risks. In addition, we will discuss the status of the project's costs and funding.

Our remarks 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 the CVC team (including AOC and its major CVC contractors), AOC's Chief Fire Marshal, and representatives from the U.S. Capitol Police. We also reviewed AOC's construction management contractor's periodic schedule assessments and daily reports on the progress of interior wall and floor stonework.

In summary:

Since the Subcommittee's February 15 CVC hearing, the CVC team has continued to move the project's construction forward, but we continue to believe, as we said at the February hearing, that AOC's proposed opening dates—April 2007 for the base CVC project and May 2007 for the House and Senate expansion spaces—do not allow enough time to complete several critical activities and to address problems, challenges, risks, and uncertainties. During the past month, the CVC team has essentially maintained the pace of critical interior wall stone installation, developed a draft work plan for floor stone installation, started to develop a work plan to prevent a stacking of trades² during finish work, and maintained the opening dates that AOC announced at the February CVC hearing. However, the number of activities critical to the project's timely completion has increased, and several of these activities are now scheduled to take longer to complete than planned. In addition, wall stone deliveries are still backlogged, critical building systems still have to be commissioned and tested, and although the project's overall design is essentially complete, certain design elements are still incomplete or are being clarified or refined. If the CVC team is successful in addressing these issues, we believe that the base CVC project can be opened to the public with a temporary cap on visitor occupancy in May 2007 and that the expansion spaces can be opened for occupancy beginning in mid-August to early September 2007. Congress may even be able to occupy the expansion spaces earlier if AOC implements a phased opening plan it is considering and if AOC is able to perform acceptance testing of the CVC and the expansion spaces concurrently rather than sequentially—a possibility AOC is continuing to explore. Nonetheless, we believe that AOC will be challenged to meet the later dates we are projecting because of the problems, challenges, risks, and uncertainties facing the project.

We currently estimate that the total cost to complete the entire CVC project is about \$556 million without an allowance for risks and uncertainties. This estimate exceeds our February 15 estimate by about \$1 million because AOC now preliminarily estimates that it will need about that much to pay for contractual support needed to complete acceptance testing of the facility's fire protection system in time to meet the project's schedule. AOC plans to use its general administration appropriations for this work, including funds for fiscal year 2006 that it has on hand and about \$950,000 in fiscal year 2007 funds that Congress has not yet provided. To date, about \$528 million has been provided for CVC construction. We continue to estimate that AOC will need about \$25.6 million more in CVC construction funds to complete the entire CVC project without an allowance for risks and uncertainties

¹GAO, *Capitol Visitor Center: Results of Risk-based Analysis of Schedule and Cost*, GA0-06-440T (Washington, D.C.: Feb. 15, 2006).

²Trade stacking can occur when workers from different trades, such as stone masons, electricians, plumbers, or plasterers, have to work in the same area at the same time to meet a schedule, sometimes making it difficult to ensure sufficient space and resources for concurrent work.

and taking into account funding AOC plans to use from existing appropriations. Our \$584 million estimate of the cost to complete the entire project with an allowance for risks and uncertainties remains unchanged because the cost of acceptance testing is one of the uncertainties covered by this allowance.

AOC Has Moved Construction Forward, but the Project Continues to Experience Delays and Face Risks and Uncertainties

AOC's February 2006 schedule shows, as did its January 2006 schedule, that the CVC base project will be ready to open to the public with a temporary certificate of occupancy on February 13, 2007, and that the House and Senate expansion spaces will be ready for occupancy on April 24, 2007. To allow for possible delays and start-up time for operations, AOC has proposed an April 2007 opening date for the base project and a May 2007 occupancy date for the expansion spaces. AOC expects all construction work in the CVC, East Front, and expansion spaces to be completed by the April opening date for the base project, but the CVC's occupancy at any one time will be temporarily limited to 3,500, compared with about 4,200, the normal anticipated occupancy level.³

Our Analysis Indicates Later Opening Dates Than AOC Is Proposing

We continue to believe, as we testified in February, that the CVC is more likely to be ready for opening with a temporary certificate of occupancy by about the end of May 2007 than by April 2007, as AOC is proposing. Our projected opening is somewhat later than AOC's because CVC team managers and members we interviewed believe that certain work, such as interior stonework and finish work for the base project and East Front, will take longer to complete than the revised schedule allows. Our projection also assumes that AOC will be successful in addressing the challenges it faces and takes into account the time that AOC believes will be necessary to prepare for operations after construction work is completed. Similarly, we continue to believe that the House and Senate expansion spaces are more likely to be ready in mid-August or early September 2007 than in April or May 2007, as AOC is proposing. We consider the later time frames more likely for two reasons. First, AOC has scheduled the acceptance testing of the expansion spaces after the acceptance testing of the base project and, according to our analysis, the base project's testing will take longer than scheduled. Second, AOC's Chief Fire Marshal believes the acceptance testing of the expansion spaces will take longer than scheduled. However, the expansion spaces could be ready sooner if AOC advances the schedule for the acceptance testing—a possibility AOC is exploring.

Although construction work has been progressing and the sequence 2 contractor has met several schedule milestones, delays have continued in a number of areas, and ongoing risks and uncertainties could cause further delays. AOC's construction management contractor reported that, in terms of the dollar value of the work in place, the overall CVC project was about 77 percent complete and the sequence 2 work was about 63 percent complete as of February 28—up from about 74 percent and 59 percent, respectively, as of January 31. Furthermore, as of March 13, the sequence 2 contractor had completed work on five of the nine schedule milestones that were due to be completed by today's hearing, according to the project's January 2006 schedule. Three of the five were completed on time or ahead of schedule. (See table 1 in app. I.) According to AOC's construction management contractor, during the last 4 weeks, the sequence 2 contractor installed 4,363 pieces of interior wall stone, compared with its 4,794-piece wall stone installation target, but installed only 1,590 square feet of its preliminary 3,600 square-foot floor stone installation target. (See table 2 in app. I.) In addition, in measuring the sequence 2 contractor's February performance against the project's January 2006 schedule, AOC's construction management contractor reported delays in 12 of the 20 activity paths identified as important to meeting the base project's overall completion date. These delays included, but were not limited to, work in the East Front, the exhibit gallery, the auditorium, the utility tunnel, the great hall, and the orientation theaters and ranged from 2 to 36 work days, but did not affect the base project's overall completion

³This temporary limit will be necessary because the "horizontal exits," or passages, through the expansion spaces, which the life safety code requires for exiting the base CVC project, will not be available until later. These horizontal exits cannot be used until the fire alarm system in the expansion spaces has been fully tested and accepted—work that is not slated to be completed until after the base CVC is scheduled to open. Some additional work will likely be required to provide temporary emergency exit routes from the CVC, but the CVC team does not believe that this work or its costs should be substantial.

date.⁴ According to the CVC team, the delays occurred for a variety of reasons, such as design changes, problematic sequence 1 work, late submissions or approvals of shop drawings, and changes in the sequence of work activities by the sequence 2 contractor. Finally, in its CVC progress report for February, AOC's construction management contractor said that the sequence 2 contractor's monthly billings (reflecting the value of construction work done relative to the project's schedule) were generally not sufficient to meet AOC's currently scheduled completion date.

The construction management contractor's February progress report also showed that several House and Senate expansion space activities had fallen behind the project's January 2006 schedule. These activities involved work on the House and Senate circular stairs, the House and Senate lower levels, and space intended for use by the U.S. Capitol Police on the service level. The CVC team said these activities were delayed because of (1) problems associated with sequence 1 or other sequence 2 work, (2) redesign resulting from the CVC team's misunderstanding of congressional requirements for certain space, or (3) security-related design changes. According to the CVC team, these delays will not affect the schedule for opening the expansion spaces, but could delay the base CVC project's opening if the lost time cannot be recovered, since certain expansion space work must be completed before the CVC can be opened to the public. At this time, the sequence 2 subcontractor doing the expansion space work believes that most, if not all, of the lost time can be recovered and that all expansion space construction work necessary for the CVC's opening will be completed by December 31, 2006.

Project's Schedule Remains Vulnerable to Problems, Challenges, Risks, and Uncertainties, Despite Actions AOC Has Taken and Plans to Take

As we indicated during the Subcommittee's February 15 CVC hearing, we believe that AOC will be challenged to meet even the later opening dates we have identified, given the problems, challenges, risks, and uncertainties facing the project. A brief update on these, as well as on AOC's actions and plans for addressing them, follows:

Delivery of stone and pace of stone installation remain critical.—In the 4 weeks preceding today's hearing, the sequence 2 contractor reported receiving 9 of the 10 truckloads of interior wall stone it was expecting from the stone fabricator, but had not received any of the 20-truckload backlog. According to AOC, the supply of interior wall stone is adequate for the CVC at this time, given the quantity on hand, providing that the fabricator continues to deliver about 1,000 pieces a week for the next 12 weeks. However, AOC said that the pace of installation is such that additional delays are likely to occur if the fabricator does not deliver the needed stone on time. According to AOC's construction management contractor, the sequence 2 contractor has installed 4,363 pieces of interior wall stone since the last hearing, meeting about 91 percent of its production target. By contrast, the sequence 2 contractor has installed only about 1,590 square feet of floor stone, or about 44 percent of the quantity specified in a preliminary floor stone installation plan that the contractor provided to AOC shortly after the February 15 hearing. In addition, seven of the nine schedule milestones that AOC and we have been tracking for the Subcommittee for today's hearing are related to interior wall stone installation, and the sequence 2 contractor has met three of these seven milestones. Although the sequence 2 contractor has recently increased the number of stone masons working on the project, delays are likely if the targets for interior wall and floor stone installation are not achieved. The targets could possibly be missed if the masons are less productive than planned, work spaces are not ready or available for stonework to begin, or the fabricator fails to deliver stone on time. During the February 15 hearing, we noted that it was critically important for the CVC team to aggressively address this area. AOC and its construction management contractor agreed and have been tracking interior wall stone installation daily. In its February CVC progress report, AOC's construction management contractor noted that interior wall stone delivery was the most critical issue at that time.

Trade stacking could delay completion.—As we discussed during the Subcommittee's February 15 CVC hearing, trade stacking could hold up finish work, such as drywall or ceiling installation, electrical and plumbing work, plastering, or floor stone installation. This work could be stacked if wall stone is not installed on schedule. Although the pace of wall stone installation was essentially maintained in February, it is not, according to AOC's construction management contractor, sufficient to eliminate the risk of trade stacking and

⁴However, several activities, including interior wall stone installation, penthouse mechanical work, and East Front fire protection system acceptance testing, were delayed to the extent that even relatively short additional delays could affect the CVC's overall completion date.

delays in finish work. Such a situation could also increase the risk of accidents and injuries. Hence, it remains important, as we said at the February CVC hearing, for the CVC team to closely monitor construction to identify potential trade stacking and promptly take steps to avoid or, if necessary, address it. The CVC team has also identified trade stacking as a high risk, and the sequence 2 contractor has begun to develop area-by-area plans that will show when each subcontractor will be working in each area. The sequence 2 contractor expects to complete these plans over the next few weeks and to meet regularly with its subcontractors to review and update the plans. We believe this is a positive step but note that further delays in completing wall stone installation could still limit the available work space, making it difficult for all the trades to complete their work on schedule. AOC agrees and plans to monitor this situation during its weekly risk management meetings with the CVC team.

—*Complex building systems remain a significant risk.*—The CVC will house complex building systems, including systems for heating, air conditioning, and ventilation; fire protection; and security. These systems not only have to perform well individually, but their operation also has to be integrated. If the CVC team encounters any significant problems with their functioning, either individually or together, during commissioning or acceptance testing, the project could be seriously delayed. The shop drawings for the CVC's fire protection system, which are expected by the end of this week, have not yet been approved by AOC's Chief Fire Marshal. Delays could arise if the proposed system does not meet the design specifications or fire protection code requirements. In addition, the Chief Fire Marshal notes that delays could arise if the CVC team does not adequately pretest the system and correct any problems found during the pretesting. The CVC team is aware of these risks and has been taking steps to mitigate them as part of its risk management process. During the Subcommittee's February 15 CVC hearing, we suggested that the CVC team reassess its risk mitigation plans to ensure that it has identified the steps necessary to prevent major problems during the building systems' commissioning or testing and has measures in place to deal quickly with any such problems should they arise. AOC agreed and said that the CVC team will be continuously assessing this situation as part of its risk management process. It is also important to note that the Chief Fire Marshal's timely completion of the fire protection system's acceptance testing depends on his ability to obtain sufficient funding for a contractor to help his staff perform the tests. We will discuss this funding issue later in our testimony.

—*Building design continues to evolve.*—The CVC has undergone a number of design changes. Some of these changes, such as changes in the exhibit gallery and in the East Front, have resulted in delays. In addition, designs or shop drawings for some elements of the project, such as certain security features, space for the Capitol Guide Service, and aspects of the facility's fire protection systems, have not yet been completed or fully approved and are subject to change. Moreover, eight design changes or clarifications have been issued since January 25, 2006. Additional design changes are being considered and have the potential to cause further delays. During the Subcommittee's February 15 CVC hearing, we said it would be important for the CVC team to carefully consider the need for proposed scope and design changes and try to minimize the impact of necessary changes on the project's schedule and cost. AOC agreed and said it plans to make only necessary design changes.

—*Multiple critical activity paths complicate schedule management.*—In reporting on the project's February 2006 schedule, AOC's construction management contractor identified 20 critical activity paths that are important to the project's on-time completion—2 more paths than the contractor identified in reporting on the project's January 2006 schedule. According to the contractor's report on the project's February 2006 schedule, several of these activities fell behind schedule during the month and could delay the project's completion if the lost time cannot be recovered. As we have said in a number of our previous testimonies on the CVC, having a large number of critical and near-critical activities complicates project management and increases the risk of missing completion dates. We believe that the CVC team will be particularly challenged to manage all of these areas concurrently and to deal effectively with problems that could arise within these areas, especially if multiple problems arise at the same time. During our February 15 testimony, we said that it would be important for the CVC team to reassess its capacity to effectively manage and coordinate the schedule and work for the remainder of the project. According to AOC, the CVC team has done this and believes that it has the needed capacity. While we believe that the steps being taken by the sequence 2 contractor to address trade stack-

ing should, if effectively implemented, help in managing these critical activities, we continue to be concerned about this issue and plan to monitor it closely as the project proceeds.

—*Opening the CVC and expansion spaces at different times is likely to result in a temporary cap on CVC occupancy and increase costs.*—As we reported during the Subcommittee’s February 15 CVC hearing, AOC’s current plan to open the CVC in April 2007 before the expansion spaces are scheduled for completion is likely to result in a temporary cap on visitor occupancy and a need to construct temporary emergency exits for fire and life safety protection.⁵ AOC is proposing this sequential approach because it believes that conducting the acceptance testing for the fire protection system for the CVC and the expansion spaces concurrently would delay opening the CVC to the public. Although AOC has not yet estimated the additional costs associated with the temporary measures that would need to be taken, it does not believe they will be substantial. During our February 15 testimony, we said that it would be important for AOC to identify and consider the pros and cons (including the estimated costs) of opening the CVC and expansion spaces at about the same time and provide this information to Congress. AOC agreed and said that a senior superintendent with its construction management contractor will be evaluating this situation and that AOC will provide the information to Congress when the evaluation is complete.

Finally, as we have said in previous discussions with AOC, its construction management contractor, and the Subcommittee, it will be important for AOC to have adequate analysis and documentation of the reasons and responsibilities for delays.⁶ We discussed this issue with AOC and its construction management contractor again last week, and they agreed to reassess this area and get back to us after the reassessment is done. They said that although they had received requests related to accelerating sequence 2 work, they had not yet received any requests from contractors for payment of costs related to delays encountered during sequence 2. However, they consider such requests likely in the future and agree that they need good information for evaluating them.

Need for Additional Funding Has Grown

In February, we estimated that the total cost to complete the entire CVC project would be about \$555 million without an allowance for risks and uncertainties and could be as much as about \$584 million with such an allowance. To date, about \$528 million has been provided for CVC construction. This amount does not include about \$7.7 million that was made available for either CVC construction or operations.⁷ According to AOC, it expects to use about \$2 million of this amount for construction. To obtain the additional funding that it expected to need to complete the project’s construction, AOC, in December 2005, requested \$20.6 million as part of its budget request for fiscal year 2007. This request was based, in part, on discussions with us and took into account our November 16, 2005, estimate of the cost to complete the project’s construction without an allowance for risks and uncertainties and funding from existing appropriations. Our subsequent work—completed in preparation for the Subcommittee’s February 15 CVC hearing—indicated that AOC would need about \$5 million more, or about \$25.6 million in additional funds, to complete construction without an allowance for risks and uncertainties. AOC has indicated that it plans to request this additional \$5 million as a supplement to its fiscal year 2007 budget for CVC construction.

In February 2006, AOC contracted with a fire protection engineering firm, in part, to help AOC’s Fire Marshal Division inspect, test, and review plans for the CVC’s fire protection system. AOC has not yet received the final shop drawings for this system, but it preliminarily estimates that these contractual support services will cost about \$1,150,000. According to AOC, it may be able to reduce these expected costs and it will be exploring ways to do so. On the basis of AOC’s preliminary estimate and belief that the expected costs may be reduced, we added \$1 million to our

⁵According to AOC, the CVC’s occupancy at any one time would be temporarily limited to 3,500, compared with about 4,200, the normal anticipated occupancy level, until acceptance testing of the fire protection system for the expansion spaces has been completed.

⁶See for example: GAO, *Capitol Visitor Center: Effective Schedule Management and Updated Cost Information Are Important*, GAO-05-811T (Washington, D.C.: June 14, 2005).

⁷Public Law 108-447, enacted on December 8, 2004, provided that up to \$10.6 million could be transferred from AOC’s Capitol Building appropriation account for the use of the CVC project. The use of the amount transferred is subject to the approval of the House and Senate Committees on Appropriations. In June 2005, AOC received approval to use about \$2.8 million of this \$10.6 million, leaving a balance of about \$7.7 million that can be used in the future after a rescission amounting to \$84,800. AOC recently received approval to use more of these funds; we will discuss this in our testimony for the next CVC hearing.

\$555 million estimate of the cost to complete the entire project without an allowance for risks and uncertainties, bringing our total estimate to \$556 million. We did not, however, change our \$584 million estimate of the cost to complete the entire project with an allowance for risks and uncertainties, since contractual support costs for acceptance testing would be covered under such an allowance. Nor did we change our \$25.6 million estimate of the additional CVC construction funds AOC would need because AOC has used and plans to use a different appropriation account to pay for this contractual support. AOC has used and plans to use its general administration account because this contractual support is needed to accommodate an overall increase in the Fire Marshal Division's workload, including its CVC-related work. AOC plans to use a total of \$200,000 in fiscal year 2006 general administration appropriations to pay for contractual support for the CVC's acceptance testing and has requested another \$450,000 in fiscal year 2007 general administration appropriations. After AOC has received the final shop drawings for the CVC's fire protection system and has explored ways to reduce the cost of needed contractor support, it plans to reprioritize its fiscal year 2007 general administration budget request to obtain the remainder of the funding needed. At this time, AOC expects this amount to be somewhat less than \$500,000, which would bring the total fiscal year 2007 funding needed for contractual support for CVC acceptance testing to about \$950,000. We plan to monitor and report to the Subcommittee on these costs as soon as AOC has a firmer estimate.

Mr. Chairman, this completes our prepared statement. We would be pleased to answer any questions that you or Members of the Subcommittee may have.

APPENDIX I.—CAPITOL VISITOR CENTER: CRITICAL CONSTRUCTION MILESTONES AND STONE INSTALLATION TARGETS, FEBRUARY 16-MARCH 15, 2006

Table 1 compares the actual with the scheduled completion dates for critical sequence 2 construction milestones scheduled to be completed by March 15, 2006. Table 2 compares the actual with the targeted pace of wall and floor stone installation. The targets for wall stone installation are related to the wall stone milestones identified in table 1. The preliminary targets for floor stone installation are related to milestones that are scheduled to be completed after March 15, 2006.

TABLE 1.—CRITICAL CONSTRUCTION MILESTONES, FEBRUARY 16-MARCH 15, 2006

Activity	Location	Scheduled completion	Actual completion
Wall Stone Area 2	East Front Basement	3/06/06	.....
Wall Stone Area 2 Pedestals	Orientation Lobby Upper Level	2/16/06	3/08/06
Wall Stone Area 1 Base	Orientation Lobby Upper Level	2/20/06	2/20/06
Wall Stone Area 1	Orientation Lobby Upper Level	3/06/06	3/02/06
Wall Stone Area 3 Base	Orientation Lobby Upper Level	3/10/06	2/20/06
Interior CMU Walls	East Front Subbasement	2/06/06	2/21/06
Hang VP Drywall Ceiling	Congressional Auditorium Lower Level	3/13/06	.....
Wall Stone Area 1	East Front Basement	2/20/06	.....
Install Pipe Sta. 0 + 00-2 + 00	Utility Tunnel	3/08/06	.....

Source: AOC's January 2006 CVC sequence 2 construction schedule for the scheduled completion dates and AOC and its construction management contractor for the actual completion dates as of March 13, 2006.

TABLE 2.—TARGETS FOR WALL AND FLOOR STONE INSTALLATION THROUGH MARCH 11, 2006

Week starting	Pieces of interior wall stone		Square feet of interior floor stone	
	Target	Actual	Preliminary target	Actual
Feb. 13, 2006	1,060	1,054	500	150
Feb. 20, 2006	1,280	1,214	500	.....
Feb. 27, 2006	1,180	1,046	1,200	740
Mar. 6, 2006	1,274	1,049	1,400	700
Total	4,794	4,363	3,600	1,590

Source: Sequence 2 contractor for targets and AOC's construction management contractor for actual amounts installed. According to the sequence 2 contractor, the targets for floor-stone installation are preliminary and may change.

CAPITOL VISITOR CENTER MILESTONES

Senator ALLARD. Thank you for your testimony. Having both GAO and AOC at the table at the same time does help our subcommittee in understanding the problems that we're facing and I appreciate the give and take on both of these issues.

As I was referring to earlier on the milestones, it seems that the trend of losing time each month continues. In fact some of those activities on critical path have increased considerably. Mr. Hixon, can you discuss why the milestones in the last month weren't met?

Mr. HIXON. Yes sir, I'd be happy to discuss those. The milestones that we have for this month I picked those several months ago. Some of the logic has changed in the way the contractor's performing his work. The east front area has been troublesome, so of the four that were not completed, two of them related to the east front. One of them was veneer plaster in the auditorium, which is being rescheduled to occur later, because we're not emphasizing the auditorium. The last one is the utility tunnel, and the completion of the piping, which is almost done, it was supposed to be done by March 8. It's almost complete.

So yes, statistically we didn't hit the numbers but we're hitting pretty close. We're within weeks of making the dates. This was the first time that we hit so many that we either got them on schedule, or you know actually hitting that date, or getting them done early.

So I think progress is being made in the right direction. Along this line, the installation of wall stone in the orientation lobbies has gone very very well, in the upper west lobbies, so the installation of wall stone is moving very well in those areas. It's gone much better here in the last month and half than it has previously. Part of that is due to the fact that we're not doing such high walls with wall stone.

So progress is being made real well in a lot of areas. Some of the numbers will make it look like it's not quite as good as it really is.

Senator ALLARD. So, your view is since you've pushed off the auditorium, that's not a serious concern right now, as far as actual completion date.

You think we're close enough on these milestones that we can still maintain the same completion date?

Mr. HIXON. I believe so sir. The focus is certainly to get the areas finished, to get the wall stone in, get the floor stone in, get the ceilings in, and the order of precedence on all that is to start and get the food service done, get the orientation theaters done, the exhibit gallery worked on so the follow on contract work can all be taking place.

We have had issues, we don't hit all the dates we'd like to hit, but we're making good progress in achieving that. When we look at our commitment dates, what we're looking to achieve for a completion of construction at the end of this year, we feel we're still on track to make that.

Senator ALLARD. How do you think you can make up for lost time?

Mr. HIXON. Some of these activities, for example the orientation lobby stone work, went real well. It went better than we had antici-

pated. And so when we generate these schedules, some things we get a little better, some things are resequenced. The challenge for us right now is making sure we have enough wall stone to keep these masons fully working. Then we've got to get some of the ceiling work out of the way so the floor stone can move more quickly. They want to get the floor stone installed after the ceiling work even though we've done it in the reverse order in the south corridor. And that's been holding up the issue. Plus some conduit that needed to be installed under that floor stone, there was an issue to be resolved on how best to install that. That was resolved. We had 1 week where we had no floor stone installed because they were reconciling that issue. It's now been resolved for the rest of the project and so that shouldn't be a problem again.

CAPITOL VISITOR CENTER COMPLETION DATE

Senator ALLARD. Mr. Dorn, you seem fairly certain that the completion date has slipped. Why do you feel so strongly about that?

Mr. DORN. Again, I think that there's a number of indicators that say they've lost time over the past month. And I'm concerned. And I've talked to the schedulers about this, why the completion date itself is not moving, even though many of the intermediate tasks are certainly losing time.

Senator ALLARD. Do you think they have a decent chance of catching up on lost time?

Mr. DORN. I think they are working hard at trying to do that. They want to get out of here as much as we do, and get this job finished. I think they are making some improvements again, as I've mentioned in my testimony, they've developed these detail plans which will help them to get there, to break these things into smaller manageable tasks that are more easily monitored. And so I think they're doing some of the right things now to try to make up that time, yes sir.

Senator ALLARD. Mr. Hixon, what is the status of your plan to address the problem of trade stacking we discussed in last month's hearing?

MANAGING TRADE STACKING

Mr. HIXON. Mr. Chairman, Mr. Hantman mentioned in his statement the contractor's taking individual areas, like the food service area, the orientation theater, and he's developing a detailed schedule with his subcontractors for each of those areas. They have a period of time to perform plaster work, floor stone, and that—to avoid the trade stacking issue. And so implementation of that plan will eliminate a great concern of the trade stacking. That's certainly something that we've been talking about for months. They're tired of hearing about it from us as well. But the point is, they've now got a process in place to try and manage that. We will see if that takes care of the concern but that does remain a concern to make sure that we don't end up with too many people in the same spot trying to work.

Senator ALLARD. Now, Mr. Ungar, do you have some additional views on how they may control or reduce the trade stacking?

Mr. UNGAR. Yes, Mr. Chairman. I think it's important for the CVC team to get this wall stone installed on schedule or ahead of

schedule. Unfortunately that's been challenging. As Mr. Hixon said, they have made better progress recently than they had in the past. But they still have a long road to go, and they still have the challenge of getting the stone supply on time. Right now it's almost "just in time." So that remains a big challenge. Once they do that, they've got to get the floor stone in and they're somewhat behind schedule there, and that's going to probably interfere somewhat with the other finish work that they have to do. So the plan that they're starting to develop is a really good start. But with everything moving to the end with the slippages and the interim dates that Mr. Dorn talked about, the team is going to be more and more challenged to get all the work done in a shorter period of time to meet the schedule. And the other indicators would suggest that they're going to have a problem completing all that work in the amount of time that they have allowed. So best thing I think the team can do is get this wall stone up, get the floor stone in and hopefully have a good implementation of their trade stacking plan.

CAPITOL VISITOR CENTER DESIGN CHANGES

Senator ALLARD. There have been eight design changes since January 25. That seems to me like an unusual number when we're getting toward completion of the project. Should we be alarmed by this level of changes? What's being done to try and limit those changes?

Mr. HIXON. Mr. Chairman, getting changes anytime near the end of the job is troublesome. Some of these issues, what they have been in the past is primarily a resolution of request for information from the contractor, where things don't fit quite right and we need a design document that reflects how to put them together.

Some of these design changes are the implementation of things like the gift shop construction. We'll be coming out with the administration space. There are corrections to documents for House and Senate expansion space, where there's a revision on how to do some things within that space. So what we are seeing right now, is an effort to provide design documents that are required as a consequence of either the construction that's underway or else something new that's being added to the project at this stage. Some of these things, like the build-out of the administration space are fully expected. It just becomes a matter of when are you going to have someone that can decide how that space is going to fit out, so that we can design it and build it. Because we've got the guide space, we've got the gift shops, we've got the administration space and the facilities space, all to be constructed in addition to the House and Senate expansion space.

CAPITOL VISITOR CENTER CONSTRUCTION SCHEDULE

Senator ALLARD. The Gilbane monthly progress report says that Manhattan's not billing enough to meet the current construction schedule. What's meant by that?

Mr. HIXON. We have a cost flow curve that reflects what amount of expenditure of money they should be achieving in order to complete on time. At this point they're at the very bottom of that as far as a—you know if they go any—the curve is going in the wrong

direction. They need to be billing greater amounts which means they're putting more work in place.

The issue with the stone installation has delayed the plaster and on and on. And so we need to get the rest of the finish trades in there so that they're performing work and we get more of this work in place. So that is a concern, we track that to try and ensure that they are getting enough work in place to meet the scheduled date and right now they're at the far edge. We'd like—we need to get more work in place so that that corrects.

Senator ALLARD. GAO has recommended on several occasions that your team be staffed up to improve documentation of contract changes and timing extensions. Would you comment on that?

Mr. HIXON. Yes sir, we have asked the construction manager to look at the personnel they have available to review the documentation that we currently have available for scheduling and any delay issues, to make sure we have adequate documentation. They have provided some résumés and we're reviewing that now with them, or we'll get somebody else to come in and review it. All we're looking for is an overview to make sure that the documentation is adequate. We've got great schedule information, it's just a matter of do we have enough of the narrative backup, if it's ever required.

CAPITOL VISITOR CENTER TUNNEL LEAK

Senator ALLARD. I opened up one of the newspapers this morning that covers news here on the Hill, and I think at your hearing yesterday over on the House side, there was some concern raised about a leak into the tunnel that runs over to the Cannon Office Building. Who's responsible for the leaks, and are they affecting the finishings that you're trying to install now?

Mr. HIXON. The leak we're all referring to is a leak between the slurry wall of the structure itself, and a connection to the Cannon tunnel. There's a short tunnel piece that connects the two. At that joint between the slurry wall and this short piece of tunnel there has been installed—it was designed and installed a joint that can be filled with a material to make it water tight. It has leaked, we have had it reinjected. It's made so it can be reinjected. We've had it reinjected, it still leaked. So, they should be out this week reinjecting it again. In order to ensure we don't have any water damage or any further water damage from that, we've dammed the area. The water was leaking between the fill slab that we put on top of the structure slab. We've now put a dam in, we've got a pump there to pump it into a drain. So we're taking those measures to ensure we get no further damage. We did have water damage to the drywall and the insulation in the lower level of the House area. Any of that damaged material is removed and will be replaced. We're just trying to make sure we've got this thing sealed off so it's not a problem.

In addition to that, because this is a potential issue, and these seals can fail over time, we'll be installing a drain below slab. If in the future something did happen years out, that that would drain into the building drainage system and not become a problem with damaged finishes.

Senator ALLARD. Sounds like it's a combination of both the material and installation and then also some design modification you've decided needs to occur, is that correct?

Mr. HIXON. We feel that the installation failed. It was a standard design, but it has failed. That usually means that something occurred during the installation. The fact that they reinstalled and it still isn't working right is why we're trying to provide a backup. So that if we—we will get this sealed now, so that it's not leaking, but we want to make sure that it won't create a problem if it leaks in the future.

As I said, it's a reinjectable joint so that if it did occur again in 10 to 15 years, they can go in and reinject that joint without having to do significant work to the structure.

Senator ALLARD. Mr. Hantman, will delays in the Capitol Power Plant construction affect the Capitol Visitor Center construction and opening date?

Mr. HANTMAN. No, it will not Mr. Chairman. Back in November, I believe it was, the units were basically tested out. It can be manually operated now if, in fact, we needed it now. As I indicated earlier on, when we talk about the July opening of the—most of the controls and some of the manual operations that we'll be able to serve, very well anyway. So we don't see any impact whatsoever, in terms of what's happening at the Power Plant. That project's moving along.

SUBCOMMITTEE RECESS

Senator ALLARD. That's all the questions I have. Thank you for taking the time to come before the subcommittee today, and we'll be seeing you next month.

[Whereupon, at 12:12 p.m., Wednesday, March 15, the subcommittee was recessed, to reconvene subject to the call of the Chair.]

PROGRESS OF CONSTRUCTION OF THE CAPITOL VISITOR CENTER

THURSDAY, APRIL 27, 2006

U.S. SENATE,
SUBCOMMITTEE ON THE LEGISLATIVE BRANCH,
COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 10:30 a.m., in room SD-124, Dirksen Senate Office Building, Hon. Wayne Allard (chairman) presiding.
Present: Senators Allard and Durbin.

OPENING STATEMENT OF SENATOR WAYNE ALLARD

Senator ALLARD. Good morning.

The subcommittee will come to order. We meet today to take testimony on the progress of the Capitol Visitor Center (CVC). This is our 10th hearing on the Capitol Visitor Center.

Once again, we welcome Architect of the Capitol Alan Hantman, CVC Project Director Bob Hixon, and our Government Accountability Office (GAO) representatives Bernard Ungar and Terrell Dorn. In addition, Mr. Stephen Ayers, AOC's Chief Operating Officer, is here to testify. Welcome.

Mr. AYERS. Thank you.

Senator ALLARD. We understand, Mr. Hantman that you have laryngitis and Bob and Stephen will be testifying as a result.

Mr. HANTMAN. It's getting better, Mr. Chairman. It's—as of yesterday, the voice has started coming back, but I think I could use a little assistance today.

Senator ALLARD. You have my sympathies.

Mr. HANTMAN. Thank you.

Senator ALLARD. Since our last hearing in March, progress has been made on floor stone installation, but only 1 of the 13 critical milestones AOC set for this project in the last month has been met on schedule. Concerns continue to be raised by GAO about the drawings for the fire protection system, which I understand are 1 month overdue. Concerns continue to be raised by GAO about the trade stacking, stone delivery, and schedule delays.

In addition, there appears to be an impasse between the Capitol Police and the fire marshal over the fire alarm system which needs to be resolved quickly as to not incur delays or additional costs.

We look forward to getting a full update today on these issues, as well as the status of major project milestones.

In addition, we will discuss the critical issue of the utility tunnels, which we talked about in our hearing last month. The Architect recently provided a report to the subcommittee, in response to

a letter Senator Durbin and I sent to Mr. Hantman, that described over \$100 million in activities to be done to address tunnel concerns, and requested \$39.9 million in fiscal year 2006 emergency supplemental appropriations.

While I appreciate your quick response to providing the report, I am very concerned that this issue has laid dormant for many years, and now we are told that over \$100 million is needed in short order. How we will find these funds, along with meeting the many other priorities before us, will be tough.

I am committed to addressing urgent worker safety concerns, but I believe we need to slow down and look at the implications of some of the longer-term projects that will involve tens of millions of dollars, so we would like to examine the supplemental spending request today.

Mr. Hantman, please proceed with your testimony. And when Senator Durbin arrives, we will give him an opportunity to make comments. Mr. Hantman, with your prior approval, if you're still testifying, or some member on the panel is testifying, I may ask to interrupt you, so that he can make his statement.

Mr. HANTMAN. Absolutely, Mr. Chairman.

Senator ALLARD. Thank you very much, Mr. Hantman. You may proceed.

STATEMENT OF ALAN M. HANTMAN, FAIA, ARCHITECT OF THE CAPITOL

ACCOMPANIED BY:

BOB HIXON, PROJECT DIRECTOR, CAPITOL VISITOR CENTER, ARCHITECT OF THE CAPITOL

STEPHEN AYERS, CHIEF OPERATING OFFICER, ARCHITECT OF THE CAPITOL

MARK WEISS, DIRECTOR, CAPITOL POWER PLANT, ARCHITECT OF THE CAPITOL

Mr. HANTMAN. In terms of our basic testimony, I'm going to ask Bob Hixon to go through our written testimony—oral testimony and then we'll work together to answer whatever questions come to us.

Senator ALLARD. Very good. Thank you.

Mr. HANTMAN. Bob, please?

Mr. HIXON. Let's see, is this microphone working?

Senator ALLARD. It is.

Mr. HIXON. Mr. Chairman, thank you for the opportunity to brief you regarding the progress of the Capitol Visitor Center project. We are reporting no change from what we discussed last month in our projections for both the project budget and schedule. However, we do continue to monitor closely the two key issues affecting the project: the installation and fabrication of stone, and the acceptance testing of the CVC's complex fire and life safety systems.

STONE INSTALLATION

Regarding stone installation, the contractor has received essentially all of the wall stone for the basic visitor center portion of the project. The deliveries of stone during these past several months, however, did not exceed the original monthly contract commitments to begin making up for the 2 month delay in deliveries experienced last fall. Therefore, as I stated earlier, we are reporting no

change in the March 2007 completion date or the potential for a formal opening of the CVC in April 2007.

FIRE AND LIFE SAFETY ACCEPTANCE TESTING

Regarding the acceptance testing for fire and life safety systems, we reported last month that the fire marshal may need to bring on additional staff to conduct the tests in a timely manner. We will continue to work closely with the fire marshal to examine the testing sequence and requirements in order to facilitate his ability to complete the testing process as expeditiously as possible. Our schedule continues to allow for a 4½ month duration for this process.

Overall, construction progress throughout the CVC continues with high quality work, but we are seeing schedule slippage in some areas. We are addressing these individual activities with the contractor to mitigate or eliminate any impacts.

CAPITOL VISITOR CENTER UTILITY TUNNEL

An issue we have been addressing is the CVC's new utility tunnel below East Capitol Street. The CVC utility tunnel connects to an existing tunnel below Second Street. Completion of the CVC tunnel has been impacted by the contractor's concerns with possible asbestos from the Second Street tunnel. The contractor has lost time in completing the CVC tunnel while tests were conducted to ensure that there was no migration of possible asbestos from the Second Street tunnel into the CVC tunnel.

Having found none, the contractors are back at work in the CVC tunnel completing electrical work and installing insulation on the pipes. In addition, they are about to begin flushing the lines to clean out all the debris from installation of the piping. We have begun pressure testing—first with air and then with water—to ensure the integrity of all the connections and seals.

However, while work has resumed in the CVC tunnel, the connection work within the Second Street tunnel itself has been delayed while the contractor completes the appropriate asbestos training and secures the safety equipment to work in that tunnel. The net impact on the operation schedule of the tunnel has been approximately 3 weeks. Our construction manager, Gilbane, is evaluating what impact, if any, this might cause to the overall project. We'll report to you their conclusions next month.

As we noted last month, another area of concern continues to be the potential for trade stacking. In March, we discussed the contractor's plans to mitigate the trade stacking that may occur as the schedule slips in various work zones. We reported that the sequence 2 contractor was developing detailed schedules for specific geographic areas of the CVC which are being delineated into several smaller work zones. Both GAO and my team have now reviewed the first detailed schedule plans for the food service area and we are satisfied with the approach. We will closely observe the execution of the plan to verify its effectiveness.

While the pace of construction sometimes does not meet our expectations; our contractors do continue to make steady progress throughout the facility. With the help of some photo boards, I'd like to show you some construction highlights since our last meeting.

On the first board, installation of wall stone in the east front has begun and is proceeding well. The east front is the primary transition zone between the CVC and the Capitol Building and is critical to the operation of the facility. Masons are now setting both base and wall stone on two levels within the work zone. Sandstone can be seen rising more than 20 feet on the walls within the carriageway below the east front center steps. Eventually, glass walls will enclose the arched openings of the carriageway providing visitors with views of the House and Senate wings as they use the stairs or the escalators to enter the Capitol. Stone installation in the east front began in March, not in February as originally expected. Therefore, we will continue to monitor the progress in the east front very closely, especially since this work is particularly difficult due to the multiple levels and tight spaces within this work zone.

On the second board, in the CVC entrance lobbies, the installation of wall stone within the base contract was completed ahead of schedule. A small amount of remaining wall stone for this zone will be delivered and installed separately. Masons have now moved from this area to work in the east front.

On the third board, the installation of wall stone is essentially complete in the great hall, the orientation theaters, the exhibition hall, the food service area, and the upper east and west visitor lobbies. Now the primary focus of work has shifted to the installation of ceilings within these spaces and adjacent corridors.

In the great hall, ceiling framework for the three barrel-vaulted ceilings has just been completed and drywall installation is about to begin. The masons have completed the setting of 900 pound blocks of stone around the perimeter of the south skylight. Both skylights over the great hall should be in place by mid-summer. In the upper and lower level corridors north and south of the great hall, ceiling framework is complete and workers continue installing drywall, plaster walls, and soffits.

Ceiling framework is also complete, on board five, in the orientation theaters and crews are expected to begin installing the first millwork and acoustical panels in May. This will be the first millwork to begin anywhere in the CVC, so we're eager to see that work commence. At this time, based on the current temperature and humidity readings in the facility, the contractor does not expect to need temporary dehumidification equipment to begin this work. That equipment is immediately available should it be required.

On the next board, in the exhibition hall, scaffolding is nearly complete in the center zone and ceiling framework is expected to begin shortly. As you may recall, Mr. Chairman, the center zone of the exhibition hall will receive thick glass panels that will allow this zone to be illuminated from below. The contractor is fabricating the glass panels for delivery later this summer. Meanwhile, masons continue to set floor stone along the east side of the hall and have begun installing the stone on west side of the hall.

On board seven, work continues to progress well in both the House and Senate expansion spaces and these areas are still stacking—still tracking, excuse me—for construction completion by the March 2007 contract date. In the Senate expansion space, frame-

work is complete for the Senate Recording Studio and drywall installation is proceeding to completion in that area. Framework is finished for the lower level as well and drywall installation is more than 50 percent complete. Close-in inspections for the installation of all of the mechanical, electrical, and plumbing systems have been going well, clearing the way for the drywall installation to continue on track.

PROJECT PROGRESS AND HIGHLIGHTS

Outside foundation work was completed for the stepped walkways that lead to the CVC entrances and these areas were readied to receive the first of 85 new trees that will be planted throughout the project area. There are now 30 new tulip poplar trees lining the north and south side to the East Capitol Street extension. The trees range in height from 20 to 30 feet as they come down the slope to the screening areas and already frame a grand view of the Capitol Dome intended in the original Olmsted Plan of 1874. Another 50 trees and myriad shrubs will be planted within the East Capitol grounds later this fall as the project nears completion.

On East Capitol Street, work to restore the road bed is progressing well. Crews have now placed a 10-inch concrete slab over 90 percent of the tunnel area and they should be finishing that today. We plan to open East Capitol Street to traffic later this spring.

On the east front, most of the 200,000 granite pavers have been set with some paving work remaining around the historic lanterns and fountains. That's with some paving work remaining around the historic lanterns and fountains. These areas will receive different colored pavers that will be set in a more decorative pattern.

On the Senate plaza, masons finished setting pavers to restore the sidewalk leading to the Senate carriageway and landscape crews have placed new sod in the Senate triangle, working to restore that area to its pre-construction condition.

EXHIBITS AND OPERATIONS

Regarding the CVC exhibits, a fabrication contractor has been taking molds of various elements both inside and outside the Capitol building. These will be converted to touchable, hands-on items that will be displayed in the exhibition hall. Meanwhile, our film contractor is shooting footage in various areas of the Capitol and in the House and Senate office buildings for the films that will run in the virtual House and Senate theaters. Also, a model maker is nearing completion of a mock-up of a 10-foot high model of the Capitol Dome that will be the centerpiece of the exhibition hall.

On the operations front, we continue to review the proposals for the food services contract and we expect to make a selection later this summer.

UTILITY TUNNEL SAFETY ISSUES

Finally, I'd like to take a moment to provide a progress report on another issue that we discussed at our last hearing. Two and one-half weeks ago, I submitted to this subcommittee our report on the utility tunnels that provide steam and chilled water to facilities

throughout the Capitol complex. We have taken a comprehensive and aggressive approach to further enhance worker safety and to improve and correct existing tunnel conditions.

Most importantly, effective measures have been implemented to ensure that employees can safely work in the utility tunnels. These measures include the use of appropriate personal protective equipment, additional written procedures and employee training, and the stabilization of concrete spalls prior to work being done in specific areas of the tunnels.

We have completed quick look asbestos inspections and have dedicated crews who have asked—who have been tasked with repairing damaged protective coverings of asbestos in insulation. We focused this work in the tunnels where employees identified some concerns and will soon proceed with the others. We have recently contracted to have asbestos removed from the “B” tunnel and are developing a plan to abate two others pending funding availability. Although asbestos removal is not an Occupational Safety and Health Administration (OSHA) requirement, we feel that removal is the most prudent and effective method to permanently improve worker safety.

In addition, we are performing personal air sampling on all AOC tunnel entry teams. We have hired Federal Occupational Health, Public Health Service to evaluate all the data and develop appropriate recommendations. Until this evaluation is completed, as a precaution, I am requiring all people who enter the tunnels to wear respirators in all tunnels, except in the one tunnel where asbestos was removed in 2005.

With regard to spalling concrete, the AOC construction division has crews in the tunnels removing spalls and is working to further accelerate removal of loose concrete. We have been conducting a comprehensive condition assessment that will help to prioritize major construction efforts as to where they are most needed. The contractor is providing “quick look” inspection reports within a week of inspection completion.

We have completed the replacement of 14 tunnel egress hatches identified as needing upgrading. Additional egress improvements at these locations will be finished by the end of the month. We are also conducting a survey to identify other egress locations that could be improved. In addition, personnel in the tunnels have a fully functional communications system as we have repaired and returned the leaky line system to full operation. To ensure higher reliability, a continuity cable alarm will be installed later this year.

We are looking at our internal resources to continue repairs, improvements, and studies to address areas of immediate concern and we look forward to the Senate’s and the House of Representative’s continued support for these projects.

PREPARED STATEMENT

Mr. Chairman, this concludes my statement. Once again, thank you for this opportunity to testify. I’d be happy to answer any questions you may have.

Senator ALLARD. Thank you, Mr. Hixon, for helping with the testimony.

[The statement follows:]

PREPARED STATEMENT OF ALAN M. HANTMAN, FAIA

Mr. Chairman, thank you for the opportunity to brief you regarding the progress of the Capitol Visitor Center project. We are reporting no change from what we discussed last month in our projections for both the project budget and schedule. However, we do continue to monitor closely the two key issues affecting the project: the installation and fabrication of stone, and the acceptance testing of the CVC's complex fire and life-safety systems.

Regarding stone installation, the contractor has received essentially all of the wall stone for the basic Visitor Center portion of the project. The deliveries of stone during these past several months, however, did not exceed the original monthly contract commitments to begin making up for the two-month delay in deliveries experienced last fall. Therefore, as I stated earlier, we are reporting no change in the March 2007 completion date or the potential for a formal opening of the CVC in April 2007.

Regarding the acceptance testing for fire and life-safety systems, we reported last month that the Fire Marshal may need to bring on additional staff to conduct the tests in a timely manner. We will continue to work closely with the Fire Marshal to examine the testing sequence and requirements in order to facilitate his ability to complete the testing process as expeditiously as possible. Our schedule continues to allow for a four-and-a-half-month duration for this process.

Overall, construction progress throughout the CVC continues with high quality work, but we are seeing schedule slippage in some areas. We are addressing these individual activities with the contractor to mitigate or eliminate any impacts.

An issue we have been addressing is the CVC's new utility tunnel below East Capitol Street. The CVC utility tunnel connects to an existing tunnel below Second Street. Completion of the CVC tunnel has been impacted by the contractor's concerns with possible asbestos from the Second Street tunnel. The contractor has lost time in completing the CVC tunnel while tests were conducted to ensure that there was no migration of possible asbestos from the Second Street tunnel into the CVC tunnel.

Having found none, the contractors are back at work in the CVC tunnel completing the electrical work and installing insulation on the pipes. In addition, we have begun flushing the lines to clean out all the debris from installation. Then, we will begin pressure testing—first with air and then with water—to ensure the integrity of all the connections and seals. However, while work has resumed in the CVC tunnel, the connection work within the Second Street tunnel itself has been delayed while the contractor completes the appropriate asbestos training and secures the safety equipment to work in that tunnel. The net impact on the operation schedule of the tunnel has been approximately three weeks. Our construction manager, Gilbane, is evaluating what impact, if any, this might cause to the overall project schedule. We'll report to you their conclusions next month.

As we noted last month, another area of concern continues to be the potential for trade stacking. In March, we discussed the contractor's plans to mitigate the trade stacking that may occur as the schedule slips in various work zones. We reported that the Sequence 2 contractor was developing detailed schedules for specific geographic areas of the CVC which are being delineated into several smaller work zones. Both GAO and my team have now reviewed the first detailed schedule plan for the food service area and we are satisfied with the approach. We will closely observe the execution of the plan to verify its effectiveness.

Project Progress Update

While the pace of construction sometimes doesn't meet our expectations, our contractors do continue to make steady progress throughout the facility. With the help of some photo boards, I'd like to show you some construction highlights since our last hearing.

Installation of wall stone in the East Front has begun and is proceeding well. The East Front is the primary transition zone between the CVC and the Capitol Building and is critical to the operation of the facility. Masons are now setting both base and wall stone on two levels within this work zone; sandstone can be seen rising more than 20 feet on the walls within the Carriageway below the East Front Center steps. Eventually, glass walls will enclose the arched openings of the Carriageway providing visitors with views of the House and Senate wings as they use the stairs or the escalators to enter the Capitol. Stone installation in the East Front began in March and not in February, as originally expected. Therefore, we will continue to monitor the progress in the East Front very closely, especially since this work is particularly difficult due to the multiple levels and tight spaces within this work zone.

In the CVC entrance lobbies, the installation of wall stone within the base contract was completed ahead of schedule. A small amount of remaining wall stone for this zone will be delivered and installed separately. Masons have now moved from this area to work in the East Front.

Elsewhere, the installation of wall stone is essentially complete in the Great Hall, the Orientation Theaters, the Exhibition Hall, the Food Service Area, and the upper east and west visitor lobbies. Now the primary focus of work has shifted to the installation of ceilings within these spaces and adjacent corridors.

In the Great Hall, ceiling framework for the three barrel-vaulted ceilings has just been completed and drywall installation has begun. The masons are completing the setting of 900-pound blocks of stone around the perimeter of the south skylight. A subcontractor is scheduled to arrive next week to begin installing the skylight. Both skylights over the Great Hall should be in place by mid-summer. In the upper and lower level corridors north and south of the Great Hall, ceiling framework is complete and painters continue priming the drywall, plaster walls, and soffits.

Ceiling framework is also complete in the Orientation Theaters and crews are expected to begin installing the first millwork and acoustic panels in May. This will be the first millwork to begin anywhere in the CVC, so we're eager to see that work commence. At this time, based on the current temperature and humidity readings in the facility, the contractor does not expect to need temporary dehumidification equipment to begin this work. That equipment is immediately available should it be required, but presently the contractors believe they can avoid that expense.

In the Exhibition Hall, scaffolding is nearly complete in the center zone and ceiling framework is expected to begin shortly. As you may recall, Mr. Chairman, the center floor zone of the Exhibition Hall will receive thick glass panels that will allow this zone to be illuminated from below. The contractor is fabricating the glass panels for delivery later this summer. Meanwhile, masons continue to set floor stone along the east side of the Hall and have begun layout on the west side of the Hall.

Work continues to progress well in both the House and Senate expansion spaces and these areas are still tracking for construction completion by the March 2007 contract date. In the Senate Expansion Space, framework is complete for the Senate Recording Studio and drywall installation is nearing completion in that area. Framework is finished on the lower level as well and drywall installation is more than 50 percent complete. Close-in inspections for the installation of all of the mechanical, electrical, and plumbing systems have been going well, clearing the way for drywall installation to continue on track.

Outside foundation work was completed for the stepped walkways that lead to the CVC entrances and these areas were readied to receive the first of 85 new trees that will be planted throughout the project area. There are now 16 new Tulip Poplar trees lining the north side of the East Capitol Street Extension. The trees on the south side are being planted this week. The trees range in height from 20 to 30 feet as they come down the slope to the screening areas and already frame a grand view of the Capitol Dome intended in the original Olmsted Plan of 1874. Another 50 trees and myriad shrubs will be planted within the East Capitol Grounds later this fall as the project nears completion.

On East Capitol Street, work to restore the road bed is progressing well. Crews have now placed a 10-inch concrete slab over 90 percent of the tunnel and we plan to open East Capitol Street to traffic later this spring.

On the East Front Plaza, most of the 200,000 granite pavers have been set, with some paving work remaining around the historic lanterns and fountains. These areas will receive different colored pavers that will be set in a more decorative pattern.

On the Senate Plaza, masons finished setting pavers to restore the sidewalk leading to the Senate Carriageway and landscape crews have placed new sod in the Senate triangle, working to restore that area to its pre-construction condition.

Regarding the CVC exhibits, a fabrication contractor has been busy taking molds of various elements both inside and outside the Capitol building. These will be converted to touchable, hands-on items that will be displayed in the Exhibition Hall. Meanwhile, our film contractor is shooting footage in various areas of the Capitol and in the House and Senate Office buildings for the films that will run in the virtual House and Senate Theaters. Also, a model maker is nearing completion of a mock-up of a 10-foot high model of the Capitol Dome that will be the centerpiece of the Exhibition Hall.

On the operations front, we continue to review the proposals for the food services contract and we expect to make a selection later this summer.

Finally, I would like to take a moment to provide a progress report on another issue that we discussed at our hearing last month. Two and a half weeks ago, I submitted to this subcommittee our report on the utility tunnels that provide steam

and chilled water to facilities throughout the Capitol complex. We have taken a comprehensive and aggressive approach to further enhance worker safety and to improve and correct existing tunnel conditions.

Most importantly, effective measures have been implemented to ensure that employees can safely work in the utility tunnels. These measures include the use of appropriate personal protective equipment, additional written procedures and employee training, and the stabilization of concrete spalls prior to work being done in specific areas of the tunnels.

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With regard to spalling concrete, our Construction Division has crews in the tunnels removing spalls and is working to further accelerate removal of loose concrete. We have been conducting a comprehensive condition assessment that will help to prioritize major construction efforts as to where they are most needed. The contractor is providing "quick look" inspection reports within a week of inspection completion.

We have completed the replacement of 14 tunnel egress hatches identified as needing upgrading. Additional egress improvements at these locations will be finished by the end of this month. We are also conducting a survey to identify other egress locations that could be improved. In addition, personnel in the tunnels have a fully-functional communications system as we have repaired and returned the "leaky line" system to full operation. To ensure higher reliability, a continuity cable alarm will be installed later this year.

We are looking at our internal resources to continue repairs, improvements, and studies to address areas of immediate concern and we look forward to the Senate's and the House of Representative's continued support for these projects.

Mr. Chairman, this concludes my statement. Once again, thank you for this opportunity to testify. I would be happy to answer any questions you may have.

Senator ALLARD. Now, is it you, Mr. Ungar, that is going to testify for GAO?

STATEMENT OF TERRELL DORN, ASSISTANT DIRECTOR, PHYSICAL INFRASTRUCTURE, GOVERNMENT ACCOUNTABILITY OFFICE

ACCOMPANIED BY BERNARD L. UNGAR, DIRECTOR, PHYSICAL INFRASTRUCTURE, GOVERNMENT ACCOUNTABILITY OFFICE

Mr. UNGAR. Mr. Chairman, Mr. Dorn will do our oral summary and we'll both be available for questions.

Senator ALLARD. Okay. Very good. Mr. Dorn.

Mr. DORN. Thank you, Mr. Chairman. As you've read in our testimony, we still continue to believe that the CVC will be open no earlier than May and that the expansion spaces will be ready probably in September versus the April and May dates that the Architect's Office still has. We still continue to believe that the cost of the CVC will be somewhere between \$556 million and \$584 million when risk and uncertainties that remain on the project are considered.

We're more deeply concerned this month about the schedule than we were last. For example, the CVC construction slipped a week last month. As I mentioned last month, there's a number of indicators that make us more concerned.

First are the milestones. For about the last 10 months or so, the AOC has been identifying milestones each month, which they feel are critical to the project staying on schedule.

This past month was the worst performance of the past six. Only one milestone was completed on time and over 75 percent of the milestones from last month are still not complete.

Multiple, critical, and your critical activities are still out there and the slack time of activities is decreasing. Fifteen out of the 19 critical paths that the contractor and Architect identified, slipped and lost time in the past month. Nine of those paths, according to the Architect, lost from 1 to 30 days. It's going to affect the completion date of the project. There were only six paths in that state last month.

There's been insufficient work billed this month to meet the schedule. As we talked last month, the billings are not there, which indicates that the contractor is not performing enough work to finish this project on schedule.

The stonework is taking longer than expected, particularly the floors. While we do agree that the deliveries of the wall stone and the installation of the wall stone, almost met the targets last month, two-thirds of the floor stone was not installed as scheduled last month.

As our testimony mentions, there's a delay in getting the fire protection system approved. At the last testimony, it was estimated those drawings would be submitted for approval on March 17 and as of yesterday, they were still not submitted for approval. And, of course, after that, they still need to go to the fire marshal and he needs probably 4 weeks or so, to review the drawings after that. So we've lost 1 month on the fire alarm drawings, which we said are critical to getting this project open on time.

There continues to be a bunch of design or scope changes coming in. In fact, there have been over 180 design changes to date. There's a chart in our testimony that illustrates that those are continuing to rise and if it follows sequence 1's trend, even after the project opens, they'll continue to come in. So, we're still concerned about that. Not only because of schedule, but it could also affect the cost down the road.

So summarizing very quickly, Mr. Chairman, we still continue to believe that the CVC, if the Architect is able to address the situations that face him, could be open in May 2007 and the expansion spaces in September 2007. But we are concerned enough about that, that we do plan on reassessing the schedule in the summer to take a look and see what changes may have happened.

PREPARED STATEMENT

In addition, we continue to believe that the \$556 million is needed. This means, that an additional appropriation of \$25 million is needed now. The contractor is still missing dates, and also the fire alarm plan reviews need to be expedited, as well as the Architect can accomplish that.

And that concludes our testimony, Mr. Chairman.

Senator ALLARD. Thank you, Mr. Dorn.

[The statement follows:]

PREPARED STATEMENT OF BERNARD L. UNGAR

Mr. Chairman and Members of the Subcommittee: We are pleased to be here today to assist the Subcommittee in monitoring progress on the Capitol Visitor Center (CVC) project. Our remarks will focus on the Architect of the Capitol's progress in achieving selected project milestones and in managing the project's schedule since the Subcommittee's March 15, 2006, hearing on the project.¹ As part of this discussion, we will address a number of key challenges and risks that continue to face the project, as well as actions AOC has taken or plans to take to address these risks. In addition, we will discuss the status of the project's costs and funding.

Our remarks 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 the CVC team (AOC and its major CVC contractors), AOC's Chief Fire Marshal, and representatives from the U.S. Capitol Police. We also reviewed AOC's construction management contractor's periodic schedule assessments and daily reports on the progress of interior wall and floor stonework.

In summary:

Since the Subcommittee's March 15 CVC hearing, the CVC team has continued to move the project's construction forward, and AOC is still proposing the same opening dates—April 2007 for the base CVC project and May 2007 for the House and Senate expansion spaces—but we continue to believe, as we said at the March hearing, that the proposed opening dates do not allow enough time to complete several critical activities and to address problems, challenges, risks, and uncertainties. Since the March 15 hearing, the installation of critical interior wall and floor stone has continued, together with other interior and exterior construction work, and the sequence 2 contractor has further developed plans to prevent trade stacking² during finish work. However, the pace of interior wall and floor stone installation remained below the targeted pace; the dates for completing the construction of the overall base project and expansion spaces were extended; and several activities fell behind schedule—not enough to affect the overall completion dates yet, but increasing the potential for future delays. In addition, the sequence 2 contractor met only 1 of the 13 milestones being tracked for this hearing, and this contractor's monthly billings indicate that construction work is not likely to be completed on schedule as AOC anticipated. The CVC's fire protection system has not yet been approved; critical building systems still have to be commissioned and tested; and although the project's overall design is essentially complete, certain design or work scope elements are still incomplete or are being clarified or refined. If the CVC team is successful in addressing these issues, we believe that the base CVC project can still possibly be opened to the public with a temporary cap on visitor occupancy in May 2007 and that the expansion spaces can likely be opened for occupancy beginning in mid-August to early September 2007. AOC may be able to reduce some of the time scheduled for the expansion spaces if it implements a phased opening plan and is able to perform acceptance testing of the CVC and the expansion spaces concurrently rather than sequentially—possibilities AOC is continuing to explore. However, the delays that have occurred since the Subcommittee's last CVC hearing compound the concern we previously expressed that AOC will be challenged to meet even the later dates we are projecting because of the problems, challenges, risks, and uncertainties facing the project. Accordingly, we plan to reassess the project's schedule again this summer.

As we reported at the Subcommittee's March 15 CVC hearing, we estimate that the total cost to complete the entire CVC project is about \$556 million without an allowance for risks and uncertainties and \$584 million with such an allowance. To date, about \$530 million has been provided for CVC construction. We continue to estimate that AOC will need about \$25.6 million more in CVC construction funds to complete the entire CVC project. This estimate does not allow for risks and uncertainties and takes into account funding that AOC plans to use from existing appropriations. In addition, as we indicated during the March 15 hearing, AOC preliminarily expects to need about \$950,000 in fiscal year 2007 AOC general administration appropriations that Congress has not yet provided to pay for contractual support needed to complete acceptance testing of the facility's fire protection system

¹GAO, *Capitol Visitor Center: Status of Project's Schedule and Cost as of March 15, 2006*, GAO-06-528T (Washington, D.C.: Mar. 15, 2006).

²Trade stacking can occur when workers from different trades, such as stone masons, electricians, plumbers, or plasterers, have to work in the same area at the same time to meet a schedule, sometimes making it difficult to ensure sufficient space and resources for concurrent work.

in time to meet the project's schedule. AOC plans to determine if it can reduce the amount needed for this contractual support; we will keep the Subcommittee apprised of this situation.

AOC Has Moved Construction Forward, but Delays Continue and Risks and Uncertainties Remain

AOC and its contractors have made progress in a number of areas since the Subcommittee's last CVC hearing, particularly in installing wall stone in the orientation and security lobby and in the south atrium. However, some milestones were pushed back in March. For example, according to AOC's March 2006 schedule, the base CVC project will have a temporary certificate of occupancy on February 21, 2007, 6 workdays later than indicated in the February 2006 schedule, and the House and Senate expansion spaces will be substantially complete on December 18, 2006, 1 workday later than indicated in the February 2006 schedule. AOC is still proposing an April 2007 opening date for the base project and a May 2007 occupancy date for the expansion spaces—dates that it believes will accommodate possible delays and allow start-up time for operations. AOC expects all construction work in the CVC, East Front, and expansion spaces to be completed by the April opening date for the base project, but the CVC's occupancy at any one time will be temporarily limited to 3,500, compared with about 4,200, the normal anticipated occupancy level.³ Schedule slippages that have occurred since the Subcommittee's March 15 CVC hearing, coupled with the challenges, risks, and uncertainties that continue to face the project, have heightened our concerns about AOC's ability to open the CVC to the public in April 2007. Consequently, we plan to reassess the project's schedule again this summer.

Our Analysis Indicates Later Opening Dates Than AOC Is Proposing

We continue to believe, as we testified in March, that the CVC is not likely to be ready for opening with a temporary certificate of occupancy before May 2007, about a month later than AOC is proposing. Our projected opening date is somewhat later than AOC's because certain critical work, such as interior stonework for the base project and East Front, has not generally been proceeding as quickly as planned and CVC team managers and members believe that certain other work, such as finish work, will take more time than is scheduled to complete. Our projection also assumes that AOC will be able to address the challenges it faces and takes into account the time that AOC believes is necessary to prepare for operations after construction work is completed. However, schedule slippages in March raise concerns about AOC's ability to overcome these challenges. Similarly, we continue to believe that the House and Senate expansion spaces are more likely to be ready in mid-August or early September 2007 than in April or May 2007, as AOC is proposing. We consider the later time frames for the expansion spaces more likely for three reasons. First, AOC has scheduled the acceptance testing of the expansion spaces after the acceptance testing of the base project and, according to our analysis, the base project's testing will take longer than scheduled. Second, AOC's Chief Fire Marshal believes the acceptance testing of the expansion spaces will take longer than scheduled. Third, several activities important to the on-time completion of expansion-space work slipped in March; and at this time, the sequence 2 subcontractor responsible for this work believes that additional slippages in some of these activities are likely. However, AOC has begun to address the problems affecting the progress of the expansion spaces and plans to reassess this situation as the construction work proceeds. The expansion spaces could be ready sooner than late summer 2007 if AOC succeeds in addressing the problems and starts acceptance testing sooner or opens the expansion spaces in phases—possibilities that AOC is continuing to explore.

Construction Work Is Progressing

According to AOC's construction management contractor, work on the project has advanced, in terms of both the dollar value of the work in place and individual project elements. In dollar terms, the overall CVC project was about 79 percent complete and the sequence 2 work was about 67 percent complete as of March 31—up from about 77 percent and 63 percent, respectively, as of February 28. Additionally,

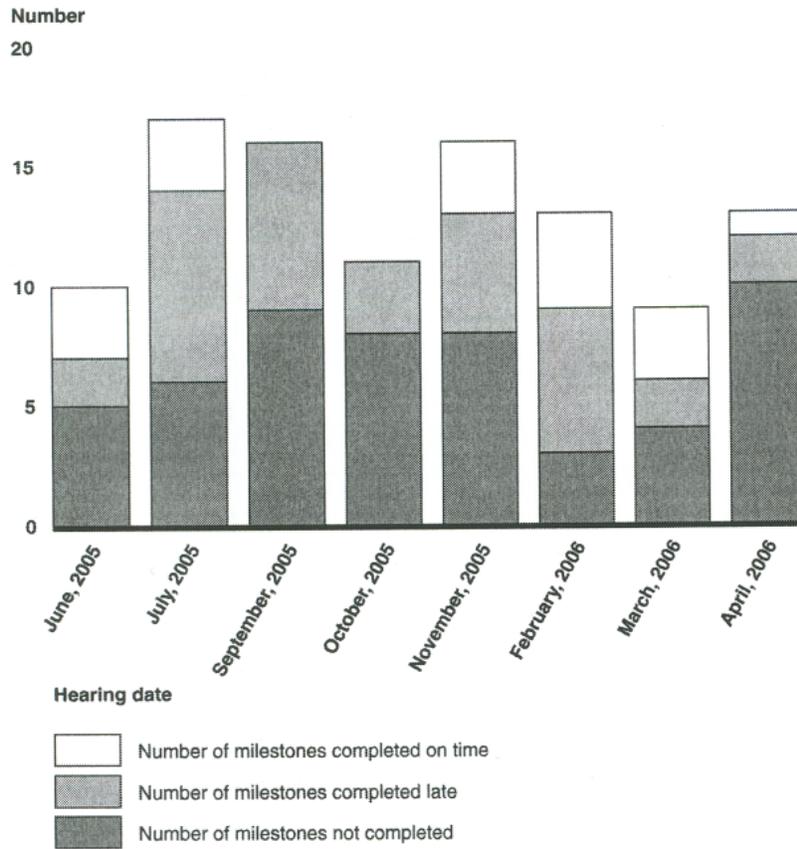
³This temporary limit will be necessary because the "horizontal exits," or passages, through the expansion spaces, which the life safety code requires for exiting the base CVC project, will not be available until later. These horizontal exits cannot be used until the fire alarm system in the expansion spaces has been fully tested and accepted—work that is not slated to be completed until after the base CVC is scheduled to open. Some additional work will likely be required to provide temporary emergency exit routes from the CVC, but the CVC team does not believe that this work or its costs should be substantial.

wall stone installation progressed substantially in the orientation and security lobby and in the south atrium and continued in other areas, such as the great hall and the East Front's basement level. AOC's construction management contractor reported additional progress in the CVC's interior, the utility and House connector tunnels, the House and Senate expansion spaces, and the building's exterior, such as on the plaza's east side in preparation for tree planting, which occurred north and south of the auditorium in April. In fact, AOC's construction management contractor reported that the CVC's electrical work was ahead of schedule.

Indicators Raise Questions about Proposed Opening Dates

Despite the progress in these areas, problems and delays occurred in other areas, and several indicators of construction progress that we have been tracking for the Subcommittee continue to indicate that construction work is likely to be completed later than AOC currently anticipates. An update on these indicators follows.

Sequence 2 contractor continues to miss milestones and completion dates are extended. Starting with the Subcommittee's June 2005 CVC hearing, at the Subcommittee's request, we and AOC have been selecting and tracking sequence 2 milestones to help the Subcommittee monitor construction progress. These milestones include activities that are either on the project's critical path or that we and AOC believe are critical to the project's timely completion. As figure 1 shows, the sequence 2 contractor has generally missed these milestones. For today's hearing, 13 of these milestones were due to be completed, according to the project's January 2006 schedule. One was completed ahead of schedule; 2 were completed late; and none of the remaining 10 had been completed as of April 24. (See app. I.)



Source: Sequence 2 contractor, AOC and its construction management contractor, and GAO.

FIGURE 1.—Sequence 2 Contractor's Progress in Meeting Selected Milestones as of CVC Hearing Dates

According to AOC's construction management contractor, the base project's overall completion date fell 6 workdays behind in March, from February 13 to February 21, 2007. The February 13 date was set in the project's January 2006 schedule. This 6-workday delay is the net result of delays in activities on multiple activity paths. In addition, slippages occurred on 15 of 19 critical and near-critical paths that AOC's construction management contractor identified as important to meeting the base project's overall completion date.⁴ These delays occurred in, but were not limited to, work on the East Front, the upper level of the orientation and security lobby, the auditorium, the utility tunnel, the assembly room, and the orientation theaters, and they ranged from 1 to more than 80 workdays. According to the CVC team, these project delays occurred for a variety of reasons, such as design changes,

⁴ Construction projects typically have one critical path, which is the sequence of activities having the longest duration through the schedule. There is no slack time associated with these activities, meaning 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. Some projects have multiple critical paths simultaneously; the CVC essentially has two concurrent critical paths—(1) East Front mechanical and (2) East Front fire acceptance testing—and many near critical activity paths which have little slack time. Generally, the more critical and near-critical activities a project has, the greater is the risk of late completion because there are more opportunities for slight delays that can adversely affect the project's completion.

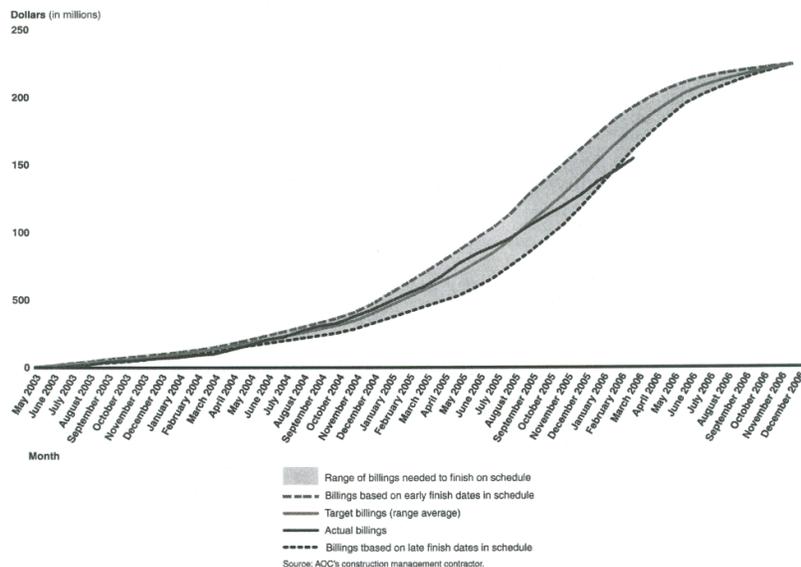
problematic sequence 1 work, late submissions or approvals of shop drawings, and changes in the sequence of work activities by the sequence 2 contractor. Even more important than the individual delays themselves, however, is their likely impact on the CVC team's ability to complete construction work on schedule. So many activities have now fallen behind schedule that even relatively short additional delays could push back the CVC's overall completion date. According to the construction management contractor, there are nine critical and near-critical activity paths in the project's March schedule that have so little slack time that an additional delay of 1 to 30 workdays could delay the base project's overall completion date. There were six such paths in the project's February schedule.

Work on the House and Senate expansion spaces fell 1 workday behind schedule in March, AOC's construction management contractor reported.⁵ Additionally, and of even greater concern to us, are delays in a number of near-critical paths. Some of these paths slipped as much as 29 workdays in March. Although most of the time that was lost in March did not affect the overall completion date for the expansion spaces, further delays could do so. Among the activities that were delayed in March were plumbing installation on the House service level; duct work installation in space intended for use by the U.S. Capitol Police; testing and balancing of the heating, ventilation, and air conditioning systems on the Senate upper level; and completion of the fire alarm system in the House lower level. According to the CVC team, these activities were delayed because of problems associated with sequence 1 or other sequence 2 work, delays in getting approved shop drawings, and delays in completing necessary predecessor work or in getting design decisions.

In early April 2006, we told AOC we were concerned about the increasing number of delays in expansion space activities and the potential impact of these delays on the completion of the expansion space work. As further cause for concern, we noted that the sequence 2 subcontractor doing the expansion space work was expecting additional delays in some of these activities and that, in our view, additional design or scope changes were possible. Although AOC is not planning to open the expansion spaces until May 2007, timely completion of the expansion space work is important because certain expansion space work must be completed before the CVC can be opened to the public. AOC agreed that continued delays in the expansion space work are of concern and recognized that risks and uncertainties associated with the work could cause the work to fall farther behind. AOC has begun to work with the rest of the CVC team to identify and address problems that have arisen and risks that threaten the work's on-time completion.

Value of completed work indicates completion later than scheduled. Another indicator of construction progress that we and AOC's construction management contractor have been tracking is the value of the completed construction work billed to the government each month. Both we and the construction management contractor believe that the sequence 2 contractor's monthly billings, including the bill for March 2006, have generally not been sufficient to meet AOC's currently scheduled completion date. While this indicator has some limitations (for example, billings lag behind construction and the contract's total value does not include the value of modifications that are beyond modification 85), it is generally regarded in the construction industry as a useful measure of how likely a project is to be completed on time. Figure 2 compares the sequence 2 contractor's billings since May 2003 with the project's scheduled completion date and indicates that the sequence 2 contractor is not likely to finish construction work by December 2006, as AOC expects, unless the value of completed work increases significantly. We believe that a significant increase will be difficult, given the limited number of areas that will be ready for finish work at any given time.

⁵According to the project's February and March schedules, the overall completion of the House and Senate expansion spaces remained the same—May 2, 2007. The contract completion date for this work is March 12, 2007.



Notes:

1. The early and late lines on this figure reflect the cumulative billings that would be required to complete the project through contract modification 85 (\$222.8 million total contract value) by the early and late finish dates shown in the sequence 2 contractor's schedule.

2. The actual line reflects the sequence 2 contractor's actual monthly billings.

3. Although bills are typically submitted for payment after work is completed, it is often likely that construction work will be completed on schedule when the actual billing line falls between the early and late lines in the figure. With respect to the CVC, the actual billing line has been trending below, and in March 2006 went below, the late finish line. Even with the lag in billings, this trend indicates that the amount of work being completed each month is not sufficient to finish the project on schedule.

FIGURE 2.—Total Billings by the Sequence 2 Contractor for the Entire CVC Project Compared with the Billings Needed to Finish Construction Work on Schedule

Interior stone installation is progressing, but taking longer than expected. Overall, about 64 percent of the CVC's interior wall stone has been installed, according to AOC's construction management contractor, and the sequence 2 contractor installed 5,079 pieces of interior wall stone during the last 5 weeks, meeting about 94 percent of its 5,384-piece production target. By contrast, during the same period, the sequence 2 contractor installed about 3,090 square feet of floor stone, or about one-third of the 9,300 square feet specified in a preliminary floor stone installation plan that the contractor provided to AOC shortly after the February 15 hearing. In addition, 7 of the 13 schedule milestones that AOC and we have been tracking for the Subcommittee for today's hearing are related to interior wall stone installation, and the sequence 2 contractor met 1 of these 7 milestones. According to the CVC team, the sequence 2 contractor has missed its stone installation targets for a variety of reasons, including the need to correct problematic sequence 1 work or properly prepare certain spaces for the installation of wall or floor stone, a change in wall stone design, late delivery of floor stone, or delays in some spaces in finishing certain work, such as ceiling work, that usually precedes floor stone installation. As we have discussed in the Subcommittee's previous CVC hearings, delays in wall stone installation can lead to additional delays in completing follow-on work, such as floor stone installation and finish work. Although the CVC team has identified unforeseen conditions and problematic sequence 1 work as risks that could affect the pace of wall stone installation, the team's efforts to address the risks have not fully prevented these types of problems from recurring or adversely affecting the project's schedule. Figures 3 and 4 show the sequence 2 contractor's progress in in-

stalling interior wall and floor stone since January 23 and February 13, 2006, respectively.

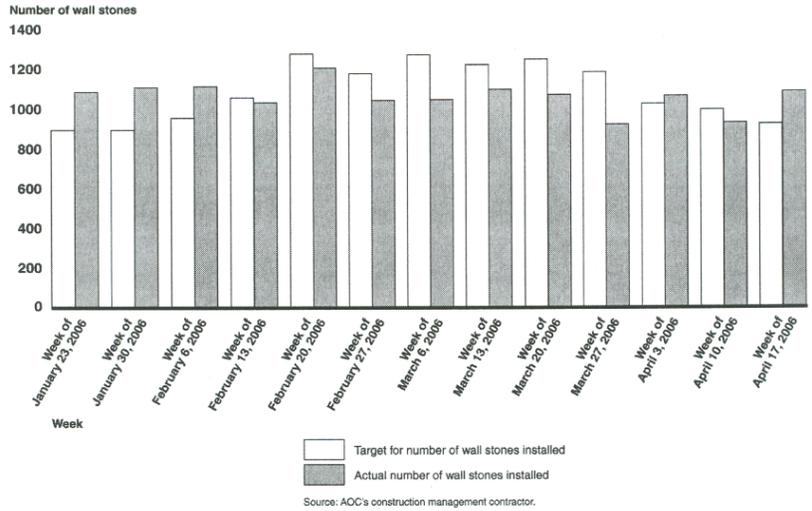


FIGURE 3.—Progress of CVC Interior Wall Stone Installation Compared with Targets Set by the Sequence 2 Contractor

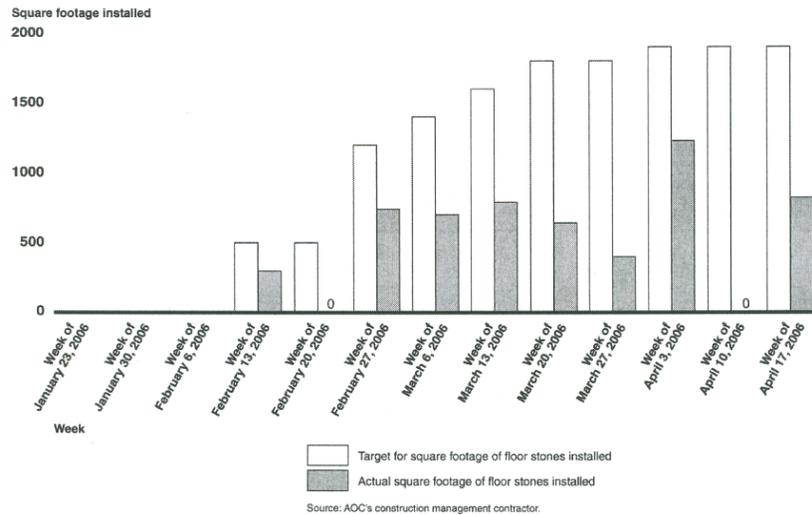


FIGURE 4.—Progress of CVC Interior Floor Stone Installation Compared with Preliminary Targets Set by the Sequence 2 Contractor

Project's Schedule Remains Vulnerable to Problems, Challenges, Risks, and Uncertainties, Despite Actions AOC Has Taken and Plans to Take

As we indicated during the Subcommittee's February 15 and March 15 CVC hearings, we continue to believe that AOC will be challenged to meet even the later opening dates we have identified, given the problems, challenges, risks, and uncertainties facing the project. A brief update on these and AOC's plans for addressing them follows:

- Trade stacking could delay completion.*—As we discussed during the Subcommittee’s previous CVC hearings, trade stacking could hold up finish work, such as drywall or ceiling installation, electrical and plumbing work, plastering, or floor stone installation. This work could be stacked because of delays in wall stone installation. According to AOC’s construction management contractor, the pace of wall stone installation during March has not been sufficient to eliminate the risk of trade stacking and delays in finish work. Such a situation could also increase the risk of accidents and injuries. Hence, it remains important, as we said at the previous CVC hearings, for the CVC team to closely monitor construction to identify potential trade stacking and promptly take steps to address it. The CVC team has also identified trade stacking as a high risk, and since the Subcommittee’s March 15 CVC hearing, the sequence 2 contractor has continued to develop area-by-area plans that will show when each subcontractor will be working in each area. The sequence 2 contractor has finished these plans for most of the work areas and expects to have plans for the remaining areas completed by the end of this week. According to the sequence 2 contractor, it has been meeting with its key subcontractors to reach agreement on the plans and intends to continue meeting regularly with them to review and update the plans. The sequence 2 contractor pointed out that these plans add more detail to the project’s schedule and will serve as a tool for addressing the trade-stacking issue. Although we and AOC agree that these area-by-area plans are important and should be helpful, we are still concerned about the potential for trade stacking because of the delays that have already occurred and the delays that could occur if shop drawings for the fire protection system are not approved in time to avoid slippages in follow-on work or if changes are required as a result of the Fire Marshal Division’s review of the drawings.
- Complex building systems remain a significant risk.*—The CVC will house complex building systems, including systems for heating, air conditioning, and ventilation; fire protection; and security. These systems not only have to perform well individually, but their operation also has to be integrated. If the CVC team encounters any significant problems with their functioning, either individually or together, during commissioning or acceptance testing, the project could be seriously delayed. During the Subcommittee’s March 15 CVC hearing, we noted that the sequence 2 contractor planned to submit the shop drawings for the CVC’s fire protection system for review by March 17. However, the contractor has not submitted the drawings for the base project as of April 24, in part because more time was needed to incorporate changes, AOC’s construction management contractor said. AOC expects the drawings to be submitted by the end of this week. Delays could arise if the proposed system does not meet the project’s design specifications or the fire protection code’s requirements.⁶ AOC’s Chief Fire Marshal believes that it will take at least 4 weeks to review these drawings. In addition, the Chief Fire Marshal notes that delays could occur if the CVC team does not adequately pretest the system and correct any problems found during the pretesting. Since the Subcommittee’s last CVC hearing, AOC’s commissioning contractor submitted its plan for testing the performance of the CVC’s smoke control system, which is a critical component of the CVC’s fire protection system and must work properly before the CVC can be opened to the public. This plan has not yet been approved. In addition, as we have previously noted, the Chief Fire Marshal’s timely completion of the fire protection system’s acceptance testing depends on his ability to obtain sufficient funding for a contractor to help perform the tests. Furthermore, difficulties the CVC team has had resolving scope, design, and cost issues associated with the CVC’s technical security system could adversely affect the schedule for acquiring and installing cabling and equipment for this system, including door hardware. The CVC team and representatives from the U.S. Capitol Police have been working to resolve these problems. Nevertheless, according to AOC’s construction management contractor, certain changes to the scope of the security work are likely to set the schedule back to some extent.
- Building design and work scope continue to evolve.*—The CVC has undergone a number of design and work scope changes. Since the project began, AOC’s architectural contractor has issued over 180 design changes or clarifications, and as of April 20, 2006, reported having another 14 in process. In addition, since the

⁶According to the sequence 2 subcontractor that is fitting out the House and Senate expansion spaces, the delays in getting approved shop drawings for the fire protection system have already postponed ceiling close ins in the expansion spaces, and the subcontractor’s CVC project director believes that further such delays pose the single greatest risk to the completion schedule for the expansion spaces at this time.

project began, AOC has executed more than 80 sequence 2 contract modifications valued at over \$23 million for work that was not anticipated.⁷ Some of these changes, such as changes in the exhibit gallery and in the East Front, have resulted in delays. In addition, shop drawings for a number of project elements, such as the facility's fire protection system, millwork in the food service area and assembly rooms, and certain portions of the exhibit gallery, have not yet been fully approved and are subject to change, and additional design or scope changes are likely given the project's experience to date. Project design and scope changes are typically reflected in the development of potential change orders (PCO), many of which result in contract modifications. Figure 5 shows the PCOs submitted for consideration for sequences 1 and 2 since September 2003. Although PCOs are not always approved, they are often regarded as a reasonably good indicator of likely future design or scope changes that can affect a project's cost and schedule. Even more important, the adverse impact of scope and design changes on a project's schedule is likely to increase as the project moves toward completion. For example, certain changes to the fire protection system currently being discussed are likely, if made, to adversely affect the project's schedule, according to AOC.

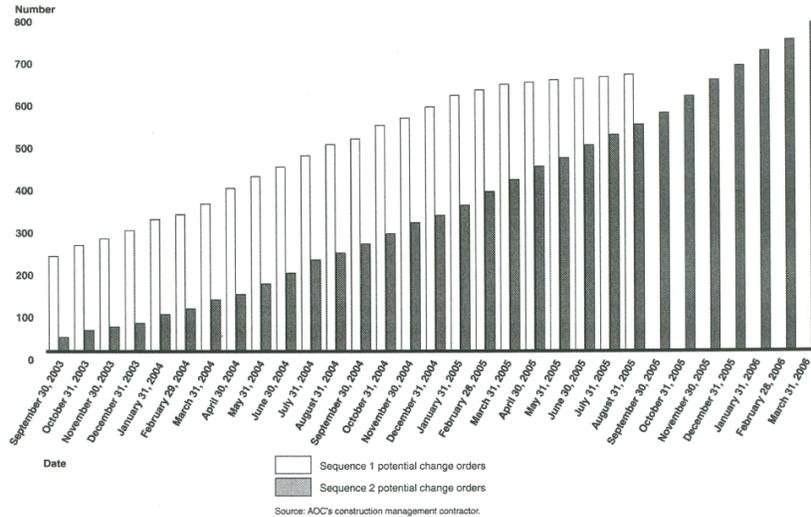


FIGURE 5.—Cumulative Number of Potential Change Orders Submitted for CVC Sequences 1 and 2 between September 2003 and April 2006

As the figure indicates, new PCOs for sequence 1 were submitted until shortly before, and even for several months after, November 2004, when AOC determined that the sequence 1 contract work was substantially complete. Similarly, PCOs for sequence 2 are still being submitted, and we have seen no indication that their submission is likely to stop soon. While not all PCOs are approved, many are, and it appears likely to us that some of the design or scope changes indicated in PCOs could lead to contract modifications that will affect the project's schedule. AOC agrees that it is important to minimize the impact of proposed design and scope changes.

—Opening the CVC and expansion spaces at different times is likely to result in a temporary cap on CVC occupancy and increase costs.—As we reported during the Subcommittee's February 15 and March 15 CVC hearings, AOC's current plan to open the CVC in April 2007 before the expansion spaces are scheduled for completion is likely to result in a temporary cap on CVC visitor occupancy and a need to construct temporary emergency exits for fire and life safety pro-

⁷These data exclude sequence 2 contract modifications for work that was planned but not included in the sequence 2 base contract. Examples include the fit-out of the House and Senate shell spaces, the construction of the utility tunnel, and the purchase and installation of food service equipment.

tection.⁸ AOC is proposing this sequential approach because it believes that conducting acceptance testing for the fire protection system for the CVC and the expansion spaces concurrently would delay opening the CVC to the public. AOC's proposed April 2007 opening date for the CVC depends on the timely completion of work not only on the base project but also on the expansion spaces, since certain expansion space work must be completed before the CVC's opening. Inasmuch as work on both the base project and the expansion spaces was delayed in March, we believe that it will be especially important to monitor the progress of construction to determine what additional work (and funding) may be needed to meet AOC's planned date for opening the CVC, including what temporary work may be required in the expansion spaces for the CVC to open before the expansion space work is complete. According to AOC, it plans to have its construction management contractor monitor this situation.

—*Risks from insufficient stone deliveries remain, but may be diminishing.*—According to the sequence 2 contractor, it has, since the Subcommittee's last CVC hearing, received 12 of the 12.5 truckloads of interior wall stone it was expecting from the stone fabricator and expects to receive the remaining wall stone needed for the base project by mid-June 2006. AOC's construction management contractor reported that as of last week, almost all—about 98 percent—of the wall stone needed for the core CVC itself was on site (either installed or awaiting installation); about 44 percent of the wall stone needed for the atriums and about 30 percent of the wall stone needed for the East Front were on site; and none of the wall stone for the House connector, Library of Congress, and Cannon tunnels had been delivered. According to AOC and its construction management contractor, although the supply of interior wall stone was insufficient in late 2005 and early 2006, it is adequate for the CVC at this time, given the amount of space available for wall stone installation and the quantity of stone on hand—over 6,800 pieces. Furthermore, they said that they do not expect the wall stone supply for the base project to cause further delays in the CVC's opening, provided that the fabricator sustains the pace of deliveries, particularly for the East Front, whose completion is critical to the CVC's opening. Also, although none of the wall stone for the House and Senate expansion spaces was on site yet, the subcontractor responsible for this work is not anticipating delivery problems at this time. On the other hand, AOC's construction management contractor reported that no floor stone was installed during the week of April 10 because, as a result of a late delivery from the supplier, the installers ran out of floor stone for the exhibit gallery. The sequence 2 contractor said this late delivery was unusual for floor stone and no further problems with floor stone supply were expected.

Finally, as we have said in previous discussions with AOC, its construction management contractor, and the Subcommittee, it will be important for AOC to have adequate analysis and documentation of the reasons and responsibilities for delays.⁹ On April 11, 2006, AOC executed a contract modification authorizing its construction management contractor to have one of its managers who has not been involved in the CVC project assess the adequacy of this type of information. AOC expects this assessment to be completed soon.

Estimated Project Cost and Funding

As we testified during the Subcommittee's March 15 CVC hearing, we estimate that the total cost to complete the entire CVC project will be about \$556 million without an allowance for risks and uncertainties and could be as much as about \$584 million with such an allowance. To date, about \$530 million has been provided for CVC construction. This amount includes about \$3.6 million that was made available for either CVC construction or operations and has been approved for CVC construction by the House and Senate Committees on Appropriations.¹⁰ To obtain the

⁸According to AOC, the CVC's occupancy at any one time would be temporarily limited to 3,500, compared with about 4,200, the normal anticipated occupancy level, until acceptance testing of the fire protection system for the expansion spaces has been completed.

⁹See for example: GAO, *Capitol Visitor Center: Effective Schedule Management and Updated Cost Information Are Important*, GAO-05-811T (Washington, D.C.: June 14, 2005).

¹⁰Public Law 108-447, enacted on December 8, 2004, provided that up to \$10.6 million could be transferred from AOC's Capitol Building appropriation account for the use of the CVC project. The use of the amount transferred is subject to the approval of the House and Senate Committees on Appropriations. In June 2005, AOC received approval to use about \$2.8 million (including about \$1.6 million for CVC construction) of this \$10.6 million, leaving a balance of about \$7.7 million that could be used in the future after a rescission amounting to \$84,800. AOC recently received approval to use about an additional \$2 million of these funds for CVC construction, including, for example, the fabrication and installation of wayfinding signage and the fit-

additional funding that it expected to need to complete the project's construction, AOC, in December 2005, requested \$20.6 million as part of its budget request for fiscal year 2007. This request was based, in part, on discussions with us and took into account our November 16, 2005, estimate of the cost to complete the project's construction without an allowance for risks and uncertainties and funding from existing appropriations. Our subsequent work—completed in preparation for the Subcommittee's February 15 and March 15 CVC hearings—indicated that AOC would need about \$5 million more, or about \$25.6 million in additional CVC construction funds, to complete construction without an allowance for risks and uncertainties. AOC plans to request the additional \$5 million as a supplement to its fiscal year 2007 budget for CVC construction. This would bring its total request for fiscal year 2007 CVC construction funds to \$25.6 million. In addition, AOC has indicated that it plans to use about \$950,000 of the fiscal year 2007 general administration appropriations it has requested for contractual support for its Fire Marshal Division.

As we stated in our March 15 testimony, AOC believes that it may be able to reduce the amount of funds it will need in fiscal year 2007 for contractual support in testing the CVC's fire protection system and plans to explore ways to do so. AOC expects that its Fire Marshal Division should receive the shop drawings for the CVC's fire protection system by the first week in May, and the Chief Fire Marshal believes that his office will need at least 4 weeks to complete its review. It then plans to determine how much contractual support it will need to test the system and to explore cost savings possibilities. We plan to monitor and report on these costs to the Subcommittee as soon as AOC has a firmer estimate. Also, at this time, it appears that sufficient contingency funding may be available within the current CVC budget to cover the cost increases associated with the security system issues we previously discussed. We will keep the Subcommittee apprised of this situation.

Mr. Chairman, this completes our prepared statement. We would be pleased to answer any questions that you or Members of the Subcommittee may have.

APPENDIX 1.—CAPITOL VISITOR CENTER CRITICAL CONSTRUCTION MILESTONES, MARCH 16, 2006-APRIL 27, 2006

Activity	Location	Scheduled completion	Actual completion
Frame Plaster Ceiling	Great Hall	3/17/06	4/14/06
Wall Stone Area 3	East Front Basement	3/20/06	.....
Wall Stone Area 5	Auditorium	3/22/06	4/18/06
Wall Stone Area 2	Orientation Lobby Upper Level	3/27/06	.....
Wall Stone Area 3	Orientation Lobby Upper Level	3/31/06	3/09/06
Lath Plaster Ceiling	Great Hall	3/31/06	.....
Wall Stone Area 1	East Front Ground	4/03/06	.....
Grid for Wood Ceiling	Orientation Theater	4/03/06	.....
Plaster Ceilings	Great Hall	4/06/06	.....
Wall Stone Area 2	East Front Ground	4/17/06	.....
Install Bronze Doors	Food Service	4/17/06	.....
Install Wood Ceiling Panels	Orientation Theater	4/17/06	.....
Wall Stone Area 4	Orientation Lobby	4/21/06	.....

Source: AOC's January 2006 CVC sequence 2 construction schedule for the scheduled early completion dates and AOC and its construction management contractor for the actual completion dates as of April 24, 2006.

Senator ALLARD. My colleague Senator Durbin has now arrived and I'll give him an opportunity to give us an opening statement.

STATEMENT OF SENATOR RICHARD J. DURBIN

Senator DURBIN. Mr. Chairman, thank you for that and I apologize that I won't be able to stay. But I wanted to come by first, to thank you. Your leadership on this has made a difference. I know that you've taken a personal interest in the Capitol Visitor Center, unlike any other Member of Congress, on either side of the rotunda. And because you have, I think the taxpayers are getting

out of the gift shops, and about \$2.3 million for CVC operations. Thus, about \$3.4 million of the \$10.6 million remains available for approval for use for CVC construction or operations.

their monies worth and people who are involved in it at every level are being held more accountable.

But when it comes to the issue of accountability, I have to tell you, that I continue to have the most serious concerns about worker's safety. I just—I can't get over the fact, that in the time that I've served on the subcommittee, that this has been a recurring theme.

When I first came to this subcommittee, there was a higher incidence of accidents by those working for the Architect's Office, than any other Federal agency—than any other Federal agency. I urged the Architect to bring in outside consultants from the private sector to change this and it worked. We brought down the overall accident and injury rate of workers on the job. And then when you started the hearings on CVC, we learned that the workers at the job site were once again, experiencing unacceptably high levels of worker injuries. It's just incredible to me, that in the shadow of the Capitol Dome, this is taking place. When we should be setting an example for the United States, sadly, we are supervising one of the most dangerous work places in America right here, on Capitol Hill.

And now, comes the disclosure about asbestos exposure. It came up at our last hearing. I know that there are some workers in the room. Would you hold up your hand, those who work in the tunnels? Well, we have four of them. And I understand that there may be as many as 10, who have been working in an environment which is unacceptable in any work place in America. To think, that it is occurring right here on Capitol Hill, is a tremendous source of shame.

The testing that's been done suggests exposure to asbestos at 4 to 35 times the acceptable normal level. It wasn't until mid-March of this year that these workers were given protective equipment.

Now to address this issue, is not cheap. It's expensive. The first thing we need to do, is to commit ourselves to these men and to their families, that we're going to do everything in our power to protect them from exposure, to anything that could cause a physical injury, or disease, or ailment to them and to work with them. I think we ought to take special efforts to work with them to find out whether there's anything at this point that can be detected that we might be able to respond to regarding their exposure to this hazard.

And then, Mr. Chairman, as you and I have discussed, we face the painful responsibility of telling our colleagues in Congress, that we have to do something about it and it won't be cheap. The tunnels that are harboring the utilities that serve this Capitol Hill are antiquated and dangerous. Dangerous to the workers, and dangerous to others who come anywhere near them.

That has to change. Whatever the cost may be, we have to accept that responsibility. To do otherwise, is to subject workers in the future and other unsuspecting people to the hazards that are there, that we know to be there.

So Mr. Chairman, I want to work with you and commend you again, for your leadership on this. And I want to say to the workers who are here, this isn't going to be a matter of one day's newspaper article and forgotten. As long as this Senator's on this subcommittee, we will keep after this issue.

We have a responsibility to these workers and their families, and a responsibility to this Nation to set an example—a good example when it comes to workers safety. Sadly, we have not set a good example to this point. And I hope, as this progresses, Mr. Chairman, you will consider a hearing that's dedicated specifically to this issue of workers safety, particularly as it relates to asbestos.

I'm sorry, I can't stay. I wish I could. But I promise you, that I will work with you, as I have in the past, to make certain that we do meet our responsibility.

Senator ALLARD. Well, Senator Durbin, I personally would like to thank you for your diligence and help with our oversight function. You've been extremely valuable as a member and it's been a pleasure for me to work with you on some of these problems. They're serious problems, they're spending issues, they're workers safety issues and your help on those has been very much appreciated.

I'm sorry you can't stay for the rest of the hearing, but we all understand that happens with the pressing schedules around here and we'll continue to work on this asbestos problem with you.

Senator DURBIN. Thank you.

Senator ALLARD. Mr. Hantman, given the urgency of the utility tunnel problems, I'm going to start with questions on that issue. Frankly, in my mind, it is unconscionable and truly shocking that the scope of the utility tunnel problem was not recognized until just a few weeks ago, when we received your report outlining the immediate need for \$118 million and as much as \$200 million over the long term.

If the Office of Compliance had not filed the complaint in February, and if Senator Durbin and I hadn't demanded action, it seems that nothing would be happening. I want you to help us understand how we went from spending just a few million over the past several years, to needing more than \$100 million over the next several years.

Mr. HANTMAN. Thank you, Mr. Chairman and I do want to certainly concur with the whole sense of what Senator Durbin talked about. The safety of our people is a critical issue, and we need to be doing a lot more work on that than we have in the past.

In terms of the studies that we are doing right now, we are looking at over 2 miles worth of underground steam utility tunnels. When we first assessed the scope of the work back in 2000—2001, we had estimated that it was looking at perhaps \$200 million in potential work at that time. In fact, we had looked at doing master plans and have just recently gotten the dollars to do the master plans to enable us to do the full assessment. We're doing a full assessment this summer to get more detailed information on the scope of the work that needs to be done.

As you know, we've taken care of the highest priority work that had been identified in the URS Griener Study which was the work on Constitution Avenue. We invested some \$5 million in that, on South Capitol Street as well, to be able to maintain the utility service to all of the buildings on Capitol Hill.

Recognizing that this was a long-term scheme, we went through the project and all of the tunnels shoring up the areas that needed the most work. And the possibility of collapse was there and that's

why we took care of the Constitution Avenue section. Because that was the first area, where that criteria was levied by the consultant.

In the interim during those years, we have been looking at removal of spalling concrete. We've just had the AOC construction division go through the areas. In our longest tunnel in fact, those areas identified by the tunnel crew and made sure that we've patched up the split areas in the asbestos, or the things that had been ripped up. So that whole tunnel has now been gone through and they've gone on to the next one. In the short run, as we look toward the mid and the longer run, for the major investments of dollars, this would enable us to work safely in those areas. In fact, the tunnel crew will not be going to any major work areas until the construction crew takes a look at the spalling concrete and makes sure that there is no problem for that.

But perhaps Stephen, you can talk about the \$39 million we're requesting now.

Mr. AYERS. Sure. We have requested \$39.9 million in an emergency supplemental appropriation for fiscal year 2006. That's made up of several large line items. The first of which is approximately \$14 million in asbestos abatement for primarily, the "R" tunnel and the "G" tunnel.

Second, approximately \$10 million for the replacement of a section of the "R" tunnel, along Second Street, behind the Library of Congress Madison Building. And then, approximately \$5 million for some additional egress improvements throughout all of the tunnels. Another \$5 million for a study and subsequent design of the "Y" tunnel replacement. And another \$2.5 million for various concrete repairs throughout the utility tunnel system.

Senator ALLARD. According to an article in yesterday's Hill newspaper, the tunnel crew has been exposed to some extremely high levels of asbestos according to some lab results that you had ordered as Architect of the Capitol. Would you, Mr. Hantman, or Mr. Ayers verify the validity of those tests and perhaps give us a clear indication as to whether workers have possibly been exposed to the high levels. Then also, explain where that is as far as the proximity to the new tunnel that we just put in on East Capitol Street?

Mr. AYERS. Sure. I'm aware, since our last hearing, we have taken approximately 64 samples, air samples, to determine if there's asbestos present in the air. The analysis that I've received on that data indicates that if employees wear their half face respirators, they don't have health exposure problems.

Senator ALLARD. Did you say a half faced respirator?

Mr. AYERS. A normal respirator, which is a half face respirator.

Senator ALLARD. I see.

Mr. AYERS. I don't know the specific locations.

Senator ALLARD. And how long have they been wearing them?

Mr. AYERS. That was, I think, at just before our last hearing, which would have been March.

Senator ALLARD. So, it's been about the last month, is that correct?

Mr. AYERS. That's correct.

Senator ALLARD. Now, you've talked about the 64 samples. What about the results on those sample testings? Would you comment on those?

Mr. AYERS. First, the results that were reported is raw data and that data has not been interpreted for the duration of exposure. So, that's the first analysis that needs to take place.

And second, it needs to be analyzed for what personal protective equipment employees are wearing. So based on that, wearing their personal protective equipment, employees are safe with those 64 sample results that I've seen.

Senator ALLARD. So you think the employees right now, would be protected with the full face mask and the suits that they have to wear? Is this adequate even for the highest level that was reported in the Hill paper yesterday?

Mr. AYERS. Yes. That's correct.

Senator ALLARD. Now, the highest level that you've seen, is that in the older parts of the tunnel?

Mr. AYERS. I don't know where that test result was from. The test results are not specific. They're taken over a period of time which could be up to 4 to 8 hours.

Senator ALLARD. Now, were the 64 tests run through the entire tunnel complex or were they run in just one section?

Mr. AYERS. I don't know specifically where they were taken from. I believe, it's throughout the entire tunnel complex.

Senator ALLARD. Okay.

Mr. AYERS. With the exception of the "V" tunnel, which, of course, does not have asbestos in it. It's been completely abated.

Senator ALLARD. That's the one that was just worked on recently.

Mr. AYERS. Yes.

That's correct.

Senator ALLARD. It doesn't connect directly to the other tunnel systems, is that correct?

Mr. AYERS. That's correct.

Senator ALLARD. How would you assess the risk at the point where the new tunnel construction on East Capitol Street attaches? I guess that's the "R" section in there. Is that correct?

Mr. AYERS. Yes. That's correct.

I think maybe Bob can explain what the CVC contractor has done in their analysis of that specific area.

Senator ALLARD. All right.

Mr. HIXON. I'd be happy to explain. After the issue was brought to light a few weeks ago, I guess it was on March 24, we received an e-mail from Chris Potter with the Power Plant, advising us of these requirements and concerns within the tunnel complex.

Our contractors were informed of that. The information came in late on Friday. I sent it out Monday morning, so they were aware of it. They pulled all their crews out of the new utility tunnel as a precaution, concerned that there may be some migration of—if there was a problem, there could be some migration into the new tunnel.

We then sent in ACECO, which is a firm that handles this and is a certified industrial hygienist to take readings within the new tunnel. They sealed off the connection, the areas between our tunnel and the new tunnel, and took samples. They determined that we had none, whatsoever, that exceeded any levels. There was no—you didn't have to wear anything. There was nothing detected of any consequence.

So as a consequence of that, a week later, the crews—that occurred during that week between the 27th and the 30th. We had the results back the following week. The contractor was back in there doing their conduit installation. And the work has continued since that time.

We do have the issue of getting back into the existing “R” tunnel and completing the portion of our construction work within that area. We’re working with all of the personnel at the AOC and the Power Plant to determine the best way to achieve that with our contractors, you know recognizing that there needs to be something done to either make—create a clean area, or else we would have to have our contractors have the same training that the Power Plant people have and wear the same kind of equipment in order to be able to go into that space.

So, we’re working the details of that out right now.

Senator ALLARD. Okay. I want to get back to my question. The headline reads, “Tunnel Workers are Exposed to High Levels of Asbestos”. Is that true or not?

Mr. AYERS. Yes. There are high levels of asbestos that have been detected in our air sampling.

Senator ALLARD. But my question is, has there been exposure to workers?

Mr. AYERS. Our analysis indicates that if employees wear the personal protective equipment, no, they’re not exposed at a hazardous level.

Senator ALLARD. So why don’t you want to answer my question?

Mr. AYERS. Maybe I don’t understand it. I’m sorry.

Senator ALLARD. Well, have workers been exposed to high levels of asbestos?

Mr. AYERS. I’m advised that we can’t make that determination yet. But we will make that determination with the help of the Public Health Service.

Senator ALLARD. And how long do you expect that will take?

Mr. AYERS. I expect that’s 2 to 3 weeks away.

Senator ALLARD. Okay. You didn’t have them wearing the safety equipment until just this last month, so there’s a possibility that there was exposure or likelihood there was exposure prior to that. Is that correct?

Mr. AYERS. That is possible.

Senator ALLARD. Do you think you can give us a full report on that question when we have the next hearing?

Mr. AYERS. Yes, sir.

[The information follows:]

As we testified at the April 27 hearing, we issued a task order to the Public Health Service (PHS) to review available historic asbestos data. According to the PHS review, unfortunately, the historic data are not sufficient to determine past employee exposures.

Capt. Joseph Terra, from the PHS testified at the Subcommittee’s June 28 hearing, “On April 20 and May 25, our staff members reviewed exactly 142 personal samples and 49 area air samples that were historical data that were collected from a collection of private contractors or CPP staff. That data, we found to be inclusive in any way, due to the lack of activity characterization and comprehensive task identification. Essentially, the information that goes along with the testing was lacking, and we were unable to provide any conclusive statement regarding that data.”

We can say that, based on review of the data to date, that the half-faced respirators currently in use for routine tunnel work provide workers adequate protection for non-asbestos abatement operations.

As part of their review, the PHS made several recommendations to improve sample data collection and analysis including development of a systematic plan to ensure that all normal activities and locations are addressed.

We issued a task order to PHS to implement their recommendations, including additional employee exposure monitoring and an updated asbestos survey that includes a job hazards analysis that related work tasks to potential asbestos exposure. PHS has a full-time industrial hygienist on site to coordinate monitoring; to ensure monitoring data is collected properly; and to analyze, interpret, and explain data results to employees. Because of the variety and schedule variability of work performed in the utility tunnels, it is expected that the monitoring will continue for at least four months.

In addition, an occupational health doctor and industrial hygienist from the PHS met with Tunnel Shop personnel and Construction Division employees to discuss asbestos results to date and the plan to characterize potential worker exposures.

Senator ALLARD. Is AOC following OSHA standards for decontamination of workers before they leave the tunnels?

Mr. AYERS. Yes. We believe we are.

Senator ALLARD. And besides the steam tunnel employees, how many other people visited or worked in the tunnels over the past 5 years? Do you have that information?

Mr. AYERS. I don't have an answer to that. But I'll try to get that answer.

Senator ALLARD. If we could have that for the next hearing, I think that's an important response.

Mr. AYERS. Yes, sir.

[The information follows:]

Our documentation to track personnel visiting the tunnels prior to 2005 is incomplete. Therefore, we are unable to provide the number of personnel entering the tunnels prior to 2005 from our records. However, that process has been fixed. Our current tracking process shows, since May 2006, we average 35 personnel (12 authorized AOC personnel and 23 contractors providing tunnel inspections, repairs, and CVC tunnel construction), entering the tunnels during multiple shifts on a daily basis. The current average number of personnel entering the tunnels is 10 more than the April 10, 2006 report to Congress stated because of increased contractor activity. Once the CVC construction project, ongoing and planned tunnel inspections, and repairs are complete, we should average 9 authorized personnel entering the tunnels on a daily basis. Moreover, access to the tunnels is restricted to only those personnel that require access to perform their assigned duties and have the proper training. We will continue to review our process and records to ensure the integrity of this new process remains in tact.

Senator ALLARD. In response to a request Senator Durbin and I made earlier this month, you put together a preliminary plan for protecting workers and ensuring the safety of the tunnels. Has the Office of Compliance commented on your plans and do they concur that it addresses the problems they had identified?

Mr. AYERS. We've not shared with the Office of Compliance the same report we've sent to you. But we have sent them, just this morning, a summarized version of that plan, seeking their comment.

Senator ALLARD. So, they haven't responded back on that then, is that correct?

Mr. AYERS. That's correct.

Senator ALLARD. And why is it just now being sent to them?

Mr. AYERS. We're in the midst of a legal proceeding with the Office of Compliance and our attorneys advised against it. They felt it was best not to send that document forward, at this time.

Senator ALLARD. Until just yesterday, is that when you sent it to them?

Mr. AYERS. This morning.

Senator ALLARD. Okay.

Mr. AYERS. And we distilled a summarized version of that for them.

Senator ALLARD. Have the tunnel employees been given an opportunity to see the report, or provide input, and have you gotten a reaction from them?

Mr. AYERS. It's my understanding, that it has been made available for them to review. I've not heard any reaction from them yet.

Senator ALLARD. When was it made available to the employees?

Mr. AYERS. I don't know the answer to that.

Mr. HANTMAN. Tuesday.

Mr. AYERS. Tuesday of this week?

Mr. WEISS. Yes.

Mr. AYERS. Tuesday of this week.

Senator ALLARD. So that was made available Tuesday of this week, and then you sent it yesterday, your information and your plan to the Office of Compliance.

Mr. AYERS. That's correct.

Senator ALLARD. Who issued the complaint, is that correct?

Mr. AYERS. That's correct.

Senator ALLARD. Okay. Have you heard from the employees at all on that plan, initially? Not at this point?

Mr. WEISS. They—

Senator ALLARD. Come up to the table and identify yourself, please, for the record.

Mr. WEISS. Good morning, Mr. Chairman.

Senator ALLARD. Good morning.

Mr. WEISS. My name is Mark Weiss. I'm the Director of the Power Plant.

Senator ALLARD. Yes.

Mr. WEISS. We have meetings on Tuesday mornings with the tunnel crew.

Senator ALLARD. Yes.

Mr. WEISS. And I brought over a copy of the report that we submitted. There were concerns from staff on the report. And based on those concerns, we will have a more formal review approach and get their comments in more detail in the coming days.

Senator ALLARD. And that will also include their concerns?

Mr. WEISS. Yes, sir.

Senator ALLARD. Thank you. Well, we're looking forward to getting that report. As soon as you get the information, I'd like to have you get it to our staff. Then we can have a follow up on this at our next oversight hearing, if you would.

Mr. WEISS. Yes, sir.

[The information follows:]

The AOC provided the entire April 10, 2006, report to the OOC on May 3, 2006, and provided a subsequent briefing to the OOC on May 11, 2006. The Director of the Capitol Power Plant obtained feedback from the Tunnel Shop workers regarding their concerns about the report. Their comments did not represent disagreement with actions and measures that are planned to abate the safety hazards, but enabled the Director of the Capitol Power Plant to provide additional information that was not explained in the report, which helped clarify their concerns.

For example, the Tunnel Shop workers did not agree that there had been an average of 25 workers per day in the tunnels. However, they did not consider the multiple shifts and that the numbers varied based on the work schedule and type of work performed. The Tunnel Shop workers did not agree that Greiner provided training on how to recognize potential structural problems in the tunnels. The Director of the Capitol Power Plant clarified that this training was geared towards certain skills and not every employee received the training, which was not clear in the report. The Tunnel Shop workers stated that they have not seen the Hazard Mitigation Plan (HMP), which was developed to serve as a comprehensive approach to addressing worker safety issues in the utility tunnels. The Director of the Capitol Power Plant does not use the HMP terminology today. His daily review of the weekly work plan is the methodology used today to address worker safety issues in the tunnels. These are a few examples wherein the Tunnel Shop workers disagreed, but the Director of the Capitol Power Plant has subsequently clarified each point.

Senator ALLARD. Now, how much of this can be obligated by the end of the calendar year 2006? You indicated you need \$39.9 million.

Mr. UNGAR. Yes, sir.

Senator ALLARD. Can this be obligated by the end of the calendar year 2006?

Mr. AYERS. No, Mr. Chairman. Not all of it can be obligated by the end of the calendar year. We think approximately \$35 million of it can be obligated by the end of the calendar year.

Senator ALLARD. Now, do you believe a hybrid approach of removal in some key locations and encapsulation of other areas makes sense? That's been discussed, I know.

Mr. AYERS. Correct. It has been discussed. We put forth in our proposal and our recommendation, for complete asbestos removal. We think that's the best option to move forward with. But, we recognize that, that is a very expensive option. Alternatives to that are available by managing some of the asbestos in place and removing other portions of it in a more phased approach. It is certainly an alternative.

Senator ALLARD. Can we get a response from you, Mr. Dorn, on how GAO feels about the hybrid approach?

Mr. DORN. Yes, Mr. Chairman. The industry standard is to leave the asbestos in place, unless it's going to be subject to mechanical damage or it's near what you need to access for maintenance reasons. So the standard would be, there's no reason to take it out. You can actually cause more damage, more exposure to a whole chain of people by taking it out, rather than leaving it in place, and then encapsulating it with whatever material that the AOC chooses that is satisfactory for that.

Senator ALLARD. Are you thinking that those areas of the tunnel, where cement is crumbling, you need actual removal, but those parts where the structure is pretty solid, encapsulation may be the most appropriate approach?

Mr. DORN. Yes, sir. Mechanical damage could be caused by a tight spot where workers have to constantly go by it and brush up against it, which could damage it.

Senator ALLARD. I see.

Mr. DORN. Or, if you're concerned about something falling from the ceiling, or a wrench hitting it from an adjacent valve, things like that.

Senator ALLARD. Are you in the process of identifying, or have you identified those locations in the tunnels, Mr. Ayers?

Mr. AYERS. Yes. We did have a consultant identify those back in 2000 or 2001, and we're having a contractor now validate all of that information. So, we'll have an accurate account of where that concrete spalling is.

Senator ALLARD. Now, I want to move on to questions about the Capitol Visitor Center. In the last hearing, Mr. Hantman, you testified that utility tunnel work was almost complete, and I gathered from the current status of the utility tunnel work now, that you're wrapping it up. You're just doing the surface work on the road above and that's what you have remaining.

Mr. HANTMAN. We're still, Mr. Chairman, doing work inside the tunnel.

Senator ALLARD. Yes.

Mr. HANTMAN. One of the issues that was discussed by Bob Hixon a little while ago, about once the issue of asbestos in the adjacent "R" tunnel that it feeds into came up, we lost several weeks on the inside of the tunnel. So, Bob, do you have a sense of whether that's going to slow us down or not?

Mr. HIXON. The expectation we have right now, is that while we were expecting to have the system functioning and providing chilled water to the building in April, originally. Because of what's gone on, we're probably not going to see it done until June. Now part of that is not all attributable to the tunnel, it's also attributable to what is required for flushing.

We have criteria we've recently received from the west heating plant that's different from what's in our current specification. And so, in order to ensure that the chemical mix of what we're doing is compatible with what the Power Plant is generating, we're making some changes in our processes for getting the system ready to accept the chilled water from the plant.

Senator ALLARD. I see.

Mr. HIXON. We had a meeting yesterday on that and worked out a lot of the details. We should be finishing the work on those details here in the next week.

Senator ALLARD. What kind of work remains, where you have to move your workers into the older tunnel, there?

Mr. HIXON. In the older part of the tunnel, we have a section that's a—it's a number of pipes about 10 feet long, approximately, that connect from our tunnel into the existing tunnel.

Those pipes need to be insulated and in order for us to—there are a couple of steps that we need to do—

Senator ALLARD. So, they're connected, they just need insulation.

Mr. HIXON [continuing]. They need to be insulated. We have some valves that need to be opened. The Power Plant people have agreed to help us out. So they've gone in this morning, to close the valves at those points, so that we can pressure test the lines all the way up to the existing lines.

Then the next step we're going to have to do is get the area set so that we'll do some—the flushing, we'll be doing the pressure testing with water. And during that period of time we've got to sort out who will actually perform the insulation of this piping or how we will actually accomplish it.

Senator ALLARD. Okay. Now, in the Architect of the Capitol's utility tunnel remediation plan, the agency proposes widening one

of the existing tunnels and providing it with additional egress points. Why hasn't the new Capitol Visitor Center steam tunnel been designed and built to the same requirements?

Apparently, there is no emergency egress hatches along the 750 feet of tunnel. And apparently, it's very narrow. Aren't there standards that all of these tunnels are suppose to meet?

Mr. HIXON. The advice from our designer is that there is no particular code that applies to these kinds of facilities. At one point, we were going to simply bury the lines in the ground. That was one of the alternatives. We've had budget issues in trying to keep the cost of the utility tunnel from being any greater than it needed to be. The original design of the tunnel could've been wider. So what we've done, is when we talked about burying the lines the Power Plant people said that was unacceptable. They needed to be able to get back and forth through those in order to maintain the lines.

So what we've got is a 9-foot wide tunnel. The design provides for 3 feet of clearance. We've got 3 feet of clearance, except at locations where the pipe support brackets happen to intersect, which occurs at about 20 locations along the 750 feet. So, you've got a narrow spot at those 20 locations. Other than that, for the rest of the tunnel, you've got a 3-foot distance between the bracket and the installation.

The area is designed to be utilized by maintenance crews. So, we're not—it's not an egress route for people to move through.

Senator ALLARD. Now, what's expected in terms of egress points? You don't have any egress points within the tunnel, is that correct?

Mr. HIXON. We have only the Second Street entry into the tunnel from the outside and we have the entrance into the tunnel where you go into the CVC.

Senator ALLARD. Right.

Mr. HIXON. So, you have two points of entry in the tunnel that are approximately 750 feet apart.

Senator ALLARD. What is the standard? Is there a standard there, every 200 to 300 feet?

Mr. HIXON. To our knowledge, there is no particular standard for this kind of a facility.

Senator ALLARD. Or a requirement, or anything?

Mr. HIXON. Or a requirement. There has been some discussion about that here. This all came up yesterday afternoon. So, people have been reviewing all of these things. We're continuing to review it to see if there's something we might've overlooked. But at this point, our designer is advising us that there is no particular standard.

The code is not specific on this kind of space, and so we're trying to look at it right now, to determine if there is something else we need to do.

Senator ALLARD. And so then, why are we in the "R" tunnel, looking at 200 to 300 feet apart for these egress points? Where is that coming from? Why is that the recommended distance for that section of the tunnel? Where did you come up with the 200 to 300 feet and decide on the CVC tunnel, that we don't need to have any egress points over the total 750 feet?

Mr. AYERS. It's actually, Mr. Chairman, 600 feet is the standard that we're using for the remainder of the utility tunnels throughout the complex.

Senator ALLARD. I see.

Mr. AYERS. And by that, it's in the middle of that, it's 300 feet in either direction to an egress point. So the actual egress points themselves, are 600 feet apart, is what we're proposing to do throughout the tunnel complex.

Senator ALLARD. And where did you get the 600 feet then?

Mr. AYERS. I don't know that specifically, but I believe it's industry best practice. I'm also advised that there are no specific building codes that address this issue specifically.

Senator ALLARD. Okay. Do you have any views on that issue, Mr. Dorn?

Mr. DORN. Mr. Chairman, our work is not complete on the tunnels yet. But the preliminary information from the AOC's Safety Office was that, like Mr. Ayers said, that approximately 300 feet would be the longest travel distance—600 feet.

Senator ALLARD. So, it's 600 feet between? Yes.

Mr. DORN. So, this tunnel doesn't meet that.

And we also had a conversation with the Office of Compliance and their range was somewhere in the 200 to 400 feet between egress points. So, they're—

Senator ALLARD. So, they're a couple of 100 feet longer than what's required?

Mr. DORN. Yes, sir. The current tunnel doesn't meet either one of their standards.

Senator ALLARD. So, we'll have to wait and see how they respond to your plan.

Mr. HANTMAN. We'll continue looking at that.

Senator ALLARD. Okay. On the schedule, Mr. Hantman, GAO has expressed increased concern about your ability to meet your 2007 target day for opening the Capitol Visitor Center based on the sequence 2 contractor's performance since our last CVC hearing. Why has performance slipped so much, and how do you expect to finish on schedule if the contractor continuously cannot meet interim milestones and does not complete enough work each month to meet the project schedule?

Mr. HANTMAN. When we had talked, Mr. Chairman, at the last hearing about the possibility of trade stacking and developing detailed plans for each of the individual areas to see if we can effectively use as many people as we can productively in a key area. That was the plan that we were beginning to work toward. The contractor was talking, for instance, about—I guess, it was the food service area. I think Mr. Hixon mentioned that in our opening testimony, the idea that their detailed plan, breaking it up into small areas, seemed to be a workable plan in that food service area. We're looking forward to a detailed plan in each of the areas to make sure that we can, in fact, feel more secure about the time. There's no doubt about that. They have not been meeting the schedules that we have been talking about and we are concerned about that. It needs tight monitoring.

Senator ALLARD. Mr. Hixon, on the trade stacking, you think we can deal with that?

Mr. HIXON. Yes, sir. We've gotten some very detailed plans on all the major areas of the facility. The contractor has broken down so he's gone into areas like the food service, the orientation theater, and he's created sub-areas within that, and he's scheduled his contractor's work.

I have copies of those plans here. They are very detailed. If he can maintain his contractors within those schedules, things should get accomplished as they need to get accomplished. It's a—it involves a lot of coordination with the subs. That's all very positive.

I've shared this information with GAO. It's a—the concern is there, that we're going to be stacking the trades. The effort is there to coordinate that activity to make sure it doesn't adversely impact the schedule and that's all very positive.

The key now is making sure we are hitting these dates. I should note that there—I have picked dates that we used and sometimes a contractor is resequencing his work. Clearly, the east front stonework started 1 month later than we wanted and we got the plaster ceiling going in, in the great hall. The actual plastering is occurring a month later. But there are a lot of other activities that are all going on very well. So, it's—

Senator ALLARD. Are these ahead of schedule?

Mr. HIXON. Overall, they are not ahead of schedule. But they—areas like the orientation theaters, the security lobby where you enter the building, the stonework was completed there early. So, there are positive things going on and there are some negatives things going on.

Senator ALLARD. How do we make up this lost time?

Mr. HIXON. Well, the items that are behind for example, the east front stonework is a concern. The east front will be finished later than we would like to have it finished. But the east front is our transition zone. The work that's behind in the east front does not delay the work in the CVC proper.

Senator ALLARD. I see.

Mr. HIXON. In the CVC proper, if you look at the framework that's going on throughout the space, and the drywall that's going in, we have almost all the ceilings done in the east. Floor stone, for example; that's behind schedule, but is consciously behind schedule as the contractor's held that work back to allow the ceiling work to get finished ahead of it. Which makes his work flow go better.

So in that sense, the floor stone and those milestones we identified with floor stone are late. The quantity of floor stone is late, but the ceiling work is proceeding on and that will allow the floor stone work to follow it, which is the normal sequence. They went out of sequence to try and do that other quarter.

So, yes. We remain concerned about meeting all the dates. As we said in the testimony, you know this—we didn't always achieve things when we would like them to, but they continued to make good progress. It's very high quality and we anticipated there might be some slippage when we set up our schedule for a March completion. And they're working into that a little bit, but we have not reached a point where that date is jeopardized.

Senator ALLARD. Mr. Ungar, do you want to comment any further on what they've said?

Mr. UNGAR. Yes, Mr. Chairman. We agree with Mr. Hixon and Mr. Hantman that you know progress is definitely being made. But as we've said in our statement and Mr. Dorn has summarized, there are a number of trends that are not positive, that gives us great cause for concern. And if the contractor continues to miss these milestones on a hearing by hearing basis, more and more work is going to be left to be done in a shorter and shorter period of time.

And while the trade stacking plans seem to be very well done, that we've seen so far, if the work keeps slipping, they're not going to have enough time to complete those. And I believe Mr. Hixon would agree with that.

And two other points, real quickly. Mr. Dorn mentioned the issue at the fire protection system, if those shop drawings are late—or later than you know, than they are now and the fire marshal has significant concerns about them, that could delay the ceiling close ins, which could further delay the stone work and the rest of the work.

Senator ALLARD. Yes.

Mr. UNGAR. And finally, as Mr. Dorn indicated, we're very concerned about the trends in the design and scope changes. At this stage in the project, they become more and more likely to affect the schedule. So, if those continue at that pace that they have been and as experienced in sequence 1, that doesn't present a very positive outlook.

However, we're certainly hopeful that things can improve over the next several months with the meeting of the milestones, but that remains to be seen.

Senator ALLARD. Okay. Just one question on the stone work, I think we were scheduled for 11 truckloads and only got 8 in.

Mr. HIXON. We actually received 12 truckloads out of the 12.5, I believe that that's in Mr.—

Senator ALLARD. So, we're on schedule on that?

Mr. HIXON. The wall stone—we've actually received all of the wall stone for the CVC proper now, except for the atria, the expansion space. But for the CVC proper, we've received the wall stone that we needed.

Senator ALLARD. So our deliveries are there?

Mr. HIXON. Our deliveries are okay there.

We've received about a third of the stone for the east front, which is coming from a different quarry.

The atria stone is coming in. So, we're receiving deliveries, and unless something dramatically bad happened, you know we've got all of the stone we need for those right now. And the way it's coming in, is meeting the schedule requirement.

We have not received any stone of course for the tunnels. But the wall stone issue is, unless something significantly bad happened, is not the big focus right now. The focus is getting our ceiling work done and then be able to come back with a force.

Senator ALLARD. Let me get to the fire safety system Mr. Ungar referred to in last part. We're told that the safety system shop drawings are nearing completion. But still, the fact remains they're incomplete. Why and what impact will that delay have on the projects?

Mr. HIXON. The shop drawings have been a point of frustration for many of us for a long time.

Senator ALLARD. Yes.

Mr. HIXON. We expected to start receiving those shop drawings in February. They changed the location of a closet they were going to put some panels in, and they had to do some drawings. But it's taken a whole lot longer than we were expecting it would ever take, or should ever take.

Nonetheless, the shop drawings came in, they were reviewed by the electrical subcontractor. He marked them up and returned them to the firm that's preparing the drawings, to reflect changes that have occurred, or correct mistakes that may have been in the drawings. Those have now been corrected and come back in. They're being reviewed by the electrical subcontractor. And if they're okay, as we expect they should be, then they will be forwarded to Manhattan to stamp all the drawings, because they are required to do a review before they send them to us. And they should do that on Monday.

Senator ALLARD. Okay.

Mr. HIXON. We will then have the shop drawings in. The fire marshal has indicated it will take them 4 months—4 weeks rather, to complete the review. We will be going out to the fire alarm manufacturer's office 2 weeks after we get them. During that period of time, in order to have some conversations with them, with the fire marshal staff, to try and expedite the review process.

But clearly this is a critical issue to us. It's got a lot of focus. We're endeavoring to determine what things we need to get approved earlier than later, so that we can make sure everything flows smoothly. This is a critical element of the project.

Senator ALLARD. Mr. Hantman, there's a debate going on between the Capitol Police Board and your office regarding the alarm system. Can you briefly describe that issue for the subcommittee without compromising any of our security, and tell us how you plan to resolve this issue in a timely manner? Is there hope that we get it resolved in a timely manner?

Mr. HANTMAN. Mr. Chairman, at past hearings we've talked about the 5,000 devices that we need to wire up, and the complexity of the overall system, and the testing thereof, because we're a beta test site, as it relates to fire and life safety and security. Trying to integrate the two of them is not well done in the current codes.

This is a similar situation in that, in the Capitol Building as it exists right now, we have a very strong presence of the Capitol Police. So, that if somebody—if an alarm goes off, it goes to the police office. They investigate the site and if they find that there is reason to evacuate the building, the police initiate the evacuation of the Capitol Building, itself.

So if somebody wants to disrupt a hearing in the Senate or the House and they pull an alarm, it's not going to go off and it's not going to be real unless the police verify that it's real. And that's because we have a constant 24-hour police presence in the Capitol Building.

Senator ALLARD. Has the Office of Compliance view on this issue been solicited? Mr. Ungar?

Mr. UNGAR. Yes, sir. I think the Office of Compliance is okay with the situation in the Capitol itself, because of the situation that Mr. Hantman mentioned. I think they've got some concerns about the visitor center, though.

Mr. HANTMAN. And that's the debate, Mr. Chairman, that we're working on right now. I met with the Capitol Police Board yesterday, along with the Capitol Police and we talked through the same issue we're discussing right now. And in fact, the fire marshal will be meeting with the Capitol Police again this afternoon and coming up with an alternative perhaps, which splits the baby in half in terms of both security, as well as fire and life safety that would be adequate for the building.

Senator ALLARD. When do you think that decision's going to be finalized? Can you give us a timeline on that, what you anticipate?

Mr. HANTMAN. As I understand, the fire marshal will expect to have his proposal by next Tuesday, and I've told the Capitol Police Board that I want a decision by the end of the week.

Senator ALLARD. Very good. Just wanted to make sure. In a recent editorial in the Hill newspaper, Chuck Tyler, the former General Counsel for the Architect, expressed concern about your involvement in the development of trade stacking plans for the remaining CVC work. What is your view on that concern?

Mr. HANTMAN. In trade stacking?

Senator ALLARD. Yes. There was an editorial on the Capitol Visitor Center and their comment is that they think you're too directly involved in this issue on trade stacking.

Mr. HANTMAN. Oh. Well, I think what Mr. Tyler was basically saying; in basically all construction contracts the contractor who signed the contract with you has the prerogative of looking at the means and methods of how he is going to achieve that project. And what we've done on this project clearly is, even the interim schedules that we're talking about right now, are not normally done on most construction projects.

So, I think his concern was, which I don't think will be borne out, because the contractor was very much cooperating with us and wants to make sure that we solve the problems together. So he is doing those additional schedules and the dates that come out, are coming out from him. We're not imposing them on them.

So, Mr. Tyler—appropriately can have his own point of view on this, but we believe we're working well with our contractors.

Senator ALLARD. Is GAO micromanaging the CVC project?

Mr. UNGAR. We would certainly not agree with that, Mr. Chairman. Mr. Dorn actually had replied to Mr. Tyler's editorial, which was published this week. Our charge, I think what we were saying is that unfortunately, Mr. Tyler misunderstood our responsibility here with the Capitol Visitor Center, and misunderstood our approach to the work, and our recommendation that he was referring to. I think he was referring to a recommendation we had made to AOC, that it work with the rest of the CVC team to address the trade stacking area, because of the significant impact it could have. And we certainly think that was an appropriate recommendation. It was not aimed at having AOC create or provide a specific schedule or set up plans to the contractor, as Mr. Tyler stated.

We also pointed out that the team that we had working on the CVC effort includes Mr. Dorn, of course and another engineer who together, have had more than 50 years experience in this area of construction. So, he was indicating that you know, the team didn't really know that much about construction. But we also have a team of other folks like lawyers who are very involved in the process and are aware of the intricacies of this and certainly, assist us in our work.

So, the bottom line is that we really disagreed very strongly with Mr. Tyler's points that he was making in his editorial.

Senator ALLARD. I just wanted to give you an opportunity to respond in a public way. Now this is directed again to GAO.

Could you comment on the CVC's amount of design and scope changes and potential change orders at this stage of construction, compared to other construction projects you may have been associated with?

Mr. UNGAR. Yes, sir. The problem that we see here is that—and if you looked at our figure 5, I don't know if you happen to see that in our statement. This particular project has experienced a very significant number of change orders. This chart shows the cumulative number of potential change orders, which basically are the result of the way you implement the design and scope changes through potential change orders and then, the contract modification.

So, these are an indicator of design and scope changes. And not only for sequence 1, but for sequence 2, they are really growing at a fairly rapid rate. And at this stage in the project, you would hope that you wouldn't have this situation. Because the later in the project you have these kinds of changes, the more likely they are to effect the schedule.

For example, the fire safety issues that we're talking about now, if there are any changes made as a result of these drawings or the discussions with the police, it would have been a lot easier and a lot less impact if that had happened you know, 6 months or 1 year ago as opposed to right now when work is proceeding.

So the bottom line is that as these come through the process, they are more likely to affect the schedule and we are really concerned about that and I think we've said that in several hearings to date. And AOC is aware of that as well and I think Mr. Hixon's view is that, you know he's certainly reviewing these very carefully and wants to see that only necessary changes are made. The problem is, there are so many of them that are necessary for one reason or another, that they are bound to affect the schedule.

Senator ALLARD. Mr. Hantman or Mr. Hixon, either one of you want to comment on it?

Mr. HIXON. At this point in the project, typically we are done with base building and we're trying to prevent a great deal of tenant changes from coming in. The tenant changes have not been a problem. People have done a good job of not creating an issue for us thus far in the tenant changes. But we do have a lot of other things.

Part of the issue is we're interfacing with an existing infrastructure, but yet the steam tunnels, be it the site lighting that exists on the building, and some of these things don't always come to-

gether the way they should. We end up with a request for information from the contractor saying, how do you want me to tie this into that? They provide direction and somebody says, well you know, that's an extra under the contracting. You end up with what we call a PCO—a pending change order.

We've also had a lot of—every time the Architect issues a design revision; I sign that personally to make sure that we don't have any more than we have to.

We've ended up with site lighting, we've got secured stuff going on with the skiff areas that comes up that didn't get captured right in the requirements or doesn't fit together quite right. So, there are quite a number of changes.

That's part of the issue. The contractor—we're sympathetic to his efforts in trying to meet the schedule. We keep heaping more and more on his plate, beyond what he bought in the beginning as we try and get all these things to fit together so they work quite—you know, just like they are supposed to.

If we revise the fire alarm drawings and go to a different system, you know that does have an impact. Because now, we have to tell the contractor what it is we want him to do differently and is programmed into the fire alarm system. This has generated because we did changes to the fire alarm system 1 year ago, where we—and we're trying again, to implement the security together with the fire alarm requirements and things like that.

So as Alan mentioned, this is clearly a beta site. We've got security requirements, we've got fire alarm requirements, we have codes we're trying to comply with and we're also going into new areas and trying to interface all these things. We have things that don't fit together quite right. And as something new comes out and it's implemented, if we end up with a program change, all of these things have an impact. And so, we're trying to accommodate that together with the existing infrastructure.

But clearly, we're still making changes to the documents and giving them to the contractor to accomplish. When what we'd rather do is just let him finish what he's got. But if he did that, you won't end up with a high quality building that you really want to have.

Senator ALLARD. That's all I have as far as questions. And does the panel have any further comments they want to make for the record?

SUBCOMMITTEE RECESS

If not, then the subcommittee is going to stand in recess until next Wednesday at 10:30. We're going to have the Government Printing Office, the Office of Compliance, and the Congressional Budget Office present their budgets at that time. Then, we'll come in next month on the 24th for a hearing on the Capital Visitor Center. Meeting stands in recess.

[Whereupon, at 11:48 a.m., Thursday, April 27, the subcommittee was recessed, to reconvene subject to the call of the Chair.]

PROGRESS OF CONSTRUCTION OF THE CAPITOL VISITOR CENTER

WEDNESDAY, MAY 24, 2006

U.S. SENATE,
SUBCOMMITTEE ON THE LEGISLATIVE BRANCH,
COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 10:30 a.m., in room SD-124, Dirksen Senate Office Building, Hon. Wayne Allard (chairman) presiding.
Present: Senator Allard.

OPENING STATEMENT OF SENATOR WAYNE ALLARD

Senator ALLARD. The subcommittee will come to order. We meet today to take testimony on the progress of the Capitol Visitor Center. This is our 11th hearing on the Capitol Visitor Center. We will also discuss progress on the utility tunnel health and safety issues. We welcome Architect of the Capitol, Alan Hantman, CVC Project Executive Bob Hixon, and GAO representatives Bernie Ungar and Terry Dorn.

Since our last hearing, I understand that some progress has been made in the installation of the interior wall and floor stone, but that only two of the nine milestones AOC set last month, were met. And one of those two will need to be performed again. As a result, concerns are growing as to whether the schedule can be met.

One issue from last month's hearing that AOC committed to resolving, was the fire alarm system. And we look forward to hearing the status of that issue, as well as the status of shop drawings for the fire safety system.

As to the utility tunnels, about 2 weeks ago, it was discovered that a section of the "R" tunnel was sagging. That has been closed as a result. AOC's contractor is undertaking a first look structural assessment and we are told that some asbestos abatement and concrete repairs have occurred. In addition, the Public Health Service, we understand, has been brought in to advise the Architect.

Finally, the Office of Compliance has responded in writing to questions we posed at their hearing earlier this month. I'd like to discuss some of the concerns they raised, such as the effectiveness of interim protective measures.

It would seem that AOC has begun to address some of the very serious health and safety concerns in the tunnels. However, regrettably, some employees who work in the tunnels are not very happy. Whatever it takes, AOC management must establish a positive relationship with this group of employees.

Mr. Hantman, please proceed with your testimony and then we will turn to GAO for their statement.

STATEMENT OF ALAN M. HANTMAN, FAIA, ARCHITECT OF THE CAPITOL

ACCOMPANIED BY:

BOB HIXON, PROJECT DIRECTOR, CAPITOL VISITOR CENTER, ARCHITECT OF THE CAPITOL

STEPHEN AYERS, CHIEF OPERATING OFFICER, ARCHITECT OF THE CAPITOL

SUE ADAMS, DIRECTOR OF SAFETY, FIRE, AND ENVIRONMENTAL PROGRAMS, ARCHITECT OF THE CAPITOL

MARK WEISS, DIRECTOR, CAPITOL POWER PLANT, ARCHITECT OF THE CAPITOL

Mr. HANTMAN. Thank you and good morning, Mr. Chairman. Thank you for the opportunity to brief you regarding the progress of the Capitol Visitor Center project. Once again, we are reporting no change in our projections for both the project schedule and the budget.

As we've stressed in previous hearings, this schedule relies heavily on the timely completion of three primary activities. The first is the wall and floor stone installation that you alluded to. The operation of the CVC utility tunnel is the second. And the third is the acceptance testing of the CVC complex fire and life safety system, which I will talk about shortly.

STONE INSTALLATION

Masons continue to install wall stone on two levels in the east front. They've essentially completed installing wall stone in all the other primary visitor spaces, including the great hall, both orientation theaters, the exhibition hall, the food service area, the screening entrance area, and the lobby just outside the orientation theaters.

Scaffolding now occupies most of these areas, so contractors can finish the ceiling work. As ceilings are completed, the scaffolding will be removed, clearing the way for floor stone installation. The most critical floor stone area is the great hall, since it's the center of the facility. Recognizing the importance of this space to the project schedule, the contractor has authorized the ceiling subcontractor to work overtime and Saturdays to complete the drywall, plaster, and painting of the three-barrel vaults above the great hall.

At the current pace, it appears that the scaffolding can be removed by late June and free up nearly 20,000 square feet of floor space to the stone masons. As areas become available for floor stone, it's critical that the contractor ensures that there's an adequate supply of the stone to keep the masons working. While there was an approximate 2-week delay in the delivery of floor stone for the exhibition hall, stone was delivered on May 16, so installation is once again underway.

Overall, we have approximately 86 percent of the floor stone for the entire lower level of the CVC. Therefore, it does not appear that the stone delivery will have further significant impacts to the overall schedule.

CAPITOL VISITOR CENTER UTILITY TUNNEL

Regarding the CVC utility tunnel, we said last month, that while work has resumed in the utility tunnel, the required connection work to the Second Street tunnel has been delayed while the contractor completes appropriate training and secures equipment to work in that tunnel.

Recently, an AOC contractor performing visual inspections of the tunnels, identified areas of delaminated ceiling concrete that appears to be subject to possible spalling. However, this does not significantly increase the structural issues already identified in the tunnel. As a precaution however, AOC has restricted personnel access to that portion of the tunnel, which includes the CVC tunnel tie-in area.

The AOC is installing shoring and will begin controlled removal of delaminated concrete ceiling in that section of the tunnel. That operation began this morning, after a design of what the shoring needed to be. This will allow the contractor to complete work at the tie-in location. The contractor had expected to bring in chilled water and steam in early April, but with these current necessary operations, we now expect that to occur late in June.

To minimize the impact of this delay to finish work, the contractor is prepared to provide dehumidification equipment to maintain the proper climate control to allow millwork to begin.

FIRE AND LIFE SAFETY ACCEPTANCE TESTING

The third primary activity, Mr. Chairman, affecting the schedule, is the acceptance testing process for the CVC's fire and life safety systems. Recently, there have been discussions concerning changing the basic program for the fire alarm system. We're pleased to report, Mr. Chairman that agreement has been reached between the U.S. Capitol Police, the fire marshal, the Capitol Police Board, and other interested parties regarding the operation of the program.

The programming changes that need to occur will not affect the system installation and should have no significant impact, if any, to the duration of the testing process and therefore, no significant impact to the project schedule.

CONSTRUCTION HIGHLIGHTS

With the help of some photo boards, Mr. Chairman, I would like to show you some construction highlights since our last hearing. In the great hall, drywall and plaster is complete on two of the three-barrel vaults. Is it all three by now, Bob?

Mr. HIXON. Yes.

Mr. HANTMAN. All three of the barrel vaults and the first coat of paint has been applied. As I mentioned earlier, the contractor has been working overtime to expedite this work, to clear the way for floor stone installation. We expect that process to begin by mid-June. You can see here, the slope of the barrel vaults. This is the dance floor, as it's called. It's the scaffolding that allows people to get on up there and do the work high above the great hall.

As ceiling work is completed, a skylight installer has begun assembling a system of support and tension rods for the glass panels

of the south skylight. You can see this over here, the framing of the view of the Capitol Dome. The structure is basically intact and the glazing will start shortly for that.

Meanwhile, stone masons have also completed setting stone around the perimeter of the north skylight. This allows the skylight installer to move directly to the north skylight upon completion of the south. At the north and south ends of the great hall, crews continue to install mechanical and finish elements to the escalators, which is this drawing over here. You can see the bronze finish, elements going in on those escalators.

In the exhibition hall, masons last week resumed setting floor stone in the northern half of the hall. The southern half was completed in early May. By early next week, the contractors are expected to have all the floor stone needed for that space, so work should continue uninterrupted.

In the ceiling of the hall, the fire marshal has approved the sprinklers and other fire and life safety systems and crews are now installing drywall.

In the east front, masons continue setting stone on the basement and crypt levels. Much of the stonework is completed on the basement level and on the piers that extend up into the carriageway. At the crypt level, three of the four fire separation doors are in place within the transition zone, clearing the way for masons to install base and wall stone in that area.

Those fire separation doors, Mr. Chairman, basically help define the fact that the Capitol Building itself and the CVC, from a fire perspective, are being treated as separate buildings.

In the orientation theaters, ceiling framework and other structural work is nearly complete. Last week, the contractor finished installing the steel support beam structure at the upper ends of both theaters that will support the projection systems. With that work done, all of the preparatory work for the acoustic panels and millwork is now complete. We expect the installation of the finished materials to begin early next week.

In the corridors along the great hall, ceiling work continues and closing inspections are expected later this week for the ceiling areas north and south of the CVC screening zone. In the lobby, just beyond the orientation theaters, drywall is up in the tray ceiling, around the smaller north skylight and over much of the metal ceiling framework in the center zone, adjacent to the central stair. The area is starting to take on a much more finished appearance, as you can see.

On East Capitol Street, the street restoration activities above the CVC utility tunnel are nearly complete. We're working with the D.C. Department of Transportation to resolve an electrical issue with a traffic light on First Street, before final paving can be completed. We fully expect that East Capitol Street can be opened to traffic in June.

You can also see on this drawing, Mr. Chairman, the trees that are in place along both the House and the Senate sides, and the walkways that occur beneath those trees for people who will come down to the screening areas.

Recently, Mr. Chairman, we met with the Office of Compliance to discuss egress requirements for the CVC utility tunnel. The Of-

office of Compliance continues to review applicable standards and research general industry practices. They have committed to provide a definitive answer before the next hearing.

CAPITOL VISITOR CENTER PROJECT SAFETY RECORD

Mr. Chairman, last month, Senator Durbin raised the question of the safety record on the CVC project. The safety record on the CVC improved in 2005 from 2004 and has improved again in 2006 over 2005. The construction manager reports that the project recordable lost time rate and lost time restricted duty rate for the CVC in 2006 are all below or better than the Bureau of Labor Statistics incident rate for similar construction projects.

The data, according to the construction manager, indicates that the safety program for the project is reducing accidents. We continue to work with all members of the team to pursue an accident-free site.

ARCHITECT OF THE CAPITOL-WIDE UTILITY TUNNELS

Mr. Chairman, I'd like to take a few minutes now to provide a progress report on the utility tunnels. We continue to take a comprehensive and aggressive approach to further enhance worker safety, and to improve and correct existing tunnel conditions.

First, I'd like to clarify a possible misunderstanding from last month's hearing. During some of the discussion it seemed that the potential asbestos issues were sometimes being associated with the citation issued by the Office of Compliance in December 2000. It's important to note that the December 2000 citation did not include any issues or infractions regarding asbestos.

Asbestos-related issues were not identified by OOC as a major concern, prior to the June/July 2005 inspection. The only OOC citation regarding asbestos was issued in January of this year, which raised procedural and administrative issues associated with work and asbestos containing materials in the tunnels.

In 2001, in fact, AOC initiated a Public Health Service asbestos survey in the utility tunnels which found the existing asbestos to be in good condition. As we testified at the last hearing, we tasked PHS with reviewing available historic asbestos data to try to address questions regarding the historic level of possible employee asbestos exposure and whether employees are now adequately protected from asbestos hazards.

Based on a review of the data to date, we can say that the half-faced respirator, currently in use for routine tunnel work, provides workers adequate protection for non-asbestos abatement operations. The historical data are not sufficient in quantity or detail to determine possible past exposures. The Public Health Service recently completed its review of the historic asbestos sample results from June 2001 through April 11, 2006. Conclusions about historic exposures and general tunnel conditions were not possible due to the limited data and sample information available.

UTILITY TUNNEL AIR SAMPLING

However, a review of utility tunnel ambient air sample data to date does not indicate that respiratory protection is required just

to breath the air in the tunnels. However, as a precaution, I am requiring that respirators continue to be worn by all tunnel entrants while PHS monitors the sampling.

PHS has made several recommendations to improve sample data collection and analysis, including the development of a systematic plan, to ensure that all normal activities and locations are addressed. Subsequently, we issued a task order to PHS to implement a number of their recommendations, including additional employee exposure monitoring and an updated asbestos survey that includes a job hazards analysis, that related work tasks to potential asbestos exposure.

We're providing all sampling results to the PHS for analysis. And since the week of May 8, the PHS has had a full-time industrial hygienist onsite to coordinate monitoring, to ensure monitoring data is collected properly, and to analyze, interpret, and explain data results to employees.

In addition, an occupational health doctor and industrial hygienist from PHS met with the tunnel shop personnel and construction division employees to discuss asbestos results to date, and to plan to characterize potential worker exposures to the various tasks that they perform.

With regard to the decontamination procedures for employees and contractors exiting the tunnels that currently require respirator use, last month we testified that we believe that these decontamination procedures met OSHA requirements. The Office of Compliance testified on May 3, that they did not know if our procedures met OSHA requirements. To resolve the issue, we asked PHS to review the current procedures and determine whether they comply with the OSHA requirements for the work performed by employees.

The PHS report concluded that written decontamination procedures were drafted, but not fully implemented by May 10. PHS made a number of recommendations to improve procedural compliance and clarity of the AOC procedures. They will soon return to perform additional observations and audit the procedures again.

With regard to spalling concrete, Mr. Chairman, recently the contractor performing visual inspections identified an area of delaminated concrete in the ceiling of a tunnel that may be subject to possible spalling. Our structural engineer's evaluation indicates that this identification does not significantly increase the structural issues already identified in the tunnel.

As I stated earlier, as a precaution, we restricted personnel access to that portion of the tunnel and we've begun, as of today, installing shoring and will begin the controlled removal of the delaminated concrete ceiling in that section of the tunnel. We expect to have the shoring work completed in approximately 2 weeks.

Mr. Chairman, I rely on the employees assigned to the tunnels, who are responsible for monitoring tunnel conditions, and the Power Plant management to execute their responsibilities to maintain and inspect these facilities.

There was clearly a breakdown in communication between Power Plant employees, their supervisor, Power Plant management, and senior management. I have therefore mandated a stronger system of checks and balances which will require independent structural

experts be retained to perform periodic inspections. In addition, our AOC Central Safety Fire and Environmental Programs Office will routinely inspect the tunnels as we move forward with structural and remediation initiatives appropriate for each tunnel.

We'll continue to work with the subcommittee and Congress to effectively keep the tunnels as safe and functional as possible, as we institute a multiyear capital repair and/or replacement program as needed.

And Mr. Chairman, that concludes my statement. And thank you for the opportunity to testify. I'd be happy to answer any questions you might have.

Senator ALLARD. Thank you, Mr. Hantman, for your statement. [The statement follows:]

PREPARED STATEMENT OF ALAN M. HANTMAN, FAIA

Mr. Chairman, thank you for the opportunity to brief you regarding the progress of the Capitol Visitor Center project. Once again, we are reporting no change in our projections for both the project schedule and budget. The expectation remains that the Visitor Center will be available for operational training activities in March 2007 and available for a public opening in April 2007. As we've stressed in previous hearings, this schedule relies heavily on the timely completion of three primary activities: wall and floor stone installation; the operation of the CVC utility tunnel, and the acceptance testing of the CVC's complex fire and life-safety systems. I'd like to provide a status report on each of these issues before briefing you on current project activities.

Regarding the installation of wall stone, masons continue working on two levels within the East Front. They have essentially completed the installation of wall stone in all of the other primary visitor spaces in the CVC, including the Great Hall, both Orientation Theaters, the Exhibition Hall, the Food Service Area, the screening entrance area, and the lobby just outside the Orientation Theaters. Scaffolding now occupies most of these areas so contractors can finish the ceiling work. As ceilings are completed, the scaffolding will be removed, clearing the way for floor stone installation.

The most critical area for floor stone is the Great Hall. This space is at the center of the facility and connects to all other major visitor spaces. Recognizing the importance of this space to the project schedule, the contractor has authorized the ceiling subcontractor to work overtime and Saturdays to complete the drywall, plaster, and painting of the three barrel-vaults above the Great Hall. At the current pace, it appears that the scaffolding in the Great Hall can be removed by late June and free up nearly 20,000 square feet of floor space to the stone masons.

As areas become available for floor stone, it is critical that the contractor ensures that there is an adequate stone supply to keep the masons working. While there was an approximate two-week delay in the delivery of floor stone for the Exhibition Hall, stone was delivered on May 16th so that installation is again underway. Overall, we have approximately 86 percent of the floor stone for the entire lower level of the CVC. Therefore, it does not appear that the stone delivery will have further significant impacts to the overall schedule. Again, the contractor's focus now is to get ceiling work completed as quickly as possible and clear the way for floor stone installation.

Regarding the CVC utility tunnel below East Capitol Street, we said last month that while work has resumed in the utility tunnel, the required connection work to the Second Street tunnel has been delayed while the contractor completes appropriate training and secures equipment to work in that tunnel. Recently, an AOC contractor performing visual inspections of the tunnels identified areas of delaminated ceiling concrete of the tunnel that appears to be subject to possible spalling, however, this does not impact the structural soundness of the tunnel.

As a precaution, AOC restricted personnel access to that portion of the Second Street tunnel, which includes the CVC tunnel tie-in area. The AOC will be installing shoring and will begin controlled removal of the delaminated concrete ceiling in that section of the tunnel. This will allow the contractor to complete work at the tie-in location. The contractor had expected to bring in chilled water and steam into the CVC in early April but with these current necessary operations, we now expect that to occur in late June. To minimize the impact of this delay to finish work, the con-

tractor is prepared to provide dehumidification equipment to maintain the proper climate control to allow millwork to begin.

The third primary activity affecting the schedule is the acceptance testing process for the CVC's fire and life-safety systems. Recently, there have been discussions concerning changing the basic program for the fire alarm system. Agreement has been reached between the U.S. Capitol Police, the Fire Marshal, the Capitol Police Board and other parties regarding the operation of the program. The changes that need to occur will not affect the system installation, and should have no significant impact, if any, to the duration of the testing process and therefore no significant impact to the project schedule.

Mr. Chairman, last month Senator Durbin raised the question of the safety record on the CVC project. The safety record on the CVC improved in 2005 from 2004, and has improved again in 2006 from 2005. The construction manager reports that the project Recordable Rate, Lost Time Rate and Lost Time/Restricted Duty Rate for the CVC in 2006 are all below (better than) the Bureau of Labor Statistic's incident rate for similar construction projects. The data, according to the construction manager, indicates that the safety program for the project is reducing accidents. We continue to work with all members of the team to pursue an accident free project.

Project Progress Update

With the help of some photo boards, I'd like to show you some construction highlights since our last hearing.

In the Great Hall, drywall and plaster is complete on all three barrel vaults and the first coat of paint has been applied. As I mentioned earlier, the contractor has been working overtime and on Saturdays to expedite this work to allow crews to dismantle the scaffold and clear the way for floor stone installation. We expect that process to begin by mid-June.

As ceiling work is completed, a skylight installer has begun assembling the system of support and tension rods for the glass panels of the south skylight. Meanwhile, stone masons completed setting the stone around the perimeter of the north skylight. This allows the skylight installer to move directly to the north skylight upon completion of the south skylight. At the north and south ends of the Great Hall, crews continue to install mechanical and finish elements to the escalators.

In the Exhibition Hall, after a two-week delay in stone delivery, masons last week resumed setting floor stone in the northern half of the Hall. The southern half was completed in early May. By early next week, the contractor is expected to have all the floor stone needed for that space so work should continue uninterrupted. In the ceiling of the Hall, the Fire Marshal has approved the sprinklers and other fire and life-safety systems and crews are now installing drywall.

In the East Front, masons continue setting stone on the basement and Crypt levels. Much of the stone work is completed on the basement level and on the piers that extend up into the carriageway. At the Crypt level of the Capitol, three of the four fire separation doors are in place within the transition zone clearing the way for installation of wall stone in that area and masons have now begun setting base and wall stone in that area.

In the orientation theaters, ceiling framework and other structural work is nearly complete. Last week the contractor finished installing the steel support beam structure at the upper ends of both theaters that will support the projection systems. With that work done, all of the preparatory work for the acoustic panels and millwork is now complete and we expect the installation of the finish materials to begin early next week.

In many areas, particularly in the corridors along the Great Hall, ceiling work continues and close-in inspections are expected later this week for the ceiling areas north and south of the CVC screening zone. On the opposite side, in the lobby just beyond the orientation theaters, drywall is up in tray ceiling around the smaller north skylight and over much of the metal ceiling framework in the center zone adjacent to the central stair that rises into the East Front. The area is starting to take on a much more finished appearance.

On East Capitol Street, I am pleased to report that all street restoration activities above the CVC utility tunnel are complete and the striping plan is in place. We are working to resolve an electrical issue with the traffic lights so that the street will be open to traffic in June.

Recently, we met with the Office of Compliance to discuss egress requirements for the CVC utility tunnel. The OOC continues to review applicable standards and research general industry practices. They have committed to providing a definitive answer before the next hearing.

Mr. Chairman, at this time I would like to take a moment to provide a progress report on the utility tunnels. We continue to take a comprehensive and aggressive

approach to further enhance worker safety and to improve and correct existing tunnel conditions.

First, I would like to clarify a possible misunderstanding from last month's hearing. It seemed during some of the discussion that the potential asbestos issues were sometimes being associated with the citations issued by the Office of Compliance in December 2000. It is important to note that the December 2000 citation did not include any issues or infractions regarding asbestos. Asbestos-related issues were not identified by OOC as a major concern prior to the June/July 2005 inspection. The only OOC citation regarding asbestos in the utility tunnels was issued recently, in January 2006; the 2006 citation raised procedural and administrative issues associated with work and asbestos containing materials in the tunnels. In 2001, AOC initiated a Public Health Service (PHS) asbestos survey in the utility tunnels which found the existing asbestos to be in good condition.

As we testified at the last hearing, we tasked PHS with reviewing available historic asbestos data to try to address questions regarding the historic level of possible employee asbestos exposure and whether employees are now adequately protected from asbestos hazards. Based on a review of the data to date, we can say that the half-faced respirator currently in use for routine tunnel work provides workers adequate protection for non-asbestos abatement operations.

Unfortunately, the historical data are not sufficient in quantity or detail to determine past employee exposures. PHS recently completed its review of the historic asbestos sample results from June 2001 through April 11, 2006. Conclusions about historic employee exposures and general tunnel conditions were not possible due to the limited data and sample information available.

A review of utility tunnel ambient air sample data to date does not indicate that respiratory protection is required just to breathe the air in the tunnels. However, as a precaution, I am requiring that respirators continue to be worn by all tunnel entrants while PHS monitors the sampling.

PHS has made several recommendations to improve sample data collection and analysis including the development of a systematic plan to ensure that all normal activities and locations are addressed. Subsequently, we issued a task order to PHS to implement a number of their recommendations, including additional employee exposure monitoring and an updated asbestos survey that includes a job hazards analysis that related work tasks to potential asbestos exposure. We are providing all sampling results to the PHS for analysis and, since the week of May 8, the PHS has had a full-time industrial hygienist on-site to coordinate monitoring, to ensure monitoring data is collected properly, and to analyze, interpret, and explain data results to employees. Because of the variety and schedule variability of work performed in the utility tunnels, it is expected that the monitoring will continue for at least four months.

In addition, an occupational health doctor and industrial hygienist from the PHS met with Tunnel Shop personnel and Construction Division employees to discuss asbestos results to date and the plan to characterize potential worker exposures for the various tasks that they perform.

With regard to the decontamination procedures for employees and contractors exiting the tunnels that currently require respirator use, last month we testified that we believed that these decontamination procedures met the requirements of the Occupational Safety and Health Administration (OSHA). The Office of Compliance (OOC) testified on May 3 that they did not know if our procedures met OSHA requirements. To settle the issue, we asked PHS to review the current procedures and determine whether they comply with the OSHA requirements for the work performed by employees. The PHS report concluded that written decontamination procedures were drafted but not fully implemented on May 10, 2006. The PHS made a number of recommendations to improve procedural compliance and clarity of the AOC procedures. The PHS will return to perform additional observations and audit the procedures once again.

With regard to spalling concrete, recently the contractor performing visual inspections of the utility tunnels identified an area of delaminated concrete in the ceiling of one tunnel that may be subject to possible spalling. Our structural engineer's evaluation indicates that this identification does not significantly increase the structural issues already identified in the tunnel.

As a precaution, we restricted personnel access to that portion of the tunnel. We are developing procedures to install shoring in a manner that protects our employees and will begin the controlled removal of the delaminated concrete ceiling in that section of the tunnel, as we have previously done in other areas, once the shoring is installed. As I noted earlier, steps are being taken to allow the CVC contractor to complete work at the tie-in location. This work will not impact the ability to heat or cool facilities across the Capitol complex.

Mr. Chairman, I rely on the employees assigned to the tunnels, who are responsible for monitoring tunnel conditions, and the Power Plant management to execute their responsibilities to maintain and inspect these facilities. There was clearly a breakdown in communication between Power Plant employees, their supervisor, Power Plant management, and senior management. I have, therefore, mandated a stronger system of checks and balances which will require independent structural experts be retained to perform periodic inspections. In addition, our AOC Central Safety, Fire, and Environmental Programs Office will routinely inspect the tunnels as we proceed to move forward with structural and remediation initiatives appropriate for each tunnel.

We will continue to work with this Subcommittee and Congress to effectively keep the tunnels as safe and functional as possible as we institute a multi-year capital repair and/or replacement program as needed.

Mr. Chairman, this concludes my statement. Once again, thank you for this opportunity to testify. I would be happy to answer any questions you may have.

Senator ALLARD. We will now go to the Government Accountability Office, Mr. Dorn. Make some comments for the record, please.

STATEMENT OF TERRELL DORN, DIRECTOR, PHYSICAL INFRASTRUCTURE, GOVERNMENT ACCOUNTABILITY OFFICE

ACCOMPANIED BY BERNARD L. UNGAR, DIRECTOR, PHYSICAL INFRASTRUCTURE, GOVERNMENT ACCOUNTABILITY OFFICE

Mr. DORN. Thank you, Mr. Chairman. As Mr. Hantman has already said, the AOC continues to believe that CVC is going to be finished in April. And we continue to believe that it's not. While we can't foretell the future on when it's going to be finished, like the scientists that study earthquakes and volcanoes, we can tell you some indicators of when something bad is going to happen.

Some of those indicators are the fact that the CVC construction slipped another 2 days; some would say 7 days, in the past month. And the shell space slipped 15 workdays, which is about 3 weeks. In fact, since the last time that the schedule had a major adjustment, back at the February hearing, it went from December to February 2007 and the CVC construction has lost 10 days since the February hearing.

Sixteen of the twenty-one critical or near critical paths have slipped again; some of those, more than 2 weeks in the past month. As you said, out of the nine milestones that were to be completed and that were selected by the AOC, effectively, only one of those milestones was met. And that one was late.

Billings continue to be insufficient in order to meet the schedule. Design changes and change orders continue to be issued. In fact, since the last hearing, there have been 5 design changes or clarifications that have been issued and 11 more are in the pipeline.

The stonework results were mixed. Manhattan has done a great job of picking up the pace on the wall stone. The floor stone has fallen far behind their schedule. Manhattan does plan on revising its targets to its schedule to try to improve their efforts on floor stone.

Manhattan as subcontractor is also working overtime to try to get out of the great hall earlier with ceiling, drywall, and plastering and that's great that they're cooperative in trying to improve the schedule.

We continue to believe that the utility tunnel, the heating and air-conditioning, and the fire protection are driving completion to

this project. Utility tunnel completion slipped from June 6 to June 29 and it will slip again.

A month has gone by since the last hearing and no significant progress has been made in clearing asbestos out of the tunnel and connecting the pipes. In fact, the shoring, as Mr. Hantman said, is only scheduled to start today. That'll take at least 2 weeks. And then you have to have time for the asbestos to be abated and then the pipes to be connected. So, there's still a lot of time to be lost on utility tunnels.

The problem with that, is the utility tunnel, not only affects dehumidification, which AOC has accurately said can be handled with temporary dehumidifiers, like we talked before in previous hearings. But you need a utility tunnel to get water flow to your air handlers, so you can test your controls out, test your air handlers out, do all this mechanical testing, that we've talked about; this is necessary to get you to the end of the job.

In addition, as far as acceptance testing goes, the CVC team continues to tell us, that they expect it's going to take longer than what is in the schedule. And it's certainly going to start later.

The 2-week loss in the shell space timing in the past month is probably going to have an impact on the fire system testing and that would have an affect on the CVC opening. But what that affect is, is still unclear.

Trade stacking is still a concern. That's part of the reason why floor stone is not getting installed at the pace that it needs to be installed. There's other contractors in the way.

The overtime that Manhattan is doing is certainly helping. The floor stone delays are going to be a problem with ongoing work, such as in the auditorium.

As far as costs go, we continue to believe that they are going to be somewhere between \$556 million and \$584 million. We are concerned because of the number of changes and delays. And we're going to be reassessing, not only the costs, but also the schedule, again, later this summer.

I just want to comment on one other item from Mr. Hantman's testimony. He did clarify that the 2005—excuse me, that in 2000, the citation did not address the asbestos. But in 2000, the Office of Compliance did tell the AOC that they were concerned about asbestos in the tunnels. They didn't put it in a citation, but they did send a memo to the Architect, and the Architect responded—his office responded.

And that concludes my statement, Mr. Chairman and Mr. Ungar and I will be ready to answer any questions that you might have.

[The statement follows:]

PREPARED STATEMENT OF TERRELL DORN

Mr. Chairman and Members of the Subcommittee: We are pleased to be here today to assist the Subcommittee in monitoring progress on the Capitol Visitor Center (CVC) project. Our remarks will focus 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 April 27, 2006, hearing on the project.¹ As part of this discussion, we will address a number of key challenges and risks that continue to face the project, as well as actions AOC has taken or plans to take to ad-

¹ GAO, *Capitol Visitor Center: Update on Status of Project's Schedule and Cost as of April 27, 2006*, GAO-06-665T (Washington, D.C.: Apr. 27, 2006).

dress these risks. In addition, we will discuss the status of the project's costs and funding.

Our remarks 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 the CVC team (AOC and its major CVC contractors), AOC's Chief Fire Marshal, and representatives from the U.S. Capitol Police. We also reviewed AOC's construction management contractor's periodic schedule assessments and daily reports on the progress of interior wall and floor stonework.

In summary:

Since the Subcommittee's April 27 CVC hearing, the CVC team has continued to move the project's construction forward, and AOC is still proposing the same opening dates—April 2007 for the base CVC project and May 2007 for the House and Senate expansion spaces—but we continue to believe, as we said at the March and April hearings, that the proposed opening dates do not allow enough time to complete several critical activities and to address problems, challenges, risks, and uncertainties. Since the April 27 hearing, the installation of critical interior wall and floor stone has continued, together with other interior and exterior construction work, and the sequence 2 contractor has further developed plans to prevent trade stacking² during finish work. Although the sequence 2 contractor exceeded its installation target for interior wall stone during the last 4 weeks, the pace of floor stone installation remained far below the targeted pace; the dates for completing the construction of the overall base project and expansion spaces were extended; and several activities fell behind schedule—not enough to affect the overall completion dates based on the project schedule, but increasing the potential for future delays. In addition, the sequence 2 contractor met only one of the nine milestones being tracked for this hearing, and this contractor's monthly billings continue to indicate that construction work is not likely to be completed on schedule as AOC anticipated. The CVC's fire protection system has not yet been approved; critical building systems still have to be commissioned and tested; and although the project's overall design is essentially complete, certain design or work scope elements are still incomplete or are being clarified or refined. If the CVC team is successful in addressing these issues, we believe that the base CVC project can still possibly be opened to the public with a temporary cap on visitor occupancy in May 2007 and that the expansion spaces can likely be opened for occupancy beginning in mid-August to early September 2007. AOC may be able to reduce some of the time scheduled for the expansion spaces if it implements a phased opening plan and is able to perform acceptance testing of the CVC and the expansion spaces concurrently rather than sequentially—possibilities AOC is continuing to explore. However, the delays that have occurred since the Subcommittee's last CVC hearing compound the concern we previously expressed that AOC will be challenged to meet even the later dates we are projecting because of the problems, challenges, risks, and uncertainties facing the project. Accordingly, as we indicated during the Subcommittee's April 27 CVC hearing, we plan to reassess the project's schedule again this summer.

As we reported at the Subcommittee's March 15 and April 27 CVC hearings, we estimate that the total cost to complete the entire CVC project is about \$556 million without an allowance for risks and uncertainties and \$584 million with such an allowance. To date, about \$530 million has been provided for CVC construction. We continue to estimate that AOC will need about \$25.6 million more in CVC construction funds to complete the entire CVC project. This estimate does not allow for risks and uncertainties and takes into account funding that AOC plans to use from existing appropriations. In addition, as we indicated during the March 15 hearing, AOC preliminarily expects to need about \$950,000 in fiscal year 2007 AOC general administration appropriations that Congress has not yet provided. These funds are needed to pay for contractual support necessary to complete acceptance testing of the facility's fire protection system in time to meet the project's schedule. AOC plans to determine if it can reduce the amount needed for this contractual support; we will keep the Subcommittee apprised of this situation. Furthermore, the CVC is likely to incur additional costs because of recent scope and design changes related to its security and fire protection systems and problems associated with the utility tunnel; however, our \$556 million cost-to-complete estimate may include sufficient

²Trade stacking can occur when workers from different trades, such as stone masons, electricians, plumbers, or plasterers, have to work in the same area at the same time to meet a schedule, sometimes making it difficult to ensure sufficient space and resources for concurrent work.

contingency funds to cover these costs. We plan to reassess our cost-to-complete estimate this summer and will keep the Subcommittee apprised of our results.

AOC Has Moved Construction Forward, but Delays Continue and Risks and Uncertainties Remain

AOC and its contractors have continued to make progress in a number of areas since the Subcommittee's last CVC hearing, particularly in installing wall stone in the auditorium, the orientation and security lobby, and the south atrium. However, some milestones were pushed back in April. For example, according to AOC's April 2006 schedule, the base CVC project will have a temporary certificate of occupancy on February 23, 2007, 2 workdays later than indicated in the March 2006 schedule, and the House and Senate expansion spaces will be substantially complete on January 10, 2007, 15 workdays later than indicated in the March 2006 schedule. In addition, since the Subcommittee's last CVC hearing, AOC revised the schedule logic to remove a link between penthouse mechanical work and work associated with pre-testing the East Front's fire alarm system. AOC removed this link—pending approval by AOC's Chief Fire Marshal—because the penthouse mechanical work is being done as an improvement to the Capitol Building and is not within the scope of the CVC project, although the work does affect the CVC. According to AOC's construction management contractor, if AOC had not removed this link, it would have had to extend the CVC's substantial completion date by 5 workdays because the penthouse mechanical work was delayed during April.³ AOC is still proposing an April 2007 opening date for the base project and a May 2007 occupancy date for the expansion spaces—dates that it believes will accommodate possible delays and allow start-up time for operations. AOC expects all construction work in the CVC, East Front, and expansion spaces to be completed by the April opening date for the base project, but the CVC's occupancy at any one time will be temporarily limited to 3,500, compared with about 4,200, the normal anticipated occupancy level.⁴ The delays that have occurred since the Subcommittee's March 15 CVC hearing, coupled with the challenges, risks, and uncertainties that continue to face the project, have heightened our concerns about AOC's ability to open the CVC to the public in April 2007. Consequently, as we indicated during our April 27 testimony, we plan to reassess the project's schedule again this summer.

Our Analysis Indicates Later Opening Dates Than AOC Is Proposing

We continue to believe, as we testified in April, that the CVC is not likely to be ready for opening with a temporary certificate of occupancy before May 2007, about a month later than AOC is proposing. Our projected opening date is somewhat later than AOC's because (1) delays in completing interior stonework have delayed follow-on work for the base project and East Front, (2) delays have been continuing in other critical work, such as the utility tunnel, the fire protection system, and certain work in the expansion spaces; and (3) CVC team managers and members and AOC's Chief Fire Marshal believe that certain other work, such as finish work and acceptance testing of the CVC's fire protection system, will take more time than is scheduled to complete. Our projection also assumes that AOC will be able to address the challenges it faces and takes into account the time AOC believes is necessary to prepare for operations after construction work is completed. However, the delays in March and April raise concerns about AOC's ability to fully overcome these challenges. Similarly, we continue to believe that the House and Senate expansion spaces are more likely to be ready in mid-August or early September 2007 than in April or May 2007, as AOC is proposing. We consider the later time frames for the expansion spaces more likely for three reasons. First, AOC has scheduled the acceptance testing of the expansion spaces after the acceptance testing of the base project and, according to our analysis, the base project's testing will take longer than scheduled. Second, AOC's Chief Fire Marshal believes the acceptance testing of the expansion spaces will take longer than scheduled. Third, several activities im-

³Although the penthouse mechanical work, which includes the replacement of air handling units on the Capitol roof and related work, has been a separate project, it is related to the CVC because it will serve the East Front space that visitors will travel through to get from the CVC to the Capitol Building. AOC's removal of the linkage will require the Chief Fire Marshal's approval because certain elements of the East Front's fire protection system are not expected to be ready for testing until after the testing of the CVC's fire protection system begins.

⁴This temporary limit will be necessary because the "horizontal exits," or passages, through the expansion spaces, which the life safety code requires for exiting the base CVC project, will not be available until later. These horizontal exits cannot be used until the fire alarm system in the expansion spaces has been fully tested and accepted—work that is not slated to be completed until after the base CVC is scheduled to open. Some additional work will likely be required to provide temporary emergency exit routes from the CVC, but the CVC team does not believe that this work or its costs should be substantial.

portant to the on-time completion of expansion space work slipped in March and April; and at this time, the sequence 2 subcontractor responsible for this work believes that additional slippages in some of these activities are likely or possible. However, AOC has begun to address the problems affecting the progress of the expansion spaces and plans to reassess this situation as the construction work proceeds. The expansion spaces could be ready sooner than late summer 2007 if AOC succeeds in addressing the problems and starts acceptance testing sooner or opens the expansion spaces in phases—possibilities that AOC is continuing to explore.

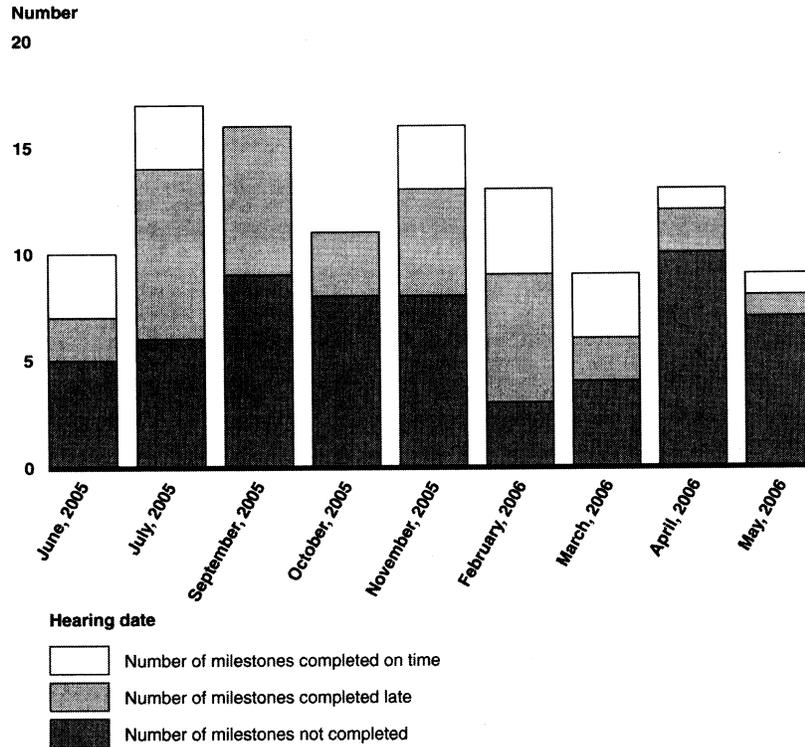
Construction Work Is Progressing

According to AOC's construction management contractor, work on the project has advanced, in terms of both the dollar value of the work in place and individual project elements. In dollar terms, the overall CVC project was about 81 percent complete and the sequence 2 work was about 70 percent complete as of April 30—up from about 79 percent and 67 percent, respectively, as of March 31. Additionally, wall stone installation progressed substantially in the orientation and security lobby and in the south atrium and auditorium and continued in other areas, such as the great hall and the East Front's basement level. AOC's construction management contractor reported additional progress in the CVC's interior, including drywall installation in the great hall, the utility and House connector tunnels, and the House and Senate expansion spaces. AOC's construction management contractor also reported progress in the installation of stone pavers on the plaza over the auditorium. Finally, according to the construction management contractor, the CVC's electrical work continues to be ahead of schedule.

Indicators Raise Questions about Proposed Opening Dates

Despite the progress in these areas, problems and delays occurred in other areas, and several indicators of construction progress that we have been tracking for the Subcommittee continue to indicate that construction work is likely to be completed later than AOC currently anticipates. An update on these indicators follows.

Sequence 2 contractor continues to miss milestones, and completion dates are extended.—Starting with the Subcommittee's June 2005 CVC hearing, at the Subcommittee's request, we and AOC have been selecting and tracking sequence 2 milestones to help the Subcommittee monitor construction progress. These milestones include activities that are either on the project's critical path or that we and AOC believe are critical to the project's timely completion. As figure 1 shows, the sequence 2 contractor has generally missed these milestones. For today's hearing, nine of these milestones were due to be completed, according to the project's January 2006 schedule. One was completed ahead of schedule; one was late; and none of the remaining seven had been completed as of May 22. (See app. I.) AOC's construction management contractor said that the sequence 2 contractor missed the milestones for reasons such as a need to do remedial or preparatory work in the East Front and the upper orientation and security lobby before installing wall stone, utility tunnel delays, and a lack of wall stone due to a change in the type of stone to be used.



Source: Sequence 2 contractor, AOC and its construction management contractor, and GAO.

FIGURE 1.—Sequence 2 Contractor's Progress in Meeting Selected Milestones as of CVC Hearing Dates

According to AOC's construction management contractor, the base project's overall completion date fell another 2 workdays behind in April, from February 21 to February 23, 2007. February 13, 2007, was the completion date set in the project's January 2006 schedule, and that completion date was changed to February 21, 2007, in March. The 2-workday delay in April is the net result of delays in activities on multiple activity paths. In addition, delays occurred on 16 of 21 critical and near-critical paths that AOC's construction management contractor identified as important to meeting the base project's overall completion date.⁵ These delays occurred in, but were not limited to, work on the utility tunnel, the fire protection system, the East Front, the upper level of the orientation and security lobby, the auditorium, the assembly room, and the orientation theaters, and AOC's construction management contractor reported that they ranged from 1 to 33 workdays. According to the CVC team, these project delays occurred for a variety of reasons, such as design changes, problematic sequence 1 work, late submissions of shop drawings,

⁵ Construction projects typically have one critical path, which is the sequence of activities having the longest duration through the schedule. There is no slack time associated with these activities, meaning 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. Some projects have multiple critical paths simultaneously; in March, the CVC essentially had two concurrent critical paths—(1) East Front mechanical and (2) East Front fire acceptance testing. According to AOC's construction management contractor, after AOC removed the link with the penthouse mechanical path, as discussed, the base project had one critical path for April—the utility tunnel and air handling units being mechanically ready—and 20 near-critical activity paths, which have little slack time. Generally, the more critical and near-critical activities a project has, the greater is the risk of late completion because there are more opportunities for slight delays that can adversely affect the project's completion.

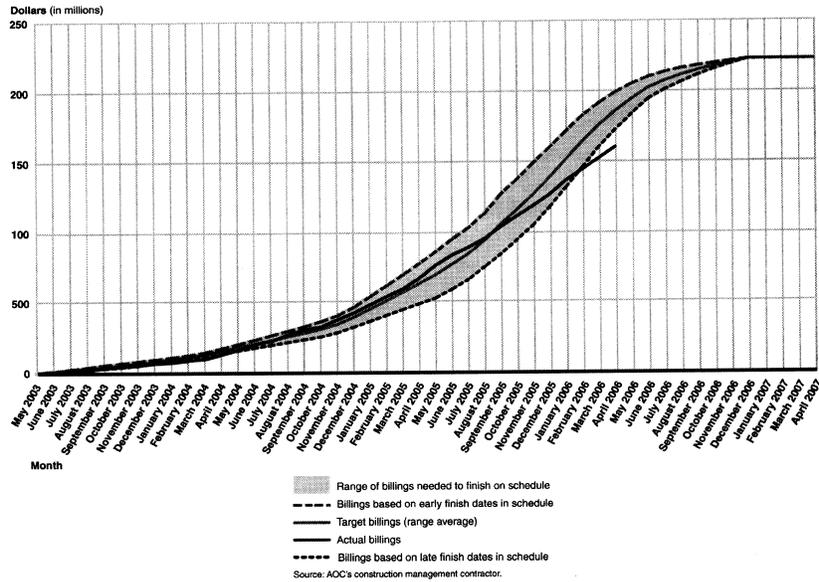
changes in the sequence of work activities by the sequence 2 contractor, and inaccessible work areas. Even more important than the individual delays themselves, however, is their likely impact on the CVC team's ability to complete construction work on schedule. So many activities have now fallen behind schedule that even relatively short additional delays could push back the CVC's overall completion date. According to the construction management contractor, there are eight critical and near-critical activity paths in the project's April schedule that have so little slack time that an additional delay of 1 to 30 workdays could delay the base project's overall completion date. There were nine such paths in the project's March schedule, according to AOC's construction management contractor.

Work on the House and Senate expansion spaces fell 15 workdays behind schedule in March, AOC's construction management contractor reported.⁶ Additionally, and of even greater concern to us, are delays in a number of near-critical paths, particularly those paths that will affect the CVC's opening date. Some of the near-critical paths slipped as much as 23 workdays in April, according to the construction management contractor. Among the activities that were delayed in April were the installation of ceiling tile and the commissioning of certain air-handling units needed for the CVC's opening; electrical and audio-visual related work in the Senate lower level; plumbing work in space intended for use by the U.S. Capitol Police; and drywall installation in the House lower and service levels. According to the CVC team, these activities fell behind schedule because of delays in getting design decisions (which were provided at the end of April), problems with site conditions due to sequence 1 or 2 work, and the need to shift crews to do other work.

In early April 2006, we told AOC we were concerned about the increasing number of delays in expansion space activities and the potential impact of these delays on the completion of the expansion space work. As further cause for concern, we noted that the sequence 2 subcontractor doing the expansion space work was expecting additional delays in some of these activities and that, in our view, additional design or scope changes were possible. Although AOC is not planning to open the expansion spaces until May 2007, timely completion of the expansion space work is important because certain expansion space work must be completed before the CVC can be opened to the public. AOC agreed that continued delays in the expansion space work are of concern and recognized that risks and uncertainties associated with the work could cause the work to fall farther behind. AOC has begun to work with the rest of the CVC team to identify and address problems that have arisen and risks that threaten the work's on-time completion.

Value of completed work indicates completion later than scheduled.—Another indicator of construction progress that we and AOC's construction management contractor have been tracking is the value of the completed construction work billed to the government each month. Both we and the construction management contractor believe that the sequence 2 contractor's monthly billings, including the bills for March and April 2006, indicate that AOC is not likely to meet its currently scheduled completion date. While this indicator has some limitations (for example, billings lag behind construction and the contract's total value does not include the value of modifications that are beyond modification number 85), it is generally regarded in the construction industry as a useful measure of how likely a project is to be completed on time. Figure 2 compares the sequence 2 contractor's billings since May 2003 with the project's scheduled completion date and indicates that the sequence 2 contractor is not likely to finish construction work by December 2006, as AOC expects, unless the value of completed work increases significantly. We believe that a significant increase will be difficult, given the limited number of areas that will be ready for finish work at any given time.

⁶According to the project's March and April schedules, the date for completing the House and Senate expansion spaces was extended from May 2, 2007, in March to May 25, 2007, in April. The contract completion date for this work is March 12, 2007.



Notes:

1. The early and late lines on this figure reflect the cumulative billings that would be required to complete the project through contract modification 85 (\$222.8 million total contact value) by the early and late finish dates shown in the sequence 2 contractor's schedule.
2. The actual line reflects the sequence 2 contractor's actual monthly billings.
3. Although bills are typically submitted for payment after work is completed, it is often likely that construction work will be completed on schedule when the actual billing line falls between the early and late lines in the figure. With respect to the CVC, the actual billing line has been trending below, and in March 2006 went below, the late finish line, where it remained in April 2006. Even with the lag in billings, this trend indicates that the amount of work being completed each month is not sufficient to finish the project on schedule.

FIGURE 2.—Total Billings by the Sequence 2 Contractor for the Entire CVC Project Compared with the Billings Needed to Finish Construction Work on Schedule

Interior stone installation is progressing, but taking longer than expected.—Overall, about 72 percent of the CVC's interior wall stone has been installed, according to AOC's construction management contractor, and the sequence 2 contractor installed 4,082 pieces of interior wall stone during the last 4 weeks, exceeding its 3,817-piece production target. In contrast, during the same period, the sequence 2 contractor installed about 1,885 square feet of floor stone, or about 24 percent of the 7,870 square feet specified in a preliminary floor stone installation plan that the contractor provided to AOC shortly after the February 15 CVC hearing. In addition, 5 of the 9 schedule milestones that AOC and we have been tracking for the Subcommittee for today's hearing are related to interior wall stone installation, and the sequence 2 contractor did not meet any of these 5 milestones. According to the CVC team, the sequence 2 contractor has missed its stone installation targets for a variety of reasons, including the need to correct problematic sequence 1 work or properly prepare certain spaces for the installation of wall or floor stone, a change in wall stone design, late delivery of floor stone for the exhibit gallery, or delays in some spaces in finishing certain work, such as ceiling work, that usually precedes floor stone installation. As we have discussed in the Subcommittee's previous CVC hearings, delays in wall stone installation can lead to additional delays in completing follow-on work, such as floor stone installation and finish work. Although the CVC team has identified unforeseen conditions and problematic sequence 1 work as risks that could affect the pace of wall stone installation, the team's efforts to address the risks have not fully prevented these types of problems from recurring

or adversely affecting the project's schedule. Figures 3 and 4 show the sequence 2 contractor's progress in installing interior wall and floor stone since January 23 and February 13, 2006, respectively. Although the sequence 2 contractor has exceeded its aggregate numerical target for wall stone installation since the last CVC hearing, it did not meet the milestones for wall stone installation that we are tracking for the Subcommittee because it had its masons doing noncritical wall stone installation in other areas. The masons were doing this noncritical work while remedial or preparatory work was being performed in the East Front and atrium areas so that wall stone installation could start or continue in those areas, according to AOC's construction management contractor. In addition, wall stone for the remaining work in the upper level orientation lobby was not yet on site because of a change in the type of stone to be used.

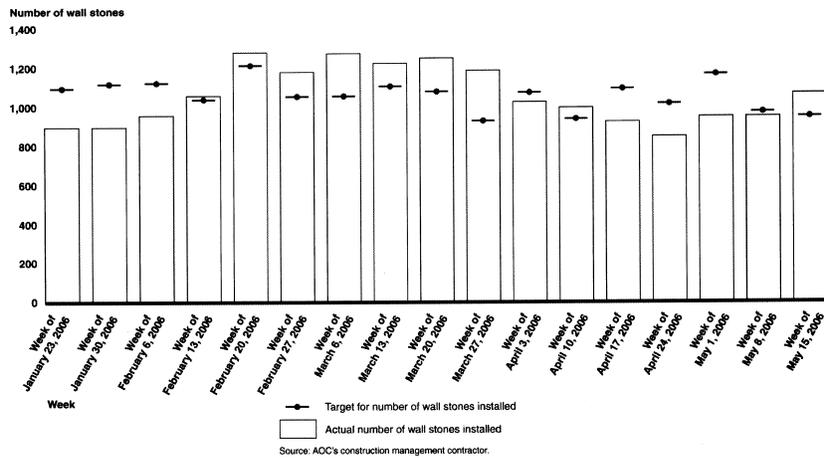


FIGURE 3.—Progress of CVC Interior Wall Stone Installation Compared with Targets Set by the Sequence 2 Contractor

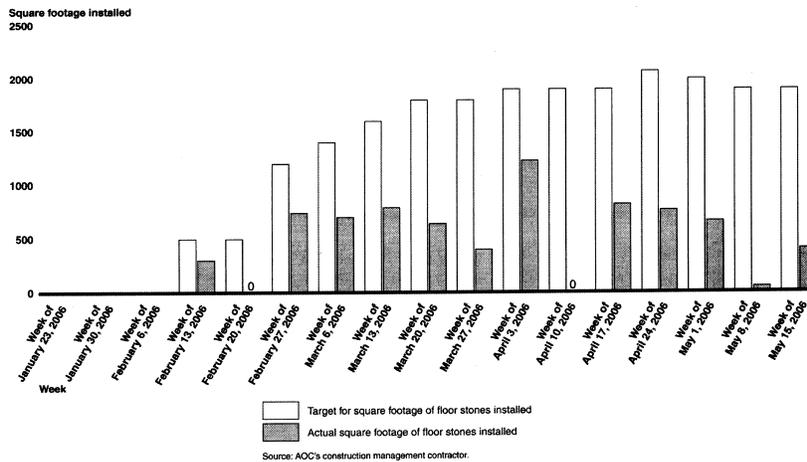


FIGURE 4.—Progress of CVC Interior Floor Stone Installation Compared with Preliminary Targets Set by the Sequence 2 Contractor

The sequence 2 contractor missed its target for floor stone installation in the exhibit gallery because it ran out of floor stone for that area from May 9 to May 16, just as it did during the week of April 10. According to the sequence 2 contractor,

the supplier of floor stone for the exhibit gallery is a small company that has not been able to fabricate the floor stone as quickly as needed. The sequence 2 contractor received an additional shipment on May 16 and was expecting another truckload of exhibit gallery floor stone this week. The final shipment is expected around June 12. The sequence 2 contractor did not expect this delay to adversely affect the overall completion of the exhibit gallery.

To finish installing floor stone in other areas of the CVC, the sequence 2 contractor said that it (1) plans to move many of the masons installing wall stone to floor stone installation soon and (2) is preparing a new set of targets for floor stone installation. We plan to review the contractor's revised targets when they are completed and will track the contractor's performance against its revised targets for the Subcommittee's subsequent CVC hearings. Finally, AOC's construction management contractor reports that over 60 percent of the CVC's interior floor stone has been fabricated, and the sequence 2 contractor does not anticipate future problems with floor stone supply.

Project's Schedule Remains Vulnerable to Problems, Challenges, Risks, and Uncertainties, despite Actions AOC Has Taken and Plans to Take

As we have indicated since the Subcommittee's February 15 CVC hearing, we continue to believe that AOC will be challenged to meet even the later opening dates we have identified, given the problems, challenges, risks, and uncertainties facing the project. A brief update on these and AOC's plans for addressing them follows:

—*Trade stacking could delay completion.*—As we discussed during the Subcommittee's previous CVC hearings, trade stacking could hold up finish work, such as drywall or ceiling installation, electrical and plumbing work, plastering, or floor stone installation. This work could be stacked because of delays in wall stone installation. According to AOC's construction management contractor, the pace of wall stone installation has not been sufficient to eliminate the risk of trade stacking and delays in finish work. Such a situation could also increase the risk of accidents and injuries. Hence, it remains important, as we said at previous CVC hearings, for the CVC team to closely monitor construction to identify potential trade stacking and promptly take steps to address it. The CVC team has also identified trade stacking as a high risk, and in its April progress report, AOC's construction management contractor expressed concern about having enough workers to do ceiling work because much of the wall stone work is to be finished at the same time, making several areas available for ceiling work at the same time. The sequence 2 contractor has developed plans that show when various subcontractors will be working in each area of the CVC except the East Front, which the sequence 2 contractor does not expect to be ready for finish work for several weeks. The sequence 2 contractor has also had its drywall and plaster subcontractor working overtime in the great hall to expedite the work so the scaffolding can be removed and the floor stone installation can begin. According to the sequence 2 contractor, it intends to continue meeting regularly with its subcontractors to review and update the area plans and to have the area plan for the East Front done before finish work begins there. The sequence 2 contractor pointed out that these plans add more detail to the project's schedule and will serve as a tool for addressing the trade-stacking issue. Although we and AOC agree that these area-by-area plans are important and should be helpful, we are still concerned about the potential for trade stacking because of the delays that have already occurred and future delays that could occur in such work as testing, balancing, and commissioning the CVC's air handling units or making changes to the CVC's fire protection system resulting from the Chief Fire Marshal's review of the shop drawings for the system.

—*Complex building systems remain a significant risk.*—The CVC will house complex building systems, including systems for heating, air conditioning, and ventilation; fire protection; and security. These systems not only have to perform well individually, but their operation also has to be integrated. If the CVC team encounters any significant problems with their functioning, either individually or together, during commissioning or acceptance testing, the project could be seriously delayed. During the Subcommittee's March 15 CVC hearing, we noted that the sequence 2 contractor planned to submit the shop drawings for the CVC's fire protection system for review by March 17. However, the contractor did not submit the drawings for the base project until the end of April, in part because more time was needed to incorporate changes, AOC's construction management contractor said. The drawings were given to AOC's Chief Fire Marshal on May 1. Delays could arise if the proposed system does not meet the project's

design specifications or the fire protection code's requirements.⁷ AOC's Chief Fire Marshal plans to complete his review of the drawings by June 1. In addition, the Chief Fire Marshal notes that delays could occur if the CVC team does not adequately pretest the system and correct any problems found during the pretesting. On March 23, AOC's commissioning contractor submitted its plan for testing the performance of the CVC's smoke control system, which is a critical component of the CVC's fire protection system and must work properly before the CVC can be opened to the public. This plan has not yet been approved. In addition, as we have previously noted, the Chief Fire Marshal's timely completion of the fire protection system's acceptance testing depends on his ability to obtain sufficient funding for a contractor to help perform the tests. Furthermore, the CVC team recently resolved outstanding issues with the U.S. Capitol Police on the numbers, types, and locations of security equipment to be installed and on the design of the CVC's fire alarm system. According to AOC's construction management contractor, certain changes to the scope of the security work and to the fire alarm system's design resulting from the resolution are likely to set the schedule back to some extent.

—*Building design and work scope continue to evolve.*—The CVC has undergone a number of design and work scope changes. Since the Subcommittee's April 27 CVC hearing, AOC's architectural contractor has issued five design changes or clarifications. As of May 19, 2006, this contractor reported, another 11 were in process and requests for 3 more were awaiting AOC's approval to proceed. In addition, since the project began, AOC has executed more than 80 sequence 2 contract modifications for work that was not anticipated.⁸ Some of these changes, such as changes in the exhibit gallery and in the East Front, have resulted in delays. In addition, shop drawings for a number of project elements, such as the facility's fire protection system, millwork in the food service area, and certain portions of the exhibit gallery, have not yet been fully approved and are subject to change, and additional design or scope changes are likely given the project's experience to date. Project design and scope changes are typically reflected in the development of potential change orders (PCO), many of which result in contract modifications. Figure 5 shows the PCOs submitted for consideration for sequences 1 and 2 since September 2003. Although PCOs are not always approved, they are often regarded as a reasonably good indicator of likely future design or scope changes that can affect a project's cost and schedule. Even more important, the adverse impact of scope and design changes on a project's schedule is likely to increase as the project moves toward completion. For example, certain changes to the fire protection system currently being discussed are likely, if made, to adversely affect the project's schedule, according to AOC.

⁷ According to the sequence 2 subcontractor that is fitting out the House and Senate expansion spaces, the delays in getting approved shop drawings for the fire protection system have already postponed ceiling close ins in the expansion spaces, and AOC believes that such further delays, along with possible requests for design changes, pose the greatest risks to the completion schedule for the expansion spaces.

⁸ These data exclude sequence 2 contract modifications for work that was planned but not included in the sequence 2 base contract. Examples include the fit-out of the House and Senate expansion spaces, the construction of the utility tunnel, and the purchase and installation of food service equipment.

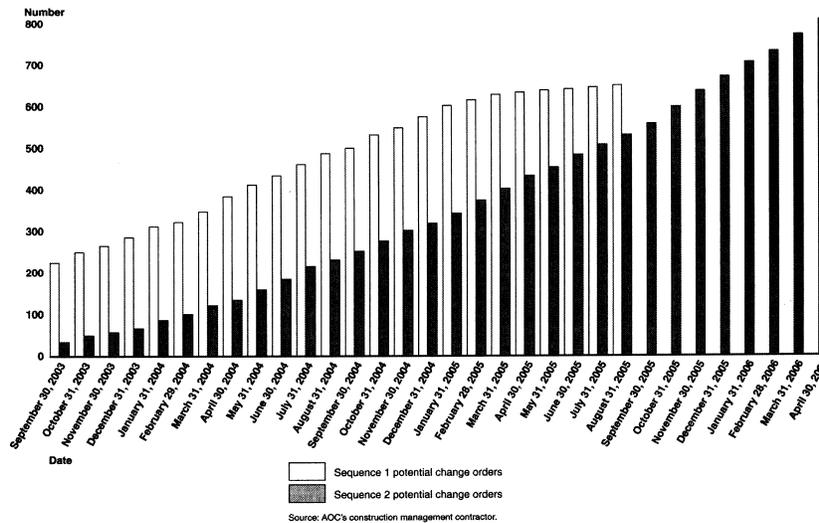


FIGURE 5.—Cumulative Number of Potential Change Orders Submitted for CVC Sequences 1 and 2 between September 2003 and April 2006

As the figure indicates, new PCOs for sequence 1 were submitted until shortly before, and even for several months after, November 2004, when AOC determined that the sequence 1 contract work was substantially complete. Similarly, PCOs for sequence 2 are still being submitted, and we have seen no indication that their submission is likely to stop soon. It therefore appears likely to us that some of the design or scope changes indicated in PCOs could lead to contract modifications that will affect the project's schedule. AOC agrees that it is important to minimize the impact of proposed design and scope changes.

Two new issues associated with the CVC's new utility tunnel are likely to result in additional work. First, AOC has requested design work to begin extending the CVC's sprinkler system into the new utility tunnel to enhance worker safety. Although the design work for this change has not yet been completed, AOC does not believe the extension will delay the project. Second, AOC recently identified a complication that is affecting work on the new CVC utility tunnel. Specifically, AOC found that potential asbestos and other safety-related problems in an older tunnel that intersects the new utility tunnel will have to be addressed before other work needed for the utility tunnel's operation can proceed in the older tunnel. This additional safety-related work is contributing to the slippage in the utility tunnel's completion discussed earlier in our testimony.

—Opening the CVC and expansion spaces at different times is likely to result in a temporary cap on CVC occupancy and increase costs.—As we reported during previous Subcommittee CVC hearings, AOC's current plan to open the CVC in April 2007 before the expansion spaces are scheduled for completion is likely to result in a temporary cap on CVC visitor occupancy and a need to construct temporary emergency exits for fire and life safety protection.⁹ AOC is proposing this sequential approach because it believes that conducting acceptance testing for the fire protection system for the CVC and the expansion spaces concurrently would delay opening the CVC to the public. AOC's proposed April 2007 opening date for the CVC depends on the timely completion of work not only on the base project but also on the expansion spaces, since certain expansion space work must be completed before the CVC's opening. Inasmuch as work on both the base project and the expansion spaces was delayed in March and April,

⁹According to AOC, the CVC's occupancy at any one time would be temporarily limited to 3,500, compared with about 4,200, the normal anticipated occupancy level, until acceptance testing of the fire protection system for the expansion spaces has been completed. Although AOC anticipates the need for some temporary work, it does not believe that the associated costs will be substantial.

we believe that it will be especially important to monitor the progress of construction to determine what additional work (and funding) may be needed to meet AOC's planned date for opening the CVC, including what temporary work may be required in the expansion spaces for the CVC to open before the expansion space work is complete. AOC's construction management contractor is monitoring this situation and said in its April 2006 schedule report that concurrent acceptance testing of the CVC's and the expansion spaces' fire protection systems may be difficult because of the 15-workday delay in the expansion space schedule that occurred in April.

—*Risks from insufficient stone deliveries remain, but may be diminishing.*—According to AOC's construction management contractor, the sequence 2 contractor has, since the week of April 24, received 2 of the 10 truckloads of interior wall stone it was expecting from the wall stone fabricator. The sequence 2 contractor said that the lack of wall stone deliveries has not adversely affected wall stone installation recently. AOC's construction management contractor reported that as of last week, almost all—over 99 percent—of the wall stone needed for the core CVC itself was on site (either installed or awaiting installation); nearly 80 percent of the wall stone needed for the atriums and about 35 percent of the wall stone needed for the East Front were on site; and none of the wall stone for the House connector, Library of Congress, and Cannon tunnels had been delivered. The sequence 2 contractor said that truck scheduling issues, not fabrication delays, had caused the lapse in wall stone deliveries over the last 4 weeks and that the delays in installing East Front wall stone have been related more to site conditions than to stone supply. Furthermore, the sequence 2 contractor said that given the East Front wall stone supply on site, the shipments expected, and the pace of installation, it does not foresee any further delays in the CVC work due to a lack of wall stone. The sequence 2 contractor received two wall stone truckloads on May 22 and expects to receive all of the remaining wall stone needed for the base project by June 30, 2006. According to AOC and its construction management contractor, although the supply of interior wall stone was insufficient in late 2005 and early 2006, it is adequate for the CVC at this time, given the amount of space available for wall stone installation and the quantity of stone on hand—about 4,500 pieces as of May 19—and expected. Also, although none of the wall stone for the House and Senate expansion spaces was on site yet, the subcontractor responsible for this work is not anticipating delivery problems at this time. On the other hand, AOC's construction management contractor reported that no floor stone was installed in the exhibit gallery during the week of April 10 or between May 9 and May 17 because the installers ran out of floor stone for that area. As indicated earlier in our testimony, the sequence 2 contractor received a shipment of floor stone for the exhibit gallery on May 16 and expects another shipment this week and the final shipment by mid-June.

Finally, as we have said in previous discussions with AOC, its construction management contractor, and the Subcommittee, it will be important for AOC to have adequate analysis and documentation of the reasons and responsibilities for delays.¹⁰ On April 11, 2006, AOC executed a contract modification authorizing its construction management contractor to have one of its managers who has not been involved in the CVC project assess the adequacy of this type of information. The manager expects to complete his work by the end of this week.

Estimated Project Cost and Funding

As we testified during the Subcommittee's last three CVC hearings, we estimate that the total cost to complete the entire CVC project will be about \$556 million without an allowance for risks and uncertainties and could be as much as about \$584 million with such an allowance. To date, about \$530 million has been provided for CVC construction. This amount includes about \$3.6 million that was made available for either CVC construction or operations and has been approved for CVC construction by the House and Senate Committees on Appropriations.¹¹ To obtain the

¹⁰ See for example: GAO, *Capitol Visitor Center: Effective Schedule Management and Updated Cost Information Are Important*, GAO-05-811T (Washington, D.C.: June 14, 2005).

¹¹ Public Law 108-447, enacted on December 8, 2004, provided that up to \$10.6 million could be transferred from AOC's Capitol Building appropriation account for the use of the CVC project. The use of the amount transferred is subject to the approval of the House and Senate Committees on Appropriations. In June 2005, AOC received approval to use about \$2.8 million (including about \$1.6 million for CVC construction) of this \$10.6 million, leaving a balance of about \$7.7 million that could be used in the future after a rescission amounting to \$84,800. AOC recently received approval to use about an additional \$2 million of these funds for CVC construction, including, for example, the fabrication and installation of wayfinding signage and the fit-

additional funding that it expected to need to complete the project's construction, AOC, in December 2005, requested \$20.6 million as part of its budget request for fiscal year 2007. This request was based, in part, on discussions with us and took into account our November 16, 2005, estimate of the cost to complete the project's construction without an allowance for risks and uncertainties and funding from existing appropriations. Our subsequent work—completed in preparation for the Subcommittee's February 15 and March 15 CVC hearings—indicated that AOC would need about \$5 million more, or about \$25.6 million in additional CVC construction funds, to complete construction without an allowance for risks and uncertainties. AOC plans to request the additional \$5 million as a supplement to its fiscal year 2007 budget for CVC construction. This would bring its total request for fiscal year 2007 CVC construction funds to \$25.6 million. In addition, AOC has indicated that it plans to use about \$950,000 of the fiscal year 2007 general administration appropriations it has requested for contractual support for its Fire Marshal Division.

As we stated in our March 15 and April 27 testimonies, AOC believes that it may be able to reduce the amount of funds it will need in fiscal year 2007 for contractual support in testing the CVC's fire protection system and plans to explore ways to do so. AOC's Chief Fire Marshal received the shop drawings for the CVC's fire protection system on May 1 and believes that his office will complete its review by June 1. His office then plans to determine how much contractual support it will need to test the system and to explore cost savings possibilities. We plan to monitor these costs and report on them to the Subcommittee as soon as AOC has a firmer estimate. In addition, AOC is likely to incur additional costs from recent scope and design changes related to the CVC's security and fire protection systems and from problems associated with the utility tunnel. Sufficient contingency funding may be available for these items within our \$556 million estimate of the cost to complete the project. We plan to reassess our cost-to-complete estimate this summer and will keep the Subcommittee apprised of our results.

Mr. Chairman, this completes our prepared statement. We would be pleased to answer any questions that you or Members of the Subcommittee may have.

APPENDIX I.—CAPITOL VISITOR CENTER CRITICAL CONSTRUCTION MILESTONES—APRIL 28, 2006-MAY 24, 2006

Activity	Location	Scheduled completion	Actual completion
Plaster Ceiling	East Front Basement	5/01/06	.....
Wall Stone Area 3	East Front Ground	5/01/06	.....
Wall Stone Area 1	Atrium South Lower Level	5/01/06	.....
Controls Pt. to Pt. Check	AHU-01	5/05/06	.....
OH Fire Protection Rough In and Hydrostatic Test	Exhibit Gallery	5/09/06	¹ 3/21/06
Wall Stone Area 5	Orientation Lobby Upper Level	5/12/06	5/22/06
Wall Stone Area 2	Atrium South Lower Level	5/15/06	.....
Plaster Ceiling	West Lobby Assembly	5/22/06	.....
Wall Stone Area 1	East Front Principal	5/22/06	.....

¹ While noting that the sequence 2 contractor had completed this work ahead of schedule, AOC's construction management contractor said that the sequence 2 contractor would have to perform the hydrostatic test again because of an oversight by the exhibit contractor that resulted in its design being too tall and interfering with the fire protection system.

Source: AOC's January 2006 CVC sequence 2 construction schedule for the scheduled completion dates and AOC and its construction management contractor for the actual completion dates as of May 22, 2006.

UTILITY TUNNEL WORK

Senator ALLARD. I want to thank you both and thank you Mr. Dorn for your testimony.

Mr. Hantman, do you agree with what Mr. Dorn said, as far as the "R" tunnel? According to his testimony, you're not going to meet the June 1 deadline. He talked about the air handling system. Do you agree with his comments or do you have a different perspective?

Mr. HANTMAN. In meetings that we had with the folks who are actually going to be doing the work, we believe that the 1 to 2 week

out of the gift shops, and about \$2.3 million for CVC operations. Thus, about \$3.4 million of the \$10.6 million remains available for approval for use for CVC construction or operations.

timeframe for doing the shoring work is pretty much achievable. Bob can speak specifically to the people he has online and ready to come in and do the rest of the work, once that work is in place.

Senator ALLARD. Bob.

Mr. HIXON. Mr. Chairman, our plan was to have ACECO, who is our asbestos containment contractor, come in as soon as the shoring is completed in the area where we need to work; create a containment, clean that area, encapsulate anything that might need to be encapsulated. And the expectation was that was going to take approximately 1 week. The contractor has 2 weeks worth of work to complete in order to insulate the lines, so that we can open the system and have the chilled water and steam come through.

Currently with this activity, we also need to be flushing the system. This is something the contractor is doing as a part of his contract. There were a lot of questions concerning how to do that properly and the impact on the plant if it wasn't done with the right chemicals and things of that nature.

We've now arranged with G.E. Betz, who is doing the work for the plant, to come in and do that work concurrently. So right now, we have two exercises going on. We have G.E. Betz preparing to come in and do the chemical treatment and flushing of the lines that needs to be done. And we also have people prepared to come in and complete the work in the tunnel as soon as this work is available to us.

So, yes, it will have an impact on the mechanical systems, as to when we can actually start running chilled water and steam through them. We're not certain yet if that would have any impact on the end schedule.

Senator ALLARD. Have you had a structural engineer look at what needs to be done on the tunnel?

Mr. HANTMAN. Yes, we have. The Entech Group, who was our consultant on this, are the folks who identified the delamination.

Senator ALLARD. And they had a structural engineer give them an evaluation?

Mr. HANTMAN. Yes.

CAPITOL VISITOR CENTER TUNNEL EGRESS

Senator ALLARD. Okay. Thank you. In last month's hearing, we discussed the issue of lack of egress from the CVC tunnel. Has this issue been resolved with the Office of Compliance and do you have an estimate of the additional time and cost that might be required?

Mr. HANTMAN. As I indicated in my testimony, the Office of Compliance is continuing to review the information that they have. We met with them recently and reviewed all the information and what the tunnel was all about. And get the firsthand view of what was in place.

They're going to be taking a look at existing standards, existing codes. The Hughes Organization, who is our life-safety expert for our construction designers, has indicated that no codes basically dictate travel lengths. So, they are looking at this and they expect to come back with a perspective on that, prior to the next hearing, Mr. Chairman.

Senator ALLARD. Mr. Ungar.

Mr. UNGAR. Yes, Mr. Chairman. There seems to be some differing opinions here, with respect to the utility tunnel. First, we did tour the utility tunnel with the fire marshal a couple of weeks ago and he clearly indicated that as a very minimum, he would require a sprinkler be installed in a portion of the utility tunnel that's under the auditorium, because that's a fairly wide area. He's concerned about future storage there of combustible materials. So for that portion, he said, that he would require it to be sprinkled.

Now, the rest of the utility tunnel, which goes under the street, is a question and again, there seems to be differing opinions on whether or not there is a particular section of the life safety code that applies to that. The fire marshal believes that there is, as Mr. Hantman indicated; the Architect's contractor believes that there isn't; and the Office of Compliance is researching this right now. So, it's a little bit unclear, exactly what the story is with respect to the egress requirements in the utility tunnel, at this point.

Senator ALLARD. It seems to me like we can get this resolved. Do you think you can get this resolved by our next meeting?

Mr. HANTMAN. Yes, Mr. Chairman.

Senator ALLARD. I've been told, the General Counsel from Office of Compliance is here?

Mr. EVELETH. Yes, Mr. Chairman.

Senator ALLARD. Can you assure us, that you'll get this issue resolved by the time we have our next meeting?

STATEMENT OF PETER EVELETH, GENERAL COUNCIL, OFFICE OF COMPLIANCE

Mr. EVELETH. My name is Peter Eveleth and I'm the General Council of the Office of Compliance.

In answer to your question, yes, I'm confident that we can come back, certainly by the time of the next hearing, with a more definitive answer. Let me explain what, in part, the issue is here. The life safety code is—there is no definitive standard by OSHA regulations, other than a general statement that has to do with assuring that the ability of people to exit these tunnels in a safe manner. Is that correct?

They do make reference to the life safety code. There is some question of the applicability of the life safety code to this situation. In the absence of any specific code, what OSHA contemplates is that you begin to look at what general—are there consensus standards? What is general industry practice? And what we're attempting to do is to find out what the general industry practice is there, because of this fuzziness in that issue.

But, the other point I wanted to make is, I believe that we're assured by the Architect of the Capitol, and correct me if I'm wrong, that however this matter is resolved, whether there needs to be an additional egress point installed in the CVC tunnel or not, that should not delay, in any manner, the opening of the CVC.

Senator ALLARD. Okay. Well, I hope that the lawyers can quit arguing and come up with a conclusion so that we can move forward with this. Mr. Dorn.

Mr. DORN. Yes, Mr. Chairman. I just wanted to point out, you know really it backs up what the Office of Compliance is saying, is there are industry standards. AOC has been applying their own

standard for years now. They have installed a number of egress points along the tunnels, without relying on what the national building code or the fire protection code might say.

When we looked at this issue, we're looking—are they at least providing the same protection in the new tunnels, as they're providing in the old tunnels? So, absent anything else, being consistent with what they've already determined to be adequate in the old tunnels, would seem reasonable.

Senator ALLARD. Well in view of the fact that we want to make sure that we have a safe environment for our workers, the only way I see we reach that, is to follow the industry standard.

Mr. DORN. Right.

Senator ALLARD. So, I would hope that we can sit down and decide what the industry standard is. We want the workers to be in a safe place.

Mr. DORN. Yes. And on the issue of being able to open or affecting the completion date, it doesn't have to—if you do end up installing an egress point somewhere along that tunnel, it doesn't have to affect the completion date.

Senator ALLARD. Okay.

Mr. DORN. But, it could cause a problem, because the pipes happen to be on the same wall that you would want to knock out in order to put your new egress point in.

Senator ALLARD. I see.

Mr. DORN. If it popped straight up, you end up in the middle of the street, which would not be a good idea.

So, you need to come out of the side of the tunnel and your pipes are in the way.

Senator ALLARD. Okay. Well, try and get that resolved by our next meeting and then you can give us a full report. Do we have a commitment from everybody to get that done?

Mr. HANTMAN. Yes, sir.

FIRE ALARM SYSTEM

Senator ALLARD. Thank you. I understand now, that agreement has been reached between the Capitol Police Board and the fire marshal, regarding the fire alarm system. While I don't think we need to discuss the particulars owing to security considerations, can you tell us whether the Office of Compliance is in agreement with the plan, Mr. Hantman?

Mr. HANTMAN. Well, Mr. Eveleth can certainly give his own perspective on that, but we met in fact, with the Office of Compliance yesterday, with the Capitol Police Board, with the police, with the fire marshal, with GAO in attendance. I believe that Bernie summarized it pretty well at the end of the meeting, that all of us are in agreement that we have a solution that makes sense from both the security and a life-safety perspective.

Senator ALLARD. You're comfortable with that, Mr. Eveleth?

Mr. EVELETH. I would say so, yes, Mr. Chairman. I mean, obviously, one of the things that I can say without being concerned about revealing some security information, is that this is a continual process. That is, it will be whatever is put in place, will be monitored and we will continue to monitor it, to be sure that it's

working properly and consistent with the objectives of the code. I think that's essential that that be done, as well.

Senator ALLARD. Thank you.

Mr. EVELETH. But conceptually, we certainly agree with the plan.

Senator ALLARD. Thank you. The fire system shop drawings were submitted to the fire marshal on May 1. When do you expect the fire protection system to be approved finally?

Mr. HIXON. Our understanding is that the drawings will be approved on schedule, on June 1. They're continuing the review and at this point, the feedback we've been getting is the documents are well prepared and they haven't found anything of significant issue, yet.

Senator ALLARD. Very good. Now—

Mr. HIXON. Just a clarification on that, Mr. Chairman?

There are two issues relative to the fire and life safety system. One is the hardware. The other is the programming. The agreement that we've reached and everybody thinks makes sense will require some reprogramming of—or a different approach to programming, which can be accomplished fairly easily. The hardware and everything that's being installed right now should not be impacted by this.

Senator ALLARD. Thanks for that clarification. Mr. Dorn, in your testimony you noted that the Architect of the Capitol is likely to incur additional costs for changes to the CVC's security and fire protection systems. Do you believe that AOC will need more funding than you already suggested for this additional work?

Mr. DORN. Mr. Chairman, the Architect has rightfully built in some contingency into the amount of money that he has now and at this point, we think that they can handle it within the \$556 million number that we've already talked about.

Senator ALLARD. You're comfortable with that, Mr. Hantman?

Mr. HANTMAN. Yes, Mr. Chairman.

MILESTONES

Senator ALLARD. I understand that only one of the nine milestones for the last month has been met. Why are so few milestones being met? There has been a great deal of slippage in the expansion spaces the last month, falling some 15 days behind schedule and I'd like to have an explanation on that, too.

Mr. HIXON. Mr. Chairman, I think we need a little better perspective of how we're doing. We have certainly had some slippage in the east front. That issue has come up already. There have been a total of 47 milestones that we have been evaluating since the first of the year. Of that 47, 32 have been completed, 7 are currently underway and should be done in the next few weeks. We have five that are not started, most of them related to the east front, with the wood installation in the orientation theater. We've had two that have gotten revised logic, where we decided not to install the bronze doors when scheduled, in order to avoid damage to the bronze doors or some auditory and drywall. Which leaves the east front air handling unit, which is another problem area.

So, yes, if you're 3 weeks behind in January to February and you never make that up, we will always be chasing trying to recover those milestones, because we're measuring against the January

milestones. We have not adjusted the baseline each month to reflect the new schedule. We're still measuring against January. So, until they get back to the January schedule, they'll always be chasing this.

We do have some activities that are occurring early: the stone installation in the atria areas, and we previously talked about the stone installation in the security lobbies. So, there are some items that have come in a little bit early.

The exhibit gallery floor stone is several weeks late and is being completed. That is not tying up the rest of the floor stone installation, because we need the scaffolding out of the way and we need the ceiling work done. The stone for the balance of the floors is not the same stone as in the exhibit hall, and we have stated in the testimony that we've got 60 percent of that stone available to us. So the expectation we have is, yes, we're behind. We're not getting much further behind and we're working very hard to try and recover that time.

Senator ALLARD. Do you still think in March, you'll be ready to begin to train staff in the visitor center and then in April, have it in operation?

Mr. HIXON. Yes, sir. We do. Right now, when we did that schedule, we added 30 days to the expectation and we have been eating into that 30 days, but we have not run over that, yet. It's these areas that are being brought up by GAO in their testimony as areas of concern. We're all sharing that data, so we share those concerns and keep focusing on those areas.

Senator ALLARD. Now, I'm assuming that's April 1, because I think what we talked about was 1 month of training. And then, people would come in.

Mr. HIXON. The plan was, we would have, by the middle of March, we would be finished with our work and the operations personnel would need 3 weeks of testing after we had a certificate of occupancy. So, we would be completing that on April 1. It wouldn't be April 1; it would be the first week of April.

GOVERNMENT ACCOUNTABILITY OFFICE SCHEDULE REASSESSMENT

Senator ALLARD. Mr. Ungar, your testimony indicated GAO will reassess the schedule this summer. Do you expect GAO can complete a schedule and cost assessment?

Mr. UNGAR. Yes, Mr. Chairman. We hope that we would be done with that in August and be able to report to you, if you have a September hearing or before, if you don't.

UTILITY TUNNELS

Senator ALLARD. Okay. Very good. With respect to the utility tunnels, what has been accomplished there in the last month? Mr. Ayers, are you going to respond?

Mr. AYERS. Yes, I will.

Senator ALLARD. Okay.

Mr. AYERS. In the last month, we've completed the asbestos repairs in the "R" tunnel. We've awarded a contract to abate the asbestos in the "B" tunnel. We've awarded a design contract to design the repairs the "R" tunnel roof on Second Street, behind the Madison Building. We've completed an agreement with the Public

Health Service for them to have an industrial hygienist technician on site for 4 months to help us through the testing process. We've completed our structural review of the "Y" tunnel and started the structural review of the "R" tunnel. We've completed the design for a new egress and ventilation point for the "Y" tunnel. We've installed a new grate in the "G" tunnel to improve the heat condition, as well as a variety of administrative functions.

Senator ALLARD. Now, I'd like to know what the Public Health Service is doing, and what it has found to date, with respect to the asbestos exposure issue. Mr. Ayers, are you prepared to respond to that?

Mr. AYERS. I think it's best if we have Ms. Adams, our Director of Safety, provide that response.

Senator ALLARD. Okay.

Ms. ADAMS. My name is Sue Adams. I'm the Director of Safety, Fire, and Environmental Programs for the Architect of the Capitol.

The question was, what is the Public Health Service doing for us now and what have they found in the data review up to this point? I'll start with the data review, if I may. We provided the Public Health Service the data that we had for asbestos sampling from June 2001 until April—the middle of April 2006. Public Health Service reviewed that data and their basic conclusion was, they cannot draw any conclusions from the data. There are a number of reasons for that.

Senator ALLARD. What were the reasons? I would suspect that we just don't have the data, is that right, for 2001?

Ms. ADAMS. There were 100 data points taken between 2001 and 2006 that we provided to the Public Health Service. The majority—

Senator ALLARD. But prior to 2001, was there any monitoring?

Ms. ADAMS. If I may?

Senator ALLARD. Yes.

Ms. ADAMS. Typically, the monitoring that has been done in the tunnels has been when there have been abatement actions that have taken place. And so, we've been battling with questions about what has been the exposure for people when abatement hasn't been occurring, just general exposure. There's no real data, before very recently, that addresses that. So, we cannot answer that question.

Senator ALLARD. So, it's sporadic information, prior to 2001, related to when we had some reason to go into the tunnel for repairs, is that correct?

Ms. ADAMS. Up until actually the end of 2005. That would be the case.

Senator ALLARD. Oh, oh. So, that's the case between 2001 and 2005?

Ms. ADAMS. Yes. And I believe they would be—

Senator ALLARD. Prior to 2001, there was not any monitoring that you know of?

Ms. ADAMS. I'm not aware of data prior to 2001. All the data that we had since 2001 we provided to the Public Health Service. There very well could have been older data. We drew a 2001 date to give to the Public Health Service.

Senator ALLARD. Okay. Thank you.

Ms. ADAMS. So, they weren't able to draw conclusions about the data so we're continuing to monitor. As a result of the data, they gave us a number of recommendations, including how we should collect the data. We didn't necessarily have adequate information, especially from a historical perspective, trying to look at records that are three or more years old.

So, they've come onboard with their industrial hygienist technician and they are providing us with data control and review. They're also going to start this week with an assessment of the current condition of the asbestos in the utility tunnels, as Mr. Hantman mentioned in his opening statement. They had done that assessment for us in 2001. They're going to do that again, in conjunction with an exposure evaluation for the individual workers.

It's important, when we talk about asbestos that we talk about what people are doing. The specific tasks they're performing and their exposures, in regard to the tasks they're performing. Certain types of tasks will create different amounts of dust and different amounts of exposure. So, it's a task-based analysis. The PHS will be performing that analysis. It will take a number of months to actually go through the different routine tasks that our workers perform.

Senator ALLARD. Okay. Thank you.

Ms. ADAMS. You're welcome.

Senator ALLARD. Mr. Hantman, is there any further comments you want to make on the structural assessment of the tunnels, what's been found there, so far? And can you say, unequivocally, that there's no danger of collapse, as stated in the April 10 report?

Mr. HANTMAN. The additional delamination that's been discovered since our last hearing, our structural engineer indicates that this does not add to the difficult situation we have down there. But, the immediate danger of collapse is not there, according to our structural engineers.

What we need to do though, is clearly, we are starting the design work on the next area, which is the "R" tunnel, that we talked about at a couple of hearings back. The design work has begun to actually do physical replacement of the areas that we think are in the most need.

Senator ALLARD. Okay. Now, Mr. Dorn, would you care to comment on that?

Mr. DORN. Mr. Chairman, I have not been in those tunnels. My understanding of what's been done so far, is a visual inspection and what they call a sounding type inspection, which is to walk along with a hammer and just hit on the concrete and see if it sounds like it's delaminated or not.

What we don't know is what the actual structural condition of the tunnels is. There's been no destructive testing, that I'm aware of, at this point and so far, it's just visual inspection. I will say, that the tunnels, I'm told, are built with 12 to 14 inches of concrete and reinforcing steel.

The steel in the bottom of the tunnels is probably not doing much good at all now as there's no concrete encasement and you've had a lot of loss of that rebar.

We don't know what's happening on the top of the tunnel. So, as a professional engineer, I would be reluctant to make the same

claim that the Architect is making, without more than a visual inspection. But, they are closer to it than I am.

Senator ALLARD. Is that correct? We've only had a visual inspection on the tunnels?

Ms. ADAMS. Our contractor, Entech, is in the process of performing borings, where they actually take physical samples.

Senator ALLARD. Okay.

Ms. ADAMS. And then, they do a metal—

Senator ALLARD. So, you're in the process of doing that now?

Ms. ADAMS. Yes, sir. For all the tunnels, as they walk through. They give us a quick look report, when they come out of the tunnels and then they're doing their evaluation of the borings and that will take some time.

Senator ALLARD. And will you have something on the next meeting on that, in June?

Ms. ADAMS. I believe we will, for at least the "Y" tunnel.

Senator ALLARD. Very good. Okay. And the "Y" tunnel is where we have the connectors with the "B" tunnel that we're putting in from the CVC, is that—

Ms. ADAMS. No.

Senator ALLARD. Oh, that's the "R" tunnel?

Ms. ADAMS. "R" tunnel.

Senator ALLARD. Okay, okay. We don't have any real serious structural problems in the "Y" tunnel or the "R" tunnel?

Ms. ADAMS. The "R" tunnel was under evaluation by Entech, when they found the concern about the delamination. So, they've pulled out, until we can complete the shoring.

Senator ALLARD. Okay. But, the "Y" tunnel is where they have the most serious problem?

Ms. ADAMS. That's what we believed, before we started this evaluation, sir. So, once the shoring is done, Entech will go back into the "R" tunnel to complete their evaluation.

OFFICE OF COMPLIANCE VIEWS ON UTILITY TUNNELS

Senator ALLARD. I see. The Office of Compliance has responded to questions, which were presented at the hearing earlier this month, regarding AOC's plan for the utility tunnels and they found that AOC's plan may be inadequate to fully protect the tunnel workers, including the fact that no interim measures were proposed for the "Y" tunnel. What is your response to this concern?

Mr. EVELETH. Mr. Chairman, I have a number of responses to this. First of all, as has been indicated, this is an evolving situation, where Entech discovers that there's a situation where the "R" tunnel is beginning to delaminate in one area.

Senator ALLARD. Yes.

Mr. EVELETH. Then, they subsequently determined, as I understand it, that yet again, another area was discovered as delaminating. And so, they're going through the process of having the Construction Division of the Architect install shoring. So, we don't really have a complete picture of what's going on in those tunnels. And that causes us concern.

The concern is, as well, that earlier reports, back in 2000 and following, indicated that you couldn't tell visually, merely by visually looking at a tunnel, whether there's going to be a delamination

problem. And so—and there are ways that were recommended by experts in that field, as to how you go about doing the testing to assure that you're really getting an accurate picture of that. I'm not sure, at this point, that that has been done here. So, that poses some real serious problems.

The other interim, these are all interconnected problems. Obviously, we have identified, back in 2000 for example—or 1999, we identified the asbestos problem and the confined space problem, and the heat stress problems and we issued a full report to the Architect of the Capitol at that point. Those areas—that still remains to be addressed. And it hasn't been fully addressed.

Our question, really had to do with, can you accelerate this process of reducing the heat? And well, then there's the issue of well, how can—you can't reduce the heat by using fans, unless you get rid of the asbestos. So, how can you accelerate the process of removing asbestos? These are all interconnected things.

One of the things that I think we mentioned, is that we are in the process of acquiring our own expert in this area, so that we can examine what the proposals are and work with the Architect and make our own recommendations. We want to be sure that this plan is—particularly the temporary measures—accelerated.

We also think and one of the points that you made in your opening remarks, Mr. Chairman, had to do with worker dissatisfaction. We have, from time to time, had tunnel workers come to us and tell us what some of their concerns are. And we will be sharing that, of course, with the Architect. But, for example, the Entech was pulled out of the tunnel, the red tunnel, at a certain point in time, when they discovered the delamination and indicated that need be—it needed to have structural work done, support work done in that area.

The workers reported to us that they were walking through those areas and they were not informed about why Entech—that Entech was pulling out or why they were being pulled. Now, I can't verify the accuracy of that. I'm saying these are the kinds of complaints that we get.

So, it's absolutely necessary that there be full communication between the management of the AOC that's involved in this stuff and letting the employees know what the problems are, so their confidence level and their safety. And the same thing is true with our office. We want more sharing of information, as this goes along.

So, those are some of the issues that we have obviously, that the question of decontamination and the asbestos process. As we indicated in our answers, the AOC was working on it, but they weren't up to speed in terms of that. And so, there are these kinds of issues that remain.

Senator ALLARD. Have you taken a position on whether you think we have to have total removal or whether we can use encapsulation?

Mr. EVELETH. In answer to that question, I can't give you a full answer without more data. What I mean by that, is—

Senator ALLARD. So, that's what you meant by, you had more data gathered to make that recommendation together?

Mr. EVELETH. Yes, I think so.

Senator ALLARD. Okay.

Mr. EVELETH. From what we have been told by the Architect of the Capitol, the removal and replacement with a different kind of insulation, may have a significant effect on the heat within the tunnels.

Senator ALLARD. Okay. I see your point.

Mr. EVELETH. And so, we don't know how much that would reduce it. We don't have the experts yet, to analyze whatever data that the Architect may have, but that should, in our view, should be a factor in making that determination, because—

Senator ALLARD. Can that determination be done rather quickly here?

Mr. EVELETH. Pardon me?

Senator ALLARD. How quickly can you get that done—that determination?

Mr. EVELETH. I can't give you a definitive answer on that, because we don't have our—

Senator ALLARD. I just encourage you to speed that along, if you will, please.

Mr. EVELETH. Yes, we will. Because we understand, that's—(a), it's expensive.

Senator ALLARD. Yes.

Mr. EVELETH. And (b), it's pretty important to the question of heat.

ASBESTOS ABATEMENT

Senator ALLARD. Moving ahead, yes. Mr. Dorn, the Office of Compliance, they've given us their view on the asbestos removal issue. In last month's hearing, you indicated your support for a hybrid approach to asbestos abatement in the tunnel in which asbestos is encapsulated wherever it is in good condition and fully remediated in other locations where warranted. Do you continue to believe this approach is best and most cost effective?

Mr. DORN. Yes, sir, I do. And to clarify what Mr. Eveleth just said, he said that the asbestos had to come out before you increase the ventilation in the tunnel to cool the tunnels. The only asbestos that would have to come out, would be the loose asbestos that could be stirred up by the increased ventilation. The asbestos that's there and properly maintained and encapsulated does not have to be removed to increase the ventilation in the tunnels.

And that's—the ventilation is probably the best way and the cheapest way to cool the tunnels. Do the things that they're already doing, have grates, instead of hard covers on top of some of your egress points. Make sure all your fans are working and up to a good speed, so that you can move air through those tunnels.

As far as insulation, we're not yet aware of any new super insulation that will make a significant difference beyond the stuff that falls off the space shuttle. I'm not aware of any insulation that has these great properties—that is also affordable, that we can use to reduce the heat in the tunnels. Ventilation and encapsulation are the ways to reduce the heat and also, to allow for a phased abatement of asbestos, if that's what the Congress wants to do, is eventually get rid of it. It doesn't all have to be done at once.

Senator ALLARD. In your view, is it the role of the Office of Compliance to prescribe a particular solution to the problems, which have been identified in the tunnels?

Mr. DORN. They could probably speak to that better than I can, but my understanding is, their role is to make sure that the Architect, and GAO, and others comply with OSHA standards.

Senator ALLARD. I would hope that I can get a commitment from you and Mr. Eveleth to work in cooperation with the AOC to come up with solutions to asbestos and structural issues, if you would?

Mr. EVELETH. Certainly.

Senator ALLARD. Okay. Thank you.

Mr. EVELETH. Let me also say, if I may, that I agree with Mr. Dorn's assessment, that it's the loose asbestos, is what I should've said is what we're concerned about.

Senator ALLARD. I'm glad for that clarification.

Mr. EVELETH. And we recognize the fact that this may be in stages and it may be that certain tunnels are hotter than others. And you might take different measures in some tunnels than you would in other tunnels, and this may well be affected by the numbers of additional egress points that are opened up as well because that provides some degree of ventilation and things like that.

So, there are a number of technical questions that are involved in this and we want to work with the Architect and our experts, as well.

Senator ALLARD. Okay.

Mr. EVELETH. And to do it without speed.

DECONTAMINATION PROCEDURES

Senator ALLARD. Very good.

There has been confusion over the decontamination procedures for tunnel workers. At the last hearing, I was told that the tunnel workers were following OSHA asbestos decontamination procedures. We later learned that the equipment and procedures may not have been in place until just recently. Are OSHA regulations being followed now?

Mr. AYERS. I'll certainly do that.

Senator ALLARD. Mr. Ayers.

Mr. AYERS. Yes, sir. We did hear some confusion on that issue, since our last hearing and we went out and asked the Public Health Service to evaluate whether or not our procedures were compliant and whether or not our employees were properly following them. We received their report on April 19. They indicated that our procedures, they felt, were compliant, but were not fully implemented and not being fully utilized by employees.

Senator ALLARD. Okay. Who is responsible, within AOC, for ensuring safe practices are followed in the tunnels?

Mr. AYERS. Well, I think responsibility relies in a variety of areas. Certainly employees, themselves, have a responsibility. The first line supervisor has their responsibility. And ultimately, the Director of the Power Plant needs to ensure that employees are provided the right resources, the right policies and procedures, and has effective measures in place to ensure they're being followed.

Senator ALLARD. Do we have a safety officer from the Power Plant who would be responsible?

Mr. AYERS. We do have a safety officer at the Power Plant, yes.

Senator ALLARD. And does he hold some responsibility on this?

Mr. AYERS. Yes, sir.

Senator ALLARD. Okay. So, where does he fall in line?

Mr. AYERS. He reports directly to the Director of the Capitol Power Plant.

Senator ALLARD. Does he communicate directly with the workers or does he have an intermediary there?

Mr. AYERS. Yes. He should communicate with the employees, as well as with their supervisor.

Senator ALLARD. Okay. And has this safety officer, has he visited the tunnel, personally been down there?

Mr. AYERS. I'm not aware of that personally. I don't know. But, I'll respond for the record.

Senator ALLARD. We'll need a response on that for the record.

Mr. AYERS. Yes, sir.

Senator ALLARD. Does the safety officer make sure that decontamination equipment is available to the workers, as well as being used?

Mr. AYERS. Yes. I think that would be part of his responsibilities, as well.

Senator ALLARD. Okay. Verify that for the record, would you please?

Mr. AYERS. Yes, sir of course.

[The information follows:]

THE ARCHITECT OF THE CAPITOL,
Washington, DC, June 23, 2006.

The HONORABLE WAYNE ALLARD,
Chairman, Subcommittee on Legislative Branch Appropriations, Committee on Appropriations, United States Senate, Washington, DC 20510.

DEAR MR. CHAIRMAN: Thank you for taking the time to meet with me on Monday to discuss construction of the Capitol Visitor Center and the Capitol Power Plant's utility tunnels. I appreciate your leadership and continued support in these two very important areas. Additionally, thank you for providing the opportunity to update you on the construction of the Capitol Visitor Center at the May 24, 2006 hearing and the opportunity to answer questions and provide information on the Capitol Power Plant's (CPP) utility tunnels. During the hearing there were several issues raised which require follow-up and additional information.

During the hearing, Mr. Terrell Dorn appeared to contradict my testimony regarding utility tunnel asbestos. Both my testimony and Mr. Dorn's testimony were correct. The Office of Compliance (OOC) did not raise utility tunnel asbestos as a major issue prior to July 2005. In a June 30, 2000, letter to AOC, the OOC mentioned the need to repair damaged asbestos but the concern was not to the point where OOC felt it necessary to issue a formal citation. The CPP took actions to repair the damaged asbestos and the repairs were confirmed by the 2001 Public Health Survey which found asbestos to be in good condition.

The Y tunnel interim structural report discussed in the hearing is attached for your information. The preliminary Y tunnel structural analysis, "indicates that this cross section, in its current condition, appears to have sufficient strength to resist the anticipated loading conditions." The entire structural report is due at the end of July 2006. In the report, there is reference to the need to gain access to the GPO building. This issue has been addressed and Entech has begun evaluation in this area. Although the final report is due July 31, 2006, recent identification of delaminated concrete in the R tunnel delayed the consultant's inspection which may delay receipt of the final report to mid August 2006.

During the hearing, you asked a number of questions regarding the roles and responsibility of the CPP Safety Specialist. Attached is an excerpt from the April 10, 2006 Utility Tunnel report providing information regarding various responsibilities for safety. In response to your specific questions I offer the following:

Q: Has the CPP Safety Specialist visited the tunnels, personally been down there?

R: Between mid-March and June 16, 2006, the CPP Safety Specialist has been in the utility tunnels on approximately six confirmed occasions. Prior to March 2006, the CPP Safety Specialist indicates he had inspected the tunnels, however, Tunnel Shop personnel dispute this. Unfortunately, there are no definitive records to confirm either position.

Q: Does this individual make sure that decontamination equipment is available to the workers, as well as being used?

R: The CPP Safety Specialist has been assigned to ensure decontamination equipment is available and is in use. He also visits the decontamination sites periodically.

As you requested in the hearing, we will provide specific utility tunnel milestones before the next hearing scheduled for June 28, 2006. Also, I am pleased to inform you that CAPT. James Terra, from the Federal Occupational Health, Public Health Service (FOH/PHS) will attend the upcoming hearing and be available to discuss the asbestos-related efforts FOH/PHS is performing for us.

We will continue to work with this Subcommittee and the Congress to effectively keep the utility tunnels safe and functional while we institute a multi-year capital repair/replacement program as needed. At the same time we will also continue to prioritize the many other important fire and life-safety projects we are undertaking throughout the Capitol complex.

Please contact me on (202) 228-1793 if you require additional information.

Sincerely,

ALAN M. HANTMAN, FAIA,
Architect of the Capitol.

ATTACHMENT—SAFETY RELATED ROLES AND RESPONSIBILITIES

[EXCERPTED FROM PGS 8-9 UTILITY TUNNELS, A REPORT DATED APRIL 10, 2006]

The AOC Safety program consists, in part, of a series of policies, procedures, and guidance documents that, in concert, are designed to provide for a safe work environment by establishing requirements and assigning responsibility for safety throughout the AOC organization. Typical assignments include but are not limited to:

- Safety, Fire and Environmental Programs Office (hereafter referred to as the Central Safety Office): responsible for developing safety policies and guidance documents, appointing and maintaining a trained policy manager for each safety policy area, providing technical assistance to jurisdictions, and, once policies are implemented, performing policy oversight (quality assurance through a series of audits and procedural verifications that act as a check and balance).
- Jurisdiction Manager, responsible for ensuring development and implementation of policy requirements, assigning and supporting a jurisdiction policy coordinator, providing staff with time and resources necessary to implement and maintain safety policies, and enforcing policies through line management.
- Policy Coordinator (typically the Jurisdiction Safety Specialist): responsible for generating and maintaining Jurisdiction specific procedures, coordinating and scheduling training, attending training, ensuring PPE meets applicable Federal standards and is National Institute for Occupational Safety and Health (NIOSH) certified.
- First line supervisor: responsible for identifying safety hazards within work areas under their control, establishing appropriate controls, attending requisite training, ensuring employees attend requisite training, and enforcing safety procedures and safe work practices.
- Employees: responsible for complying with procedures, wearing required personal protective equipment (PPE), and using safe work practices, notifying their supervisor of hazards they encounter, attending required training, and reporting unsafe conditions.

WHITLOCK DALRYMPLE POSTON & ASSOCIATES, INC.,
 Manassas, VA, May 19, 2006.

ENTECH ENGINEERING INC.,
 4 South Fourth Street, P.O. Box 32, Reading, Pennsylvania 19603.

Attention: Jeffrey Euclide, P.E.

Re: Capitol Utility Tunnel Condition Assessment, "Y" Tunnel Assessment, WDP
 Project No. 06030

DEAR MR. EUCLIDE: Whitlock, Dalrymple, Poston & Associates, Inc. (WDP) has performed the majority of the planned testing for the "Y" tunnel. The following is a summary of our work performed to date:

—*Visual and tactile survey.*—A visual survey supplemented with select hammer sounding was performed on the entire tunnel length (approximately 2,500 feet). Upon completion of this survey, each tunnel section (pipe support to pipe support) was given a condition rating based on a rating system adapted from the U.S. Department of Transportation and Federal Highway Administration's Culvert Inspection Manual.

—*Nondestructive testing.*—Nondestructive testing (NDT) was performed as a follow up to the visual survey at three locations along the main length of tunnel (4 feet 6 inches wide by 7 feet tall vaulted arch). This testing was performed near entry/egress points YG-4, YG-6, and YG-7. Testing was not performed in the northern section of the tunnel (YD-9 to YD-10) due to restricted access at the GPO building. WDP will require access to this area with our testing equipment in order to complete the testing of this section of tunnel.

At the three accessible test sites, the following nondestructive tests were performed:

—Surface Penetrating Radar (SPR) was performed in order to identify reinforcing positioning and spacing.

—Impact-Echo testing was performed to estimate concrete thickness and identify potential additional damage not visible from the inside of the tunnel within the limited test area.

—*Destructive testing.*—At or near the NDT test locations, additional destructive testing was performed to identify physical properties of the tunnel concrete as well as to confirm NDT data where possible. The following tests were performed:

—Five (5) concrete cores were extracted for compressive strength, carbonation, and petrographic testing.

—Sixteen (16) concrete powder samples for chloride content testing were collected at ¼ inch to 1 inch depth at or near the NDT areas. Attempts were made to vary sampling locations between wall and ceiling locations as well as adjacent to damaged or undamaged portions within reasonable limits of the sampling equipment.

Based on the data obtained from these tests and observations, WDP has performed a preliminary structural analysis of the 4½ foot wide by 7 foot tall vaulted arch cross section of the "Y" tunnel. This preliminary analysis indicates that this cross section, in its current condition, appears to have sufficient strength to resist the anticipated loading conditions. WDP will continue our condition survey and issue a detailed summary of the tunnel ratings, test results, final analysis results, and anticipated repair recommendations with our final report to Entech and the AOC.

Should you have any questions regarding this information, please feel free to contact us at your convenience.

Sincerely,

JOHN M. GRILL, P.E.,
 Project Engineer.

EMPLOYEE RELATIONS

Senator ALLARD. Mr. Hantman, I'm very concerned about the relationship between your office and the shop employees. There seems to be a considerable amount of distrust, confusion, finger pointing, and hostility, frankly. You indicate in your testimony that communication has been a problem in the past. We need to have better communication; is something being done to improve communication with workers?

Mr. HANTMAN. Our new Director of the Power Plant, Mark Weiss, has initiated Tuesday morning meetings every week with the tunnel crew, to talk about issues, to hear what their issues are, to respond to them, to develop a list of problem areas that they see, so we can address them in an orderly way. But, we're also looking at bringing in—there are some interviews that Mr. Weiss has been having with facilitators, to bring somebody in to be able to work out the feelings that people have and build a stronger sense of trust in that area.

Senator ALLARD. And the workers have representation there, at those discussions?

Mr. HANTMAN. This is Mark Weiss.

Senator ALLARD. Do you want to identify yourself for the record?

Mr. WEISS. Mr. Chairman, my name is Mark Weiss. I'm Director of the Power Plant. Those Tuesday meetings, for the most part, are with all of the tunnel shop personnel.

Senator ALLARD. Is your Safety Director there, too?

Mr. WEISS. Usually, unless he's occupied in another meeting, sir.

Senator ALLARD. Okay. I would hope you encourage the Safety Director to be there—

Mr. WEISS. Yes.

Senator ALLARD [continuing]. Since he has a direct responsibility there.

Mr. WEISS. Yes, sir.

Senator ALLARD. Very good. Thank you.

Mr. WEISS. You're welcome.

EMPLOYEE REVIEW OF APRIL 10 REPORT

Senator ALLARD. Have the tunnel shop employees had an opportunity to review the report you submitted on April 10 to me and Senator Durbin and if so, what comments did they have?

Mr. HANTMAN. Mr. Weiss has met with members of the tunnel crew and the comments that they came up with have been forwarded to the subcommittee. The end of last week, the supervisor of the tunnel crew was given a copy of the report to review. He has not yet fully reviewed it, but we look forward to getting his comments and sharing those with the subcommittee, as well.

GOVERNMENT ACCOUNTABILITY OFFICE REVIEW

Senator ALLARD. Mr. Dorn, what work is GAO doing to determine the appropriateness of the AOC's plans for correcting safety problems in the tunnels and progress in correcting the problems, and do you have any preliminary findings?

Mr. DORN. What we're doing so far, Mr. Chairman, is working with Mr. Weiss and Mr. Potter over at the Capitol Power Plant and the AOC engineering. We've interviewed all of the tunnel worker employees, and their supervisor. We've had interviews with the construction arm of AOC, who also works in the tunnels. And we're gathering that information.

One of the things, I guess I could report, would be just to confirm what you said, there is quite a bit of hostility and fear of retaliation from the tunnel crew. There's a lot of distrust going on there.

Senator ALLARD. And what do you expect to report on the results of your work?

Mr. DORN. We should be able to have something back to the subcommittee within the next 60 days, sir.

Senator ALLARD. Okay. And what can we expect to be accomplished in the utility tunnels by the time of our next hearing?

Mr. HANTMAN. Mr. Ayers.

Mr. AYERS. Sure, I can address that. In the next 30 days, we will replace a door on the "R" tunnel. We will, of course as we noted, begin the shoring of the "R" tunnel by the CVC connection. We will initiate the design work and start the design work for the "R" tunnel roof replacement, behind the Madison Building on Second Street. We have ordered some materials for a crossover in the "V" tunnel and we should receive those materials and have them installed. We will start work on an additional egress point and ventilation in the "Y" tunnel.

As I noted previously, we have awarded a contract to abate the asbestos in the "B" tunnel. We will commence that work and monitor that. As we have done with the "R" tunnel, our construction crews have gone through and repaired any loose asbestos. We will begin that same work in the "G" tunnel and as soon as that's finished, we will move that crew over to the "Y" tunnel to do the same.

And finally, we have a deteriorated expansion joint in the "Y" tunnel that we will soon commence construction on rebuilding that expansion joint.

Senator ALLARD. I'm going to ask that, when we have our next hearing, provide us a time line or milestones, like we have with the CVC, so that we can measure progress on this. If you would do that, please?

Mr. AYERS. Yes, sir.

Senator ALLARD. That's a good start, but we'd like to have a little more specific information on the milestones, if you would?

Mr. AYERS. Yes, sir.

SUBCOMMITTEE RECESS

Senator ALLARD. That's all the questions I have. The subcommittee stands in recess until Wednesday, June 21, when we will once again review progress of the CVC construction.

[Whereupon, at 11:19 a.m., Wednesday, May 24, the subcommittee was recessed, to reconvene at 10 a.m., Wednesday, June 7.]

PROGRESS OF CONSTRUCTION OF THE CAPITOL VISITOR CENTER

WEDNESDAY, JUNE 28, 2006

U.S. SENATE,
SUBCOMMITTEE ON THE LEGISLATIVE BRANCH,
COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 10:29 a.m., in room SD-138, Dirksen Senate Office Building, Hon. Wayne Allard (chairman) presiding.
Present: Senator Allard.

OPENING STATEMENT OF SENATOR WAYNE ALLARD

Senator ALLARD. The subcommittee will come to order.

We meet today to take testimony on the progress of the Capitol Visitor Center (CVC). This is our 12th hearing on the Capitol Visitor Center. We will also discuss progress on the utility tunnel health and safety issues.

We welcome Architect of the Capitol Alan Hantman, CVC project executive Bob Hixon, and Government Accountability Office (GAO) representatives Bernie Ungar and Terrell Dorn. In addition, in attendance today is Captain Joseph Terra of the Public Health Service, Attending Physician Dr. John Eisold, and Peter Eveleth of the Office of Compliance (OOC).

Thank you for your attendance this morning.

Since our last hearing, the Architect of the Capitol (AOC) has discovered that it will take longer to complete the fire alarm acceptance process, thereby extending the schedule by more than 2 months. And completion of the CVC utility tunnel remains a concern.

As to the utility tunnels, I understand additional asbestos abatement work has gone on, and structural condition assessments are still underway. The supplemental appropriation of \$27.6 million has been enacted, and we look forward to hearing your plans for allocating these funds to the highest-priority needs in the tunnel.

Mr. Hantman, please proceed with your testimony, and then we'll turn to GAO for their assessment.

And I also neglected to acknowledge Stephen Ayers, chief operating officer. Thanks for being here, Mr. Ayers.

STATEMENT OF ALAN M. HANTMAN, FAIA, ARCHITECT OF THE CAPITOL

ACCOMPANIED BY:

CAPTAIN JOSEPH A. TERRA, SENIOR PROGRAM MANAGER, FEDERAL OCCUPATIONAL HEALTH, PUBLIC HEALTH SERVICE, DEPARTMENT OF HEALTH AND HUMAN SERVICES

STEPHEN AYERS, CHIEF OPERATING OFFICER, ARCHITECT OF THE CAPITOL

BOB HIXON, PROJECT DIRECTOR, CAPITOL VISITOR CENTER, ARCHITECT OF THE CAPITOL

Mr. HANTMAN. Thank you, and good morning, Mr. Chairman.

Senator ALLARD. Good morning.

Mr. HANTMAN. I appreciate this opportunity to again report on the progress of the Capitol Visitor Center project. Over the past several weeks, we've made excellent progress analyzing the project schedule with our contractors and the Government Accountability Office team, and meeting with congressional oversight committees and leadership to discuss establishing a timeframe for construction completion and a subsequent formal opening.

As you know, the CVC is virtually the Nation's beta test site for the very comprehensive security and fire and life safety systems that are being installed. This means that there are many challenges, all of which we are able to overcome in bringing this entire system, some 5,000 individual components, online. As you know, Mr. Chairman, these components need to work as an integrated system under many different scenarios.

FIRE ALARM SYSTEM ACCEPTANCE TESTING

As I reported at our last hearing, agreement has been reached on the necessary changes to the acceptance testing process for this system between the AOC, the U.S. Capitol Police, the fire marshal, the Capitol Police Board, and that both the Office of Compliance and GAO have been part of this process. The implications of making the necessary programming changes to the basic system have become clearer over the last month, and we've found that it does, in fact, impact the overall acceptance testing process; and, therefore, as you mentioned, the project schedule.

After multiple meetings with the construction team, contractors, the fire marshal, and GAO regarding this process, we're in agreement that the best way to conduct the fire alarm system acceptance testing is to test the central visitor center first, with the Senate and House expansion spaces to follow sequentially. With this sequence, and based upon the information we have today, we're in agreement that the formal opening date for the CVC can be set after the mid- to late-July 2007 timeframe, pending coordination and approval from congressional leadership.

Fortunately, due to our strong teamwork, we're able to solve these problems and obtain concurrences from the many interested parties while keeping the project moving ahead and assuring that outstanding, quality work was being accomplished every day. While changing schedules are frustrating for us all, the many scope changes that are mandated are being successfully incorporated into an already complex construction project that is well underway. And this is being done in an expeditious and historically sensitive way,

which will be a credit to the Capitol, the Congress, and the American people for generations to come.

An upcoming major milestone, Mr. Chairman, will be beginning the pretesting of the fire alarm system, scheduled for this fall. Once this pretesting by the contractor is completed, the formal final testing process will begin. While the CVC and expansion spaces will still be considered construction zones, we'll concurrently begin the facility fitout of equipment and training of staff. Once the testing is completed and a certificate of occupancy is received, staff will be able to test the policies and the procedures regarding visitor flow, access, queuing, and security, and refine them with test groups of visitors before the CVC officially opens its doors to the public.

Furniture will be moved into the offices in the expansion spaces. Visitor services will be up and running. And the House and Senate expansion spaces would be available for occupancy within the August timeframe.

Mr. Chairman, thank you for visiting the project worksite again 2 weeks ago. The progress made has been significant, and the nature and quality of the project spaces continue to become more apparent as ceilings are completed and scaffolding is removed. Since you saw our progress for yourself, I'll be very brief with regard to our project progress update.

In the great hall, Mr. Chairman, all of the ceiling work was completed earlier this month, including drywall installation, plaster work, and painting. The scaffolding has been removed, revealing the hall's barrel-vaulted ceiling structure, and stone masons are preparing to set stone over 20,000 square feet of floor space, starting next week. While the ceiling work was being finished, the two large skylights were installed, and that process is nearly complete. In this rendering, Mr. Chairman, this photograph, you can actually see the dome through the skylight, and it's actually a better view than we had in our projected drawing design process.

STONE INSTALLATION

Masons also have resumed setting floor stone in the northern half of the exhibition hall, now that all of the floor stone for the hall is onsite, this seemed the way to go. Floor stone is also complete in the threshold space between the exhibit hall and the great hall. In the exhibition hall ceiling, the fire and life safety systems, infrastructure, and other mechanical work were approved last month, and crews are now installing ceiling drywall.

In the east front, Mr. Chairman, masons continue setting stone on the basement and crypt levels and along the monumental center stair that connects the CVC to the Capitol. At the crypt level, all four fire separation doors are in place within the transition zone, and that clears the area for installation of wall stone, which now rises more than 10 feet on many walls. An abatement contractor has removed the lead paint from the original sandstone facade of the Capitol, and will soon begin similar work at the Rotunda level. This work was required, since much of the original face of the Capitol will be featured in the final design.

CONSTRUCTION HIGHLIGHTS

In the orientation theaters, ceiling framework and other structural work, as well as the primer painting, has been completed. The millwork contractor has begun installing the plywood substrate that will support the finished wood panels, which are arriving next week.

In the food service area, the contractor continues to install the ceiling drywall, while masons set floor and wall tile in the food preparation area. Most of this work is substantially complete, and carpet and fabrics for chairs and banquettes have recently been approved and are now on order.

In many areas, particularly in the corridors along the great hall and the upper lobby, just beyond the orientation theaters, ceiling work continues. Many areas are taking on a more finished appearance as plaster work and painting are completed. Here, you see, in this photograph, the bronze being put on the escalators. And those mechanical systems are basically going in very well.

Outside on the plaza, historic preservation crews continue to restore historic elements, like the seatwalls around the House and Senate grass ovals. Last week, the two large bronze basins for the Olmsted fountains were set into place.

Finally, we completed a significant milestone in mid-June, when the enclosures in the CVC utility tunnel were finished and East Capitol Street was opened to traffic and pedestrians.

Mr. Chairman, together we're working on a most historic project, a project that's going to impact every visitor to the U.S. Capitol for the foreseeable future. I'm extraordinarily proud to be Architect of the Capitol at this time and to lead a team of dedicated professionals who are committed to bringing the Capitol Visitor Center to a successful completion.

CAPITOL VISITOR CENTER UTILITY TUNNEL

Mr. Chairman, with respect to the utility tunnels, last month we discussed several issues in the utility tunnels that impacted the tie-in work to the CVC utility tunnel. I'm pleased to report that those issues have been resolved, and that last week dust cleanup began in the "R" tunnel to enable CVC insulation work to begin. A crew will be back in the Second Street tunnel to start insulation work next week. Meanwhile, to offset the impact of the utility tunnel delay, the contractor has set up temporary dehumidification units, which are providing conditioned air to the orientation theaters so millwork can begin in those areas.

ARCHITECT OF THE CAPITOL-WIDE UTILITY TUNNELS

In addition to addressing this issue, we've been working diligently to address and correct issues in the utility tunnels as expeditiously as possible, with worker safety remaining the highest priority.

In anticipation of the passage of the emergency supplemental bill earlier this month, our project management team developed a draft utility tunnel action plan. The action plan identifies projects to be awarded with the emergency funding. The team also developed a tracking system for projects and other activities within the tunnels.

I, again, want to thank the subcommittee and Congress for its support of our efforts to provide a safe working environment for our workforce by providing these funds to repair and improve the utility tunnels.

The Public Health Service continues to conduct personal air sampling on AOC tunnel entry teams and conduct a condition assessment of the asbestos in all the tunnels. I am pleased to have Captain James Terra, who you mentioned before, who is the senior project manager with the Public Health Service, with us today, and he'll answer any questions you may have about their work in the tunnel and data analyses that they're conducting.

Recently, we have contracted with a facilitator to work to improve communication between management and tunnel shop personnel. She has been attending the weekly tunnel shop meetings and the biweekly executive briefings with Power Plant management, tunnel shop personnel, and senior managers.

Last month, Mr. Chairman, we listed eight tasks we identified to complete within 30 days. I'm pleased to report that we've completed five of those tasks, and will soon begin working on the three remaining tasks. Those include awaiting delivery of the crossover elements for the "V" tunnel, and we'll install those upon receipt. Completion is expected in mid-August for this piece of work. Prior to rebuilding an expansion joint in the "Y" tunnel, we'll be performing asbestos abatement in the area of the expansion joint, and the abatement work in the "V" tunnel is pending, upon receipt of acceptable paperwork from the contractor.

UTILITY TUNNEL PROJECT MILESTONES

We have also, going forward, Mr. Chairman, identified some 14 tasks as project milestones to be completed in the next 30 days, and they're all listed in my formal testimony. But just to highlight a few, we're going to finish the shoring in the "R" tunnel; restart the removal of delaminated concrete in identified priority areas once that shoring is complete; award contract for additional employee health-related counseling; award contract for job hazards analysis and operational safety procedures; complete the design and statement of work for installation of interim emergency lighting systems for the tunnels; award a rental contract for demonstration projects for portable cooling units in the "Y" tunnel; complete the statement of work to study alternative communication systems for tunnels to see if we can do something better than the existing leaky cable communications system we have in place; and last, we'll award structural contract to provide professional expertise to both the OOC and AOC, who are working together on this.

In addition, we continue to install shoring in the "R" tunnel in areas identified by the contractor conducting the condition assessment survey. We recently met with the contractor to discuss which areas of the tunnel concrete can be removed and repaired. The contractor also has completed the visual inspection of the "B" and the "V" tunnels. While they noted some concrete deficiencies, they "did not identify any locations in either the 'B' or 'V' tunnels where concrete has deteriorated to the point of collapse." They continue to perform exploratory and nondestructive testing in these tunnels and will provide the results later this summer.

Last, Mr. Chairman, the OOC has indicated that they require expert assistance to review and comment on the April 10 utility tunnel report to the Congress. We're working to award a contract for this professional assistance and expertise to both the OOC and the AOC. With regard to the complaint in February, I'm pleased to report that the OOC and the AOC continue to work toward a settlement.

Mr. Chairman, this concludes my statement. And, once again, thank you for this opportunity to testify.

Senator ALLARD. Thank you for your testimony.

[The statement follows:]

PREPARED STATEMENT OF ALAN M. HANTMAN, FAIA

Good morning Mr. Chairman. I appreciate this opportunity to again report on the progress of the Capitol Visitor Center project.

Over the past several weeks, we have made excellent progress analyzing the project schedule with our contractor and the Government Accountability Office team and meeting with Congressional oversight committees and leadership to discuss establishing a timeframe for construction completion and a subsequent formal opening.

As you know, the Capitol Visitor Center and the expansion spaces increase the size of the Capitol by two-thirds. With large underground public places of assembly there are unique security and fire and life-safety requirements for this facility that are not fully addressed in existing building and fire life-safety codes. Therefore, the CVC is virtually the nation's beta test site for the very comprehensive security and fire and life-safety systems that are being installed. This means that there are many challenges, all of which we are able to overcome, in bringing the entire system—some 5,000 individual components—online. These components need to work as an integral system under many different scenarios.

As I reported at our last hearing, agreement has been reached on the necessary changes to the acceptance testing process for this system between the AOC, the U.S. Capitol Police, the Fire Marshal, and the Capitol Police Board, and that both the Office of Compliance and GAO have been part of this process. The implications of making the necessary programming changes to the basic system have become clearer over the last month and we have found that it does, in fact, impact the overall acceptance testing process and therefore, the project schedule. After multiple meetings with the construction team, contractors, the Fire Marshal, and GAO regarding this process, we are in agreement that the best way to conduct the fire alarm system acceptance testing is to test the central Visitor Center first, with the Senate and House expansion spaces to follow sequentially. With this sequence, we are in agreement that the formal opening date for the CVC can be set after mid-to-late July 2007, pending coordination and approval from Congressional leadership.

Fortunately, due to our strong teamwork, we were able to work to solve these problems and obtain concurrences from the many interested parties while keeping the project moving ahead assuring that outstanding, quality work was being accomplished every day. While changing schedules are frustrating for us all, the many scope changes that were mandated are being successfully incorporated into an already complex construction project that is well underway. This has been done in an expeditious and historically sensitive way which will be a credit to the Capitol, the Congress, and the American people for generations to come.

An upcoming major milestone will be beginning the pre-testing of the fire alarm system scheduled for this fall. Once this pre-testing by the contractor is completed, the formal final testing process will begin. While the CVC and expansion spaces will still be considered construction zones, we will concurrently begin the facility fit-out of equipment and training of staff.

Once the testing is completed and a Certificate of Occupancy is received, staff will be able to test the policies and procedures regarding visitor flow, access, queuing, and security and refine them with test groups of visitors before the CVC officially opens its doors to the public. Furniture will be moved into the offices in the expansion spaces, and visitor services will be up and running. The House and Senate expansion spaces would be available for occupancy within an August timeframe.

Project Progress Update

Mr. Chairman, thank you for visiting the project work site again two weeks ago. The progress made has been significant and the nature and quality of the project

spaces continue to become more apparent as ceilings are completed and scaffolding is removed. Since you saw our progress for yourself, I will be very brief with regard to our project progress update.

In the Great Hall, all of the ceiling work was completed earlier this month, including drywall installation, plaster work, and painting. The scaffolding has been removed revealing the Hall's barrel-vaulted ceiling structure, and stone masons are preparing to set stone over 20,000 square feet of floor space next week. While the ceiling work was being finished, the two large skylights were installed. That process is nearly complete.

Masons resumed setting floor stone in the northern half of the Exhibition Hall now that all of the floor stone for the Hall is on site. Floor stone is also complete in the threshold space between the Exhibit Hall and the Great Hall. In the Exhibition Hall ceiling, the fire and life-safety systems infrastructure and other mechanical work were approved last month and crews are now installing ceiling drywall.

In the East Front, masons continue setting stone on the basement and Crypt levels and along the monumental center stair that connects the CVC to the Capitol. At the Crypt level, all four fire separation doors are in place within the transition zone clearing that area for installation of wall stone, which now rises more than 10 feet on many walls. An abatement contractor has removed the lead paint from the original sandstone façade of the Capitol and will soon begin similar work at the Rotunda level. This work was required since much of the original face of the Capitol will be featured in the final design.

In the Orientation Theaters, ceiling framework and other structural work as well as the primer painting has been completed. The millwork contractor has begun installing the plywood substrate that will support the finished wood panels which are arriving next week.

In the Food Service area, the contractor continues to install the ceiling drywall while masons set floor and wall tile in the food preparation areas. Most of this work is substantially complete. Carpet and fabrics for chairs and banquets have recently been approved and are being ordered.

In many areas, particularly in the corridors along the Great Hall and on the upper lobby just beyond the Orientation Theaters, ceiling work continues and many areas are now taking on a more finished appearance as plaster work and painting are completed.

Outside, on the Plaza, historic preservation crews continue to restore historic elements like the seatwalls around the House and Senate grass ovals. Last week, the two large bronze basins for the Olmsted fountains were set into place. Finally, we completed a significant milestone in mid-June when the enclosures of the CVC utility tunnel were finished and East Capitol Street was opened to traffic and pedestrians.

Mr. Chairman, together we are working on a most historic project, a project that will impact every visitor to the U.S. Capitol. I am extraordinarily proud to be Architect of the Capitol at this time and to lead a team of dedicated professionals who are committed to bringing the Capitol Visitor Center to a successful completion.

Utility Tunnels

Mr. Chairman, last month we discussed several issues in the utility tunnels that impacted the tie-in work to the CVC utility tunnel. I am pleased to report that those issues have been resolved and that last week, dust clean-up began in the "R" tunnel to enable CVC insulation work to begin. A crew will be back in the Second Street tunnel to start insulation work next week. Meanwhile, to offset the impact of the utility tunnel delay, the contractor has set up temporary dehumidification units which are providing conditioned air to the Orientation Theaters so millwork can begin in those areas.

In addition to addressing this issue, we have been working diligently to address and correct issues in the utility tunnels as expeditiously as possible with worker safety remaining the highest priority. In anticipation of the passage of the Emergency Supplemental bill earlier this month, our Project Management Team developed a draft Utility Tunnel Action Plan.

The Action Plan identifies projects to be awarded with the Emergency funding. The team also developed a tracking system for projects and other activities within the tunnels. I again want to thank the Subcommittee and Congress for its support of our efforts to provide a safe working environment for our workforce by providing these funds to repair and improve the utility tunnels.

The Public Health Service continues to conduct personal air sampling on every AOC tunnel entry team and conduct a condition assessment of the asbestos in all the tunnels. I am pleased to have Captain Joseph Terra, Senior Project Manager

with the Public Health Service with us today to answer any questions you may have about their work in the tunnels and data analyses they are conducting.

Since the last hearing, we have also contracted with a facilitator to work to improve communication between management and Tunnel Shop personnel. She has been attending the weekly Tunnel Shop meetings, and the bi-weekly executive briefings with Power Plant management, Tunnel Shop personnel, and senior managers.

Last month, we listed eight tasks we identified to complete within 30 days. I am pleased to report that we have completed five of those tasks and will soon begin working on the three remaining tasks. We are awaiting delivery of the crossover elements for the "V" tunnel and will install them upon receipt. Completion is expected in mid-August. Prior to rebuilding an expansion joint in the "Y" tunnel, we will be performing asbestos abatement in the area of expansion joint. The abatement work in the "B" tunnel is pending upon receipt of acceptable paperwork from the contractor.

We have identified the following tasks as project milestones to be completed in the next 30 days:

- Finish shoring in "R" tunnel.
- Install shoring required for additional structural testing as identified by our consultant.
- Re-start removal of delaminated concrete in identified priority areas once shoring is completed.
- Complete statement of work for concrete repair.
- Award contract for additional employee health-related counseling.
- Complete statement of work for contracting "Y" tunnel dust clean-up and pipe covering repair.
- Complete statement of work for asbestos repair and abatement.
- PHS will complete the asbestos survey; (however, it may not include the closed portion of the "R" tunnel).
- Award contract for job hazards analyses and operational/safety procedures.
- Complete design and statement of work for installation of interim emergency lighting system for tunnels.
- Award rental contract for demonstration project for portable cooling unit in "Y" tunnel.
- Modify contract for utility tunnel condition assessment to include as-built drawings, piping assessments, ventilation assessments, etc.
- Complete statement of work to study alternative communication system for tunnels.
- Award structural consulting contract to provide professional expertise to OOC and AOC.

In addition, we continue to install shoring in the "R" tunnel in areas identified by the contractor conducting the condition assessment survey. We recently met with the contractor to discuss which areas of the tunnel concrete can be removed and repaired. The contractor also has completed the visual inspection of the "B" and "V" tunnels. While they noted some concrete deficiencies, they "did not identify any locations in either the 'B' or 'V' tunnels where concrete has deteriorated to the point of collapse." They continue to perform exploratory and non-destructive testing in these tunnels and will be providing the results later this summer.

Lastly, the Office of Compliance has indicated that they require expert assistance to review and comment on the April 10 Utility Tunnel Report to Congress. We are working to award a contract for this professional assistance and expertise to both the OOC and the AOC. With regard to the complaint filed in February, I am pleased to report that the OOC and the AOC continue to work toward a settlement.

Mr. Chairman, this concludes my statement. Once again, thank you for this opportunity to testify. I would be happy to answer any questions you may have.

Senator ALLARD. Now we'll proceed to GAO testimony. Are you going first, Mr. Dorn?

Mr. DORN. Yes, sir.

Senator ALLARD. If you'd proceed, please, Mr. Dorn.

STATEMENT OF TERRELL DORN, DIRECTOR, PHYSICAL INFRASTRUCTURE, GOVERNMENT ACCOUNTABILITY OFFICE

ACCOMPANIED BY BERNARD L. UNGAR, DIRECTOR, PHYSICAL INFRASTRUCTURE, GOVERNMENT ACCOUNTABILITY OFFICE

Mr. DORN. Mr. Chairman, last month we said that we couldn't predict what day the project was going to finish, but we could say

that there were going to be future problems. And, unfortunately, this month we do have one.

The CVC team reports that the project opening date has slipped 2½ months, from April to July 2007. Based on our analysis and interviews with project staff, we are not confident that this will be the last slip, but, pending a more rigorous review that we plan to do this summer, we tentatively think that July 2007 is a reasonable interim date, for planning purposes.

This is in spite of, as AOC has noted, continued progress in almost all areas of the project. After a number of trials that the AOC and Manhattan diligently worked through, the wall stone in the CVC is substantially complete. The barrel-vaulted ceiling of the great hall is now visible. And, after extensive underground work, East Capitol Street has been reopened to traffic. But the indicators are still there, and they all still point to ongoing schedule issues which may lead to future cost issues, as schedule and costs are so interrelated.

As a result, in spite of this month's schedule adjustment by the CVC team, we still plan to conduct an analysis of both the project's schedule and its cost and will be prepared to brief the subcommittee in mid-September.

The construction contractor continues to miss milestones. Out of 14 milestones that need to be completed on time to keep the schedule on track, one was completed early, one was completed on time, and the remaining 12 were missed. We cannot stay on schedule if we can't hit the milestones on time.

At prior hearings, AOC has pointed out that even though they were not completing the milestones on time, they were completing them. We agree. Again, progress is being made, but what GAO is trying to point out is that if you don't hit the milestones on time, you will finish late.

I equate this to my ride home in the evening. I take a commuter rail, the Virginia Railway Express (VRE), and I can tell you, from experience, it makes 10 sequential stops on the way home, just like our schedule. And if I don't get to those stops on time, by the time I get to Fredericksburg, I'm going to be late. I can thank the conductor for getting me all the way to Fredericksburg and completing the project or trip, but my supper is still going to be cold.

The CVC is the same way. We can see and appreciate the progress that's been made to date, but we can't properly plan and budget for future operations if we don't hit the milestones.

Seventeen of the project's 23 most critical paths through the schedule lost time last month. It's been pointed out to us that the team continues to miss milestones because the baseline schedule we use is outdated. This indicator of critical paths losing time is irrespective of which schedule or completion date we use. It says that whether the project is ahead of schedule or not, and in spite of the progress that AOC has made, that a number of project activities lost time last month.

On cost, at the last hearing we estimated that the cost to complete the CVC without an allowance for risk and uncertainty was about \$556 million, and with risk and uncertainties, would be \$584 million. After this month's schedule change, we believe that \$556 million is less likely, but that our \$584 million cap is still suffi-

cient. Again, we plan to reassess the cost to complete the project concurrently with our schedule analysis this summer.

Utility tunnel work continues, but is taking longer to complete than the AOC expected. For example, the shoring and insulation work in the "R" tunnel that was supposed to be completed this month is more likely to be completed by mid-July.

AOC continues to make concerted efforts to improve relationships with the employees, as you've requested. They've got a facilitator, they've got an assigned project manager, they're holding weekly meetings, doing a lot of positive things to try to help with the relationships. But I have to report that what's being told to me is that there is still limited improvement, that there is still fear of retaliation, and that the employees are still concerned about their relationship with the AOC. But it's not for lack of effort from the AOC.

In summary, Mr. Chairman, AOC's new schedule of opening the project in July provides additional time to complete the work and tentatively appears reasonable. However, we still plan to work with AOC to reassess the schedule and report back to you in September. We'll be looking at the cost concurrently with the schedule, and, at this time, we expect the cost to be somewhere between \$556 and \$584 million.

This concludes my statement, Mr. Chairman.

[The statement follows:]

PREPARED STATEMENT OF TERRELL DORN

Mr. Chairman and Members of the Subcommittee: We are pleased to be here today to assist the Subcommittee in monitoring progress on the Capitol Visitor Center (CVC) project. Our remarks will focus on the Architect of the Capitol's (AOC) progress in achieving selected project milestones and in managing the project schedule since the Subcommittee's May 24, 2006, hearing on the project.¹ As part of this discussion, we will address a number of key challenges and risks that continue to face the project, as well as actions AOC has taken or plans to take to address these risks. In addition, we will discuss the status of the project's costs and funding.

Our remarks 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 the CVC team (AOC and its major CVC contractors), AOC's Chief Fire Marshal, and representatives from the U.S. Capitol Police. We also reviewed AOC's construction management contractor's periodic schedule assessments and daily reports on the progress of interior wall and floor stonework.

In summary:

Since the Subcommittee's May 24 CVC hearing, AOC has extended the project's scheduled completion and opening dates. The CVC team has continued to move the project's construction forward, but primarily because of significant problems associated with the CVC's fire protection system, gift shops, and utility tunnel, AOC has extended the scheduled completion dates for the base CVC project and the House and Senate expansion spaces by approximately 2½ months, from February 23, 2007, to May 7, 2007, for the CVC, and from May 25, 2007, to August 8, 2007, for the expansion spaces. Furthermore, to allow time for possible additional delays and preparation for operations, AOC is now proposing to open the CVC in July 2007 with a temporary certificate of occupancy and the expansion spaces in August 2007, at which point a final certificate of occupancy will be issued for the CVC. Previously, AOC was planning to open the CVC in April 2007 and the expansion spaces in May 2007. We are reassessing the project schedule, as we stated at the Subcommittee's last CVC hearing, and expect to finish our reassessment by mid-September. Pending our reassessment, AOC's new July and August 2007 time frames appear to be rea-

¹ GAO, *Capitol Visitor Center: Update on Status of Project's Schedule and Cost as of May 24, 2006*, GAO-06-803T (Washington, D.C.: May 24, 2006).

sonable tentative targets for opening the CVC and House and Senate expansion spaces. However, we are not as confident as we would like to be about whether the CVC team will be able to meet the challenges, risks, and uncertainties that continue to face the project, given the difficulties the team has historically had in meeting its targets and milestones. Thus, we expect to have greater confidence in the target opening dates after we complete our schedule reassessment.

- During the past month, work on the project has progressed in a number of areas. For example, the CVC team has finished restoring and has opened the portion of East Capitol Street that runs above the CVC's utility tunnel and has finished installing the veneer plaster portion of the ceiling in the great hall and piping for the sprinkler system throughout the CVC. In addition, critical interior wall and floor stone installation has continued, together with other interior and exterior construction work, and the sequence 2 contractor has continued work on its area-by-area plans to prevent trade stacking² during finish work. About 96 percent of the interior wall stone for the CVC itself (excluding the atrium areas, the East Front, and the tunnels) is now installed.
- Delays associated with the CVC's fire protection system, gift shops, and utility tunnel primarily led the CVC team to add about 50 workdays to the project schedule. During the last 5 weeks; the sequence 2 contractor also fell short of its installation target for interior wall stone; the pace of floor stone installation remained far below the targeted pace; and several other base project and expansion space activities—including East Front work—fell further behind schedule. Indicators of construction progress that we have been tracking for the Subcommittee also support AOC's extensions of the proposed completion and opening dates. For example, the sequence 2 contractor met only 2 of the 14 milestones we have been tracking for this hearing, and this contractor's monthly billings indicate that construction work is more likely to be completed closer to AOC's new target dates than its previous ones.
- AOC's new schedule provides additional time to complete work, and we believe, on the basis of the information available to us at this time, that AOC's July and August 2007 proposed opening dates tentatively appear reasonable; however, we have not yet finished reassessing AOC's schedule to better determine whether this additional time will be sufficient in view of the challenges, risks, and uncertainties that the project continues to face. For example, the CVC fire protection system has not yet been fully approved; critical building systems still have to be commissioned and tested; and certain design or work scope elements are still incomplete or are being clarified, refined, or changed, even though the project's overall design is essentially complete. In addition, the delays in completing the utility tunnel have created an additional risk: if the sequence 2 contractor has difficulty achieving and maintaining required temperature and humidity levels, the project's ceiling and finish work could be further delayed. More information should be available on this and other schedule-related issues by the time we finish reassessing the project schedule in mid-September, following the completion of AOC's reassessment, which is expected by July 31.

Before the schedule changed this month, we were estimating that the total cost to complete the entire CVC project would be about \$556 million without an allowance for risks and uncertainties and \$584 million with such an allowance—an amount that we continue to believe should be sufficient. To date, about \$530 million has been provided for CVC construction. The \$26 million in remaining funds needed is consistent with our last estimate of the amount of additional funds AOC would need to complete the entire CVC project. In addition, as we have previously indicated, AOC preliminarily expects to need about \$950,000 in fiscal year 2007 AOC general administration appropriations to pay for the contractual support needed to complete acceptance testing of the facility's fire protection system in time to meet the project schedule. AOC plans to determine if it can reduce the amount needed for this contractual support; we will keep the Subcommittee apprised of this situation. Furthermore, AOC is likely to incur additional costs because of the problems associated with the CVC's fire protection system, gift shops, utility tunnel, and other issues. In light of these problems, we do not know whether the \$556 million estimate, which does not include an allowance for risks and uncertainties, will cover the costs to complete the project, but we currently believe that our \$584 million estimate, which does include such an allowance, should be sufficient. We plan to reas-

²Trade stacking can occur when workers from different trades, such as stone masons, electricians, plumbers, or plasterers, have to work in the same area at the same time to meet a schedule, sometimes making it difficult to ensure sufficient space and resources for concurrent work.

sess our cost-to-complete estimate this summer and provide our results to the Subcommittee by mid-September.

AOC Has Extended the Project's Proposed Completion and Opening Dates

AOC has extended the CVC project's proposed completion and opening dates because, although the CVC team has continued to make progress in a number of areas since the Subcommittee's last CVC hearing, significant delays have also occurred, especially in work on the CVC's fire protection system, gift shops, and utility tunnel. Indicators of progress that we have been monitoring for the Subcommittee support AOC's extension of the proposed dates, and remaining challenges, risks, and uncertainties could further affect the project's progress. AOC's proposed time frames tentatively appear reasonable, but further reassessment of the project schedule is needed to gain greater confidence in the revised dates.

AOC Has Postponed the Proposed Completion and Opening Dates about 2½ Months

According to the May 2006 project schedule, the base CVC project will be completed in May 2007 and the House and Senate expansion spaces will be completed in August 2007, about 2½ months later than indicated in the April 2006 schedule. Moreover, according to the May schedule, the base project will be opened in July 2007 and the expansion spaces will be opened in August 2007—time frames that AOC believes will accommodate possible additional delays and allow start-up time for operations.

According to the May 2006 schedule, most of the physical construction work in the CVC, the East Front, and the expansion spaces will be completed by December 31, 2006; however, some work in the exhibit gallery, the gift shops, and the East Front extends into 2007—as far as March 2007 for the gift shops and certain East Front work. Neither the CVC nor the expansion spaces can be opened until the Chief Fire Marshal has completed acceptance testing for the fire protection and life safety systems, now scheduled for May 2007 for the CVC and August 2007 for the expansion spaces. The Chief Fire Marshal plans to issue a temporary certificate of occupancy for the CVC's base building when he completes his testing of it and a final certificate after he completes his testing of the expansion spaces and limited retesting of the CVC's base building. AOC believes that it may be able to shorten some of the time scheduled for testing the fire protection system and that it may be able to open segments of the expansion spaces earlier than August 2007. As we have discussed in previous CVC testimonies, AOC is continuing to explore this possibility.

Although the CVC team has had difficulty meeting milestones and continues to face challenges, risks, and uncertainties, the July 2007 opening time frame for the CVC would give the team 2 to 3 months (depending on the specific date in July) after the May 7, 2007, scheduled completion date to address additional delays and prepare for operations. Some time could also be available in August to address issues associated with the acceptance testing of the expansion spaces, which is scheduled to begin on May 8, 2007, after the initial acceptance testing of the CVC is completed. Thus, AOC's July and August 2007 time frames for opening the CVC and expansion spaces tentatively appear reasonable at this time pending our reassessment of the project schedule, to be done over the next several weeks.

Construction Work Is Progressing

According to information provided by AOC and its construction management contractor and our observations, work on the project has advanced, in terms of both the dollar value of the work in place and individual project elements. In dollar terms, AOC's construction management contractor reported that, as of May 31, the overall CVC project was about 82 percent complete and the sequence 2 work was about 71 percent complete—up from about 81 percent and 70 percent, respectively, as of April 30. Progress on individual project elements includes the following:

- Surface work above the CVC utility tunnel was largely completed, leading to the opening of East Capitol Street in June, and work on the House connector tunnel has continued.
- Interior CVC work has made additional progress, according to AOC's construction management and sequence 2 contractors. For example, the sequence 2 contractor has finished installing veneer plaster ceilings in the great hall; structural steel framing for the glass floor in the exhibit gallery; piping for the heating, air conditioning, and ventilation system throughout the CVC and expansion spaces; and piping for the sprinkler system throughout the CVC. Furthermore, the CVC team, the U.S. Capitol Police, and AOC's Fire Marshal Division have also resolved issues associated with the CVC's security and fire protection systems that, if not resolved, could have impeded construction progress.

- Wall stone installation has progressed substantially in the East Front plaza level, atriiums, and auditorium and continued in other areas, such as the food service area. As of last week, the sequence 2 contractor had installed about 96 percent of the interior wall stone in the CVC itself, excluding the atrium areas, the East Front, and the tunnels.
- On the East Front exterior, AOC and its construction management contractor reported, new waterproofing was installed under the center steps, a skylight structure was erected and glass was installed in the openings north and south of the great hall, and materials and equipment were delivered for the penthouse mechanical work.
- In the House and Senate expansion spaces, progress was made in installing drywall, roughing in electrical systems, and performing work in other trade areas.

Further Delays Have Occurred as Risks Have Materialized

Since the Subcommittee's May 24 hearing, problems have occurred in a number of areas that we expressed concerns about during the Subcommittee's last three CVC hearings. These include problems associated with the base project's fire protection system and the House and Senate gift shops, which have had the largest impact on the schedule—resulting in AOC's extension of the date for the CVC to obtain a temporary certificate of occupancy from February 23, 2007, as shown in the April schedule, to May 7, 2007, as shown in the May schedule. Problems have also delayed work on the CVC utility tunnel and the expansion spaces.

To resolve issues associated with the base project's fire alarm system and gift shops, the CVC team added a net of 51 workdays to the project's May schedule, reflecting (1) additional time for resolving issues raised by AOC's Fire Marshal Division about shop drawings for the base CVC building's fire alarm system, (2) additional time for programming the fire alarm system, and (3) a change in the schedule logic involving the time for starting the programming. AOC's Fire Marshal Division completed its review on June 1 and approved most elements of the base building's fire alarm system, but raised a number of problems and concerns. For example, it found that the firefighter telephone system and manual pull stations proposed by the subcontractor did not meet contract specifications. In addition, the CVC team learned that the sequence 2 fire alarm system subcontractor did not plan to start programming the fire alarm system until all relevant issues, including those raised by the Fire Marshal Division about the CVC's fire alarm shop drawings and proposed fire alarm system equipment, were resolved. Because the programming had previously been scheduled concurrently with other activities, the team added time to the schedule for the programming. Work on the gift shops has been delayed because the estimated costs and bid price for their fit-out greatly exceeded the budget for this work. AOC planned to request approval from the House and Senate Committees on Appropriations to reprogram funds from CVC operations to construction to cover the shortfall and plans to move forward with the gift shops in segments by executing contract modifications based on the available funding until its reprogramming request is approved. However, AOC said that this reprogramming request did not include any contingency funding for the gift shops and therefore it anticipates having to request another reprogramming of funds for such contingency funding. The CVC team and the Fire Marshal Division established and have implemented an expedited process for resolving the identified problems and concerns, and according to the team and AOC's Chief Fire Marshal, the issues raised by the Fire Marshal Division about the CVC's fire alarm shop drawings and proposed fire alarm system equipment are being worked through for resolution and resubmission to the Fire Marshal Division. However, it is not yet clear how much time will be needed to address other fire protection system issues; the Fire Marshal Division has not yet completed its reviews of shop drawings for other components of the system because the design of the CVC's base building fire alarm system had to be approved first; and the gift shop design and funding issues have not been fully resolved. We plan to include these areas in our reassessment this summer.

Delays associated with the CVC utility tunnel led the CVC team to extend the date for it to become operational from June 29, 2006, as shown in the April 2006 schedule, to August 4, 2006, as shown in the May 2006 schedule. These delays occurred because preliminary work on an old tunnel took longer than expected. The old tunnel, which contains piping from the Capitol Power Plant that is connected to piping in the CVC utility tunnel, was inaccessible before temporary shoring work was completed. According to AOC, this temporary shoring work was completed on June 16, and last week the CVC team began asbestos cleanup in the old tunnel, in the area where piping from the new tunnel is connected to piping in the old tunnel. After this cleanup is done, the CVC team is to continue work in the old tunnel

necessary to enable steam and chilled water to flow from the Capitol Power Plant to the CVC. Given the history of problems associated with the utility tunnel, it is not clear at this time whether it will be operational on schedule, and additional delays could further adversely affect the project, as we will discuss later in our testimony. Several other base project activities—which we will discuss shortly—have also been delayed, but these delays have had a smaller impact.

Delays in commissioning the air handling units and in installing ceiling tile in the expansion spaces during the past month will affect the project schedule, and some work has been resequenced, but the resequencing will not affect the schedule, according to the sequence 2 contractor. The air handling units are necessary for testing the fire protection system in both the CVC and the expansion spaces, and the ceiling tile must be installed in the expansion spaces for that testing. According to the fit-out subcontractor, the ceiling tile work was delayed because the subcontractor doing the work had to wait for direction on audio-visual rough-in work. The sequence 2 contractor resequenced the installation of circular staircases in the House and Senate atrium areas because extensive concrete chipping in one atrium, which was required to correct out-of-tolerance sequence 1 work, and scaffolding set up in the atriums to install wall stone precluded the sequence 2 fit-out subcontractor from gaining access to work areas in both atriums.

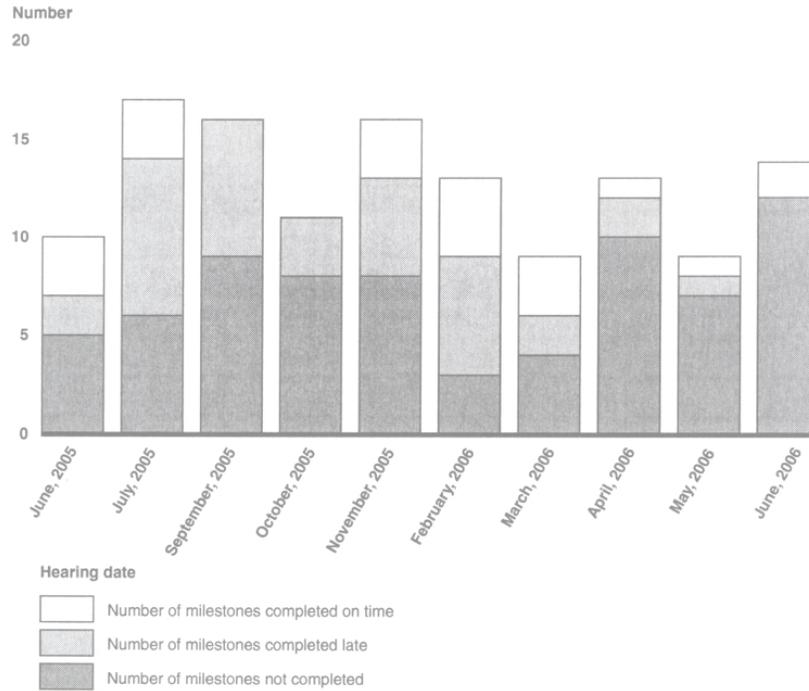
In addition to the construction-related adjustments to the schedule for the expansion spaces, the 51-workday delay in the CVC schedule produced a corresponding 51-workday delay in the schedule for the expansion spaces, extending their opening from May 25, 2007, as shown in the April schedule, to August 8, 2007, as shown in the May schedule. This extension will occur because, as we have discussed in our previous CVC testimonies, AOC plans to have most of the acceptance testing of the CVC's fire protection system completed before the acceptance testing of the expansion spaces begins.³ AOC believes that this sequential approach to the acceptance testing will allow the CVC to open with a temporary certificate of occupancy somewhat earlier than if the acceptance testing were performed concurrently. AOC is still considering opening the expansion spaces in sections, which means that some sections could possibly open earlier than August 8, 2007.

Indicators of Construction Progress Support Extension of Project Schedule

Besides the delays that have already occurred, several indicators of construction progress that we have been tracking for the Subcommittee suggest that the revised completion and opening dates in AOC's May 2006 schedule are more realistic than the previously scheduled dates. An update on these indicators follows:

Sequence 2 contractor continues to miss milestones.—Starting with the Subcommittee's June 2005 CVC hearing, at the Subcommittee's request, we and AOC have been selecting and tracking sequence 2 milestones to help the Subcommittee monitor construction progress. These milestones include activities that were either on the project's critical path or that we and AOC believe are critical to the project's timely completion. As figure 1 shows, the sequence 2 contractor has generally missed these milestones. For today's hearing, 14 of these milestones were due to be completed, according to the project's January 2006 schedule. One was completed ahead of schedule, one was completed on schedule; and none of the remaining 12 had been completed as of June 26. (See app. I.) AOC's sequence 2 contractor attributed the slippages to a number of factors, including the need to do remedial or preparatory work in the East Front and auditorium and the need to resolve outstanding issues and resequence work for a number of reasons, such as to prevent damage or to move materials stored in an area that was otherwise ready for the next stage of work.

³AOC is planning to have the smoke control system in the CVC and expansion spaces tested at about the same time because certain parts of the smoke control system in the expansion spaces must operate before the CVC can open.



Source: Sequence 2 contractor, AOC and its construction management contractor, and GAO.

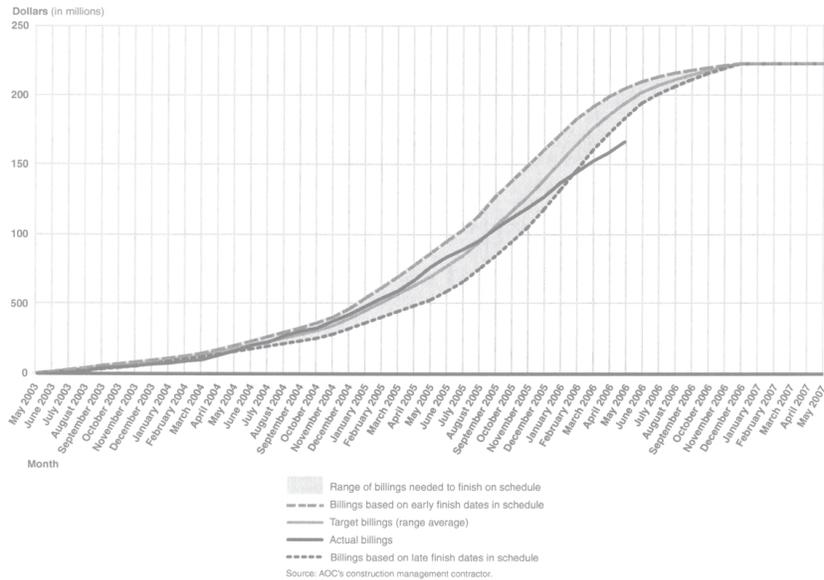
FIGURE 1.—Sequence 2 Contractor’s Progress in Meeting Selected Milestones as of CVC Hearing Dates

In total, AOC’s construction management contractor reported delays in 17 of 23 critical and near-critical paths that AOC’s construction management contractor identified as important to meeting the base project’s overall completion date.⁴ According to AOC’s construction management contractor, delays besides those in the fire protection system, gift shops, and utility tunnel have occurred in other activity paths since the Subcommittee’s last CVC hearing. These other delays occurred in, but were not limited to, the East Front, the orientation theaters, the exhibit gallery, certain elevator installations, the upper level assembly room, and the House connector and Library of Congress tunnels. According to the CVC team, these other delays were attributable to design changes, water leaks, deficient sequence 1 work, changes in the sequence of work activities by the sequence 2 contractor, and inaccessible work areas. Even more important than the individual delays themselves, however, is their likely impact on the CVC team’s ability to complete construction work on schedule. So many activities have fallen behind schedule that relatively short additional delays could push the CVC’s overall completion date further back. The num-

⁴ Construction projects typically have one critical path, which is the sequence of activities having the longest duration through the schedule. There is no slack time associated with these activities, meaning 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. Some projects have multiple critical paths simultaneously; in practice, the CVC had what essentially amounted to two concurrent critical paths in May—(1) acceptance testing of the fire protection system and (2) fit-out of the gift shops. (AOC’s construction management contractor reported the fit-out of the gift shops as a near-critical activity because of a change in schedule logic it had made, but because this delay would otherwise have had the same impact on the project’s completion as the acceptance testing delay, we regard it as a second critical path.) Generally, the more critical and near-critical activities a project has, the greater is the risk of late completion because there are more opportunities for slight delays that can adversely affect the project’s completion.

ber of critical and near-critical paths increased from 21 in the project’s April schedule to 23 in the May schedule.

Value of completed work is consistent with revised schedule.—Another indicator of construction progress that we and AOC’s construction management contractor have been tracking is the value of the completed construction work billed to the government each month. Both we and the construction management contractor believe that the sequence 2 contractor’s monthly billings, including the bills for March, April, and May 2006, indicate that AOC is more likely to finish closer to its currently scheduled completion dates than its previously scheduled completion dates. While this indicator has some limitations (for example, billings lag behind construction), it is generally regarded in the construction industry as a useful measure of how likely a project is to be completed on time. Figure 2 compares the sequence 2 contractor’s billings since May 2003 with the billings needed to complete construction work on schedule and indicates that the sequence 2 contractor is unlikely to finish the project until the late spring or summer of 2007 unless the value of completed work increases significantly. We believe that a significant increase will be difficult, given the limited number of areas that will be ready for finish work at any given time.



Notes:

1. The early and late lines on this figure reflect the cumulative billings that would be required to complete the project through contract modification number 102 (\$224.8 million total contract value) by the early and late finish dates shown in the sequence 2 contractor’s schedule based on the September 2006 contractual completion date.

2. The actual line reflects the sequence 2 contractor’s actual monthly billings.

3. Although bills are typically submitted for payment after work is completed, it is often likely that construction work will be completed on schedule when the actual billing line falls between the early and late lines in the figure. With respect to the CVC, the actual billing line has been trending below, and in March 2006 went below, the late finish line, where it remained in April and May 2006. Even with the lag in billings, this trend indicates that the amount of work being completed each month is not sufficient to finish the project on the project’s previous schedule.

FIGURE 2.—Total Billings by the Sequence 2 Contractor for the Entire CVC Project Compared with the Billings Needed to Finish Construction Work on Schedule

Interior stone installation is taking longer than expected.—Overall, about 80 percent of the CVC’s interior wall stone has been installed (includes the CVC, East Front, atrium areas, and tunnels), according to AOC’s construction management

contractor, and the sequence 2 contractor installed 4,795 pieces of interior wall stone during the last 5 weeks, about 30 percent short of its 6,959-piece production target. During the same period, the sequence 2 contractor installed about 2,825 square feet of floor stone, or about 20 percent of the 15,070 square feet specified in a preliminary floor stone installation plan that the contractor provided to AOC shortly after the February 15 CVC hearing. In addition, 4 of the 14 schedule milestones that we and AOC have been tracking for the Subcommittee for today's hearing are related to interior wall stone installation, and the sequence 2 contractor met 1 of these 4 milestones.

According to the CVC team, the sequence 2 contractor has missed its stone installation targets for a variety of reasons, including the need to correct problematic sequence 1 work or properly prepare certain spaces for the installation of wall or floor stone, a change in wall stone design, late deliveries of floor stone for the exhibit gallery, and delays in some spaces in finishing certain work, such as ceiling work, that usually precedes floor stone installation. The sequence 2 contractor did not meet the milestones for wall stone installation that we are tracking for the Subcommittee because certain remedial work was necessary and several of its masons were doing noncritical wall stone installation in other areas. The masons were doing this noncritical work while remedial or preparatory work was being performed in the East Front and atrium areas so that wall stone installation could start or continue in those areas, according to AOC's construction management contractor. In addition, AOC's construction management contractor reported that wall stone for remaining work in the upper level of the orientation lobby, which had been awaiting delivery because of a change in the type of stone to be used, has been delivered.

The sequence 2 contractor has not yet finished installing floor stone in the exhibit gallery, largely because it ran out of floor stone for that area during certain periods in April and May. According to the sequence 2 contractor, the supplier of floor stone for the exhibit gallery is a small company that was not able to fabricate the floor stone as quickly as needed. AOC's construction management contractor said that the sequence 2 contractor has now received all of the exhibit gallery floor stone. The sequence 2 contractor does not expect previous installation delays to adversely affect the overall completion of the exhibit gallery.

To finish installing floor stone in other areas of the CVC, the sequence 2 contractor said that it (1) plans to move many of the masons installing wall stone to floor stone installation soon and (2) has drafted a new set of targets for floor stone installation, which the CVC team has been reviewing. We plan to review the contractor's revised targets when they are provided to us and will track the contractor's performance against its revised targets for the Subcommittee's subsequent CVC hearings. Finally, according to AOC's construction management contractor, over 60 percent of the CVC's interior floor stone has been fabricated, and the sequence 2 contractor does not anticipate future problems with floor stone supply.

Figures 3 and 4 show the sequence 2 contractor's progress in installing interior wall and floor stone since January 23 and February 13, 2006, respectively.

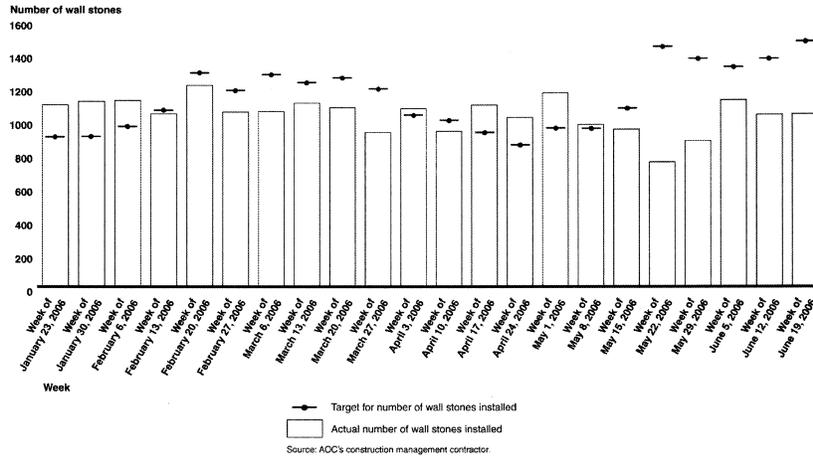


FIGURE 3.—Progress of CVC Interior Wall Stone Installation Compared with Targets Set by the Sequence 2 Contractor

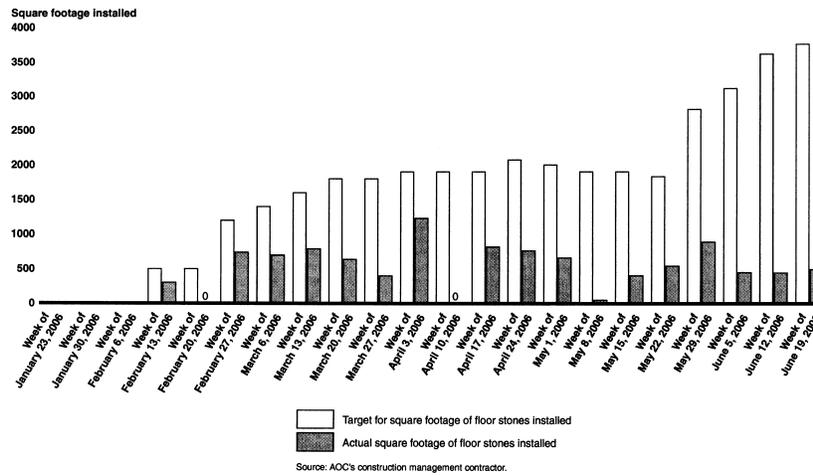


FIGURE 4.—Progress of CVC Interior Floor Stone Installation Compared with Preliminary Targets Set by the Sequence 2 Contractor

Project Schedule Remains Vulnerable to Challenges, Risks, and Uncertainties

As we have indicated during the Subcommittee’s previous CVC hearings, we believe that the CVC team continues to face challenges, risks, and uncertainties in completing the project. At this time, the 2 to 3 months that AOC has added to the proposed opening dates for the CVC and the expansion spaces seem sufficient to address these challenges, risks, and uncertainties. Nevertheless, given the project’s history of delays—including those that have occurred since the Subcommittee’s last hearing—together with information previously provided to us by CVC team managers and members about the lack of sufficient time in the schedule for certain activities, we are not as confident as we would like to be about whether the CVC team will be able to address all of the challenges, risks, and uncertainties and finish all construction activities by the currently scheduled dates. Accordingly, we plan to reassess the project schedule this summer and report our results to the Subcommittee by mid-September 2006. A brief update follows on the challenges, risks, and uncertainties the CVC team continues to face and the team’s plans for addressing them:

—*Trade stacking could delay completion.*—As we discussed during the Subcommittee’s previous CVC hearings, trade stacking could hold up finish work, such as drywall or ceiling installation, electrical and plumbing work, plastering, or floor stone installation. This work could be stacked because of delays in wall stone installation. Trade stacking could also increase the risk of accidents and injuries. Hence, it remains important, as we said at previous CVC hearings, for the CVC team to closely monitor construction to identify potential trade stacking and promptly take steps to address it. The CVC team has also identified trade stacking as a high risk, and in its May progress report, AOC’s construction management contractor expressed concern about having enough workers to do ceiling work because much of the wall stone work is to be finished at the same time, making several areas available for ceiling work at the same time. The sequence 2 contractor has developed plans that show when various subcontractors will be working in each area of the CVC except the East Front, which the sequence 2 contractor does not expect to be ready for finish work for several weeks. According to the sequence 2 contractor, it intends to continue meeting regularly with its subcontractors to review and update the area plans and to have the area plan for the East Front done before finish work begins there. In mid-June, the sequence 2 contractor reported that its area-by-area plans had prevented trade stacking to date. Although we and AOC agree that these area-by-area plans are important and should be helpful in reducing the risk of trade stacking, we are still concerned about the potential for future trade stacking because of the delays that have already occurred and future delays that could occur.

—*Complex building systems remain a significant risk.*—The CVC will house complex building systems, including systems for heating, ventilation, and air conditioning; fire protection; and security. These systems not only have to perform well individually, but their operation also has to be integrated. If the CVC team encounters any significant problems with their functioning, either separately or together, during commissioning or acceptance testing, the project could be seriously delayed. During the Subcommittee’s March 15 CVC hearing, we noted that the sequence 2 contractor planned to submit the shop drawings for the CVC’s fire protection system for review by March 17. However, the contractor did not submit the drawings for the base project until the end of April, in part because more time was needed to incorporate changes, AOC’s construction management contractor said. The shop drawings for the CVC’s base building fire alarm system were given to AOC’s Chief Fire Marshal on May 1, and he and his staff completed their review on June 1. As we previously mentioned, AOC’s Fire Marshal Division approved most of the system and is now resolving the open issues with the CVC team. Some additional construction work may be required to address some of the Fire Marshal Division’s comments, but AOC does not expect this work to further delay the project’s completion. The Fire Marshal Division finished reviewing the shop drawings for the expansion space fire alarm system by June 26. The Fire Marshal Division has not been able to finish reviewing the shop drawings it has received for components of the fire protection system outside the base project because the CVC’s base building fire alarm system had to be reviewed first. In addition, the Division did not yet have complete information on when it would receive additional shop drawings. Delays could arise if it takes longer than expected for the team to get approved shop drawings or if the proposed system does not meet the project’s design specifications or the fire protection code’s requirements.⁵ In addition, the Chief Fire Marshal noted that delays could occur if the CVC team does not adequately pretest the system and correct any problems found during the pretesting. On March 23, AOC’s commissioning contractor submitted its plan for testing the performance of the CVC’s smoke control system, which is a critical component of the CVC’s fire protection system and must work properly before the CVC can be opened to the public. This plan had not yet been submitted to or approved by the Fire Marshal Division. In addition, as we have previously noted, the Chief Fire Marshal’s timely completion of the fire protection system’s acceptance testing depends on his ability to obtain sufficient funding for a contractor to help perform the tests.

⁵ According to the sequence 2 subcontractor that is fitting out the House and Senate expansion spaces, the delays in getting approved shop drawings for the fire protection system have already postponed ceiling close-ins in the expansion spaces, and AOC believes that further such delays, along with possible requests for design changes, pose the greatest risks to the completion schedule for the expansion spaces.

—*Building design and work scope continue to evolve.*—The CVC has undergone a number of design and work scope changes. Since the Subcommittee’s May 24 CVC hearing, AOC’s architectural contractor has issued three design changes or clarifications. As of June 22, 2006, this contractor reported, another 14 were in process. In addition, since the project began, AOC has executed more than 80 sequence 2 contract modifications for work that was not anticipated.⁶ Some of these changes, such as changes in the exhibit gallery and in the East Front, have resulted in delays. Furthermore, shop drawings for a number of project elements, such as certain components of the facility’s fire protection system discussed above, and the design for the House and Senate gift shops have not yet been fully approved and are subject to change. Further design or scope changes in various project elements are also likely, given the project’s experience to date. Project design and scope changes are typically reflected in the development of potential change orders (PCO), many of which result in contract modifications. Figure 5 shows the PCOs submitted for consideration for sequences 1 and 2 since September 2003. Although PCOs are not always approved, they are often regarded as a reasonably good indicator of likely future design or scope changes that can affect a project’s cost and schedule. Even more important, the adverse impact of scope and design changes on a project schedule is likely to increase as the project moves toward completion. For example, changes in the design of the gift shops are likely to affect the project schedule more adversely now than if the changes had been made several months ago.

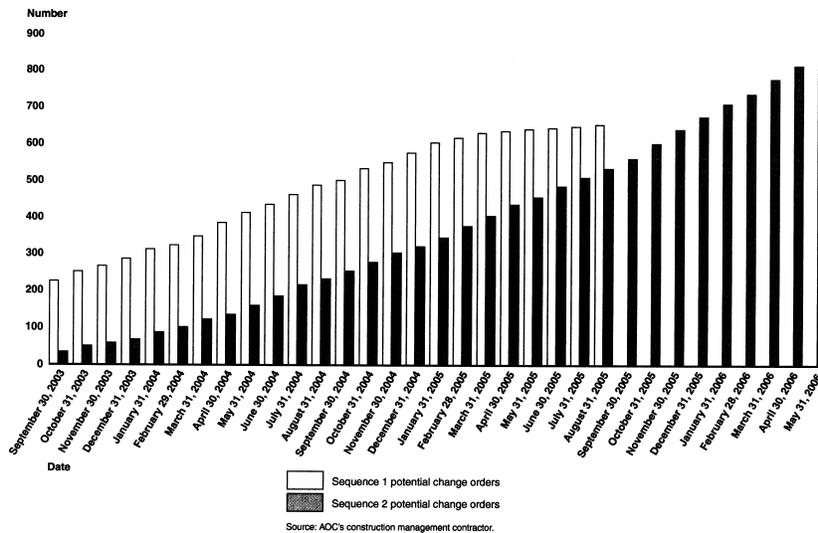


FIGURE 5.—Cumulative Number of Potential Change Orders Submitted for CVC Sequences 1 and 2 between September 2003 and April 2006

As the figure indicates, new PCOs for sequence 1 were submitted until shortly before, and even for several months after, November 2004, when AOC determined that the sequence 1 contract work was substantially complete. Similarly, PCOs for sequence 2 are still being submitted, and we have seen no indication that their submission is likely to stop soon. It therefore appears likely to us that some of the design or scope changes indicated in PCOs could lead to contract modifications that will affect the project schedule. AOC agrees that it is important to minimize the impact of proposed design and scope changes.

Three additional issues associated with the CVC’s new utility tunnel have resulted, or are likely to result, in additional work or slippages. First, AOC recently said that it plans to add an exit to the new CVC utility tunnel to enhance

⁶These data exclude sequence 2 contract modifications for work that was planned but not included in the sequence 2 base contract. Examples include the fit-out of the House and Senate expansion spaces, the construction of the utility tunnel, and the purchase and installation of food service equipment.

worker safety. However, the construction work to add this exit may not start until after the CVC is open, according to AOC. Second, AOC recently identified complications that are affecting work on the new CVC utility tunnel. Specifically, AOC found that potential asbestos and other safety-related problems in an older tunnel that intersects the new utility tunnel will have to be addressed before other work needed for the new utility tunnel's operation can proceed in the older tunnel. This additional safety-related work has contributed to the delay in the utility tunnel's completion discussed earlier in our testimony; had not been completed as of June 26; and could lead to additional delays in getting the utility tunnel operational. (AOC expects this work to be done by July 1, 2006.) Third, the delay in starting up the utility tunnel's operations has necessitated the use of temporary humidity control equipment for the orientation theaters to avoid damage to finish work and ceiling tile. In addition, further utility tunnel delays could require additional equipment in other areas, subject certain work to risk of damage, or delay finish or ceiling work in areas not suitable for the use of temporary humidity and temperature control equipment. For example, the CVC team installed ceiling tile in portions of the great hall to take advantage of the scaffolding in place, even though neither the temperature nor the humidity were controlled in that area. According to the CVC team, the installed tile could be damaged if the temperature or humidity is not within the specified levels.

—*Opening the CVC and expansion spaces at different times is likely to result in a temporary cap on CVC occupancy and could increase costs.*—AOC's current plan to open the CVC in July 2007 before the expansion spaces are scheduled for completion is likely to result in a temporary cap on CVC visitor occupancy and may necessitate the construction of temporary emergency exits for fire and life safety protection.⁷ AOC is proposing this sequential approach because it believes that conducting acceptance testing for the fire protection system for the CVC and the expansion spaces concurrently would delay opening the CVC to the public. AOC's proposed July 2007 opening date for the CVC depends on the timely completion of work not only on the base project but also on the expansion spaces, since certain expansion space work must be completed before the CVC's opening. Because work on both the base project and the expansion spaces has been delayed during the last 3 months, we believe that it will be especially important to monitor the progress of construction to determine what additional work (and funding) may be needed to meet AOC's planned date for opening the CVC, including what temporary work may be required in the expansion spaces for the opening to occur before the expansion space work is completed.

—*Risks from insufficient stone deliveries remain, but may be diminishing.*—According to AOC's construction management contractor, the sequence 2 contractor has, since the week of May 22, received four truckloads of interior wall stone from the wall stone fabricator. The sequence 2 subcontractor installing the interior wall stone recently asked its supplier to hold fabricated wall stone at its facility pending a request for delivery because of a shortage of storage space on the CVC site. As of June 16, the supplier had two truckloads on hold, according to AOC's construction management contractor. The sequence 2 contractor said that it does not foresee any further delays in the CVC work due to a lack of wall stone. Moreover, although none of the wall stone for the House and Senate expansion spaces was on site yet, the subcontractor responsible for this work is not anticipating delivery problems at this time. AOC's construction management contractor reported that no floor stone was installed in the exhibit gallery during the week of April 10 or between May 9 and May 17 because the installers ran out of floor stone for that area. According to AOC's construction management contractor, the remaining exhibit gallery floor stone has now been delivered, and the installation has been continuing. The CVC team does not expect delays in floor stone shipments to affect the pace of future floor stone installation.

Finally, as we have said in previous discussions with AOC, its construction management contractor, and the Subcommittee, it will be important for AOC to have

⁷According to AOC, the CVC's occupancy at any one time would be temporarily limited to 3,500, compared with about 4,200, the normal anticipated occupancy level, until acceptance testing of the fire protection system for the expansion spaces has been completed. Although AOC anticipates the need for some temporary work, it does not believe that the associated costs will be substantial.

adequate analysis and documentation of the reasons and responsibilities for delays.⁸ On April 11, 2006, AOC executed a contract modification authorizing its construction management contractor to have one of its managers who has not been involved in the CVC project assess the adequacy of this type of information. The manager submitted his report to AOC in early June. He reported generally positive findings but also identified desired improvements. He made several recommendations to AOC, which AOC has generally agreed with and plans to implement consistent with the availability of resources. As we have previously stated, we believe it is important for AOC to complete its analysis of delays expeditiously given the current September 15, 2006, sequence 2 contract completion date and the impact this analysis is likely to have on delay-related costs.

Estimated Project Cost and Funding

As we testified during the Subcommittee's last three CVC hearings, we have estimated that the total cost to complete the entire CVC project would be about \$556 million without an allowance for risks and uncertainties and could be as much as about \$584 million with such an allowance. To date, about \$530 million has been provided for CVC construction. This amount includes about \$3.6 million that was made available for either CVC construction or operations and has been approved for CVC construction by the House and Senate Committees on Appropriations.⁹ To obtain the additional funding that it expected to need to complete the project's construction, AOC, in December 2005, requested \$20.6 million as part of its budget request for fiscal year 2007. This request was based, in part, on discussions with us and took into account our November 16, 2005, estimate of the cost to complete the project's construction without an allowance for risks and uncertainties and funding from existing appropriations. Our subsequent work—completed in preparation for the Subcommittee's February 15 and March 15 CVC hearings—indicated that AOC would need about \$5 million more, or about \$25.6 million in total additional CVC construction funds, to complete construction without an allowance for risks and uncertainties. This would bring AOC's total request for fiscal year 2007 CVC construction funds to \$25.6 million. In addition, AOC has indicated that it plans to use about \$950,000 of the fiscal year 2007 general administration appropriations it has requested to provide contractual support for its Fire Marshal Division.

As we stated in our last three CVC testimonies, AOC believes that it may be able to reduce the amount of funds it will need in fiscal year 2007 to provide contractual support for testing the CVC's fire protection system and is exploring ways to do so. We plan to monitor this situation and report to the Subcommittee as soon as AOC has a firmer estimate. In addition, events occurring since the Subcommittee's May 24 CVC hearing have raised questions about the sufficiency of the \$556 million cost-to-complete estimate, given that it does not provide an allowance for risks and uncertainties. For example, AOC's extension of the project schedule by more than 2 months is likely to result in increased costs; AOC recently learned that a redesign of the gift shop fit-out did not reduce the cost estimate or bid price to the budgeted amount; and the cost estimates for wayfinding signage have exceeded the budgeted amount. Nevertheless, at this time, we have no specific indication that the total cost to complete the project will exceed our \$584 million estimate, which does include an allowance for risks and uncertainties. We plan to reassess our cost-to-complete estimate this summer and will keep the Subcommittee apprised of our results.

Mr. Chairman, this completes our prepared statement. We would be pleased to answer any questions that you or Members of the Subcommittee may have.

⁸See for example: GAO, *Capitol Visitor Center: Effective Schedule Management and Updated Cost Information Are Important*, GAO-05-811T (Washington, D.C.: June 14, 2005).

⁹Public Law 108-447, enacted on December 8, 2004, provided that up to \$10.6 million could be transferred from AOC's Capitol Building appropriation account for the use of the CVC project. The use of the amount transferred is subject to the approval of the House and Senate Committees on Appropriations. In June 2005, AOC received approval to use about \$2.8 million (including about \$1.6 million for CVC construction) of this \$10.6 million, leaving a balance of about \$7.7 million that could be used in the future after a rescission amounting to \$84,800. AOC recently received approval to use about an additional \$2 million of these funds for CVC construction, including, for example, the fabrication and installation of wayfinding signage and the fit-out of the gift shops, and about \$2.3 million for CVC operations. Thus, about \$3.4 million of the \$10.6 million remains available for approval for use for CVC construction or operations.

APPENDIX I.—CAPITOL VISITOR CENTER CRITICAL CONSTRUCTION MILESTONES, MAY 25, 2006-
JUNE 28, 2006

Activity	Location	Scheduled completion	Actual completion
Projection Screens	Orientation Theaters	5/30/06	4/22/06
Floor Stone	East Front Basement	5/30/06	.....
Ceiling Fabric	Congressional Auditorium	6/06/06	.....
Wall Stone Area 2	East Front Principal	6/06/06	.....
Wood Doors and Frames	Food Service	6/13/06	.....
Plaster Walls	Orientation Lobby	6/15/06	.....
Wall Stone Area 6	Congressional Auditorium	6/15/06	.....
Finish Paint	West Lobby Assembly	6/20/06	.....
Finish Paint	East Front Basement	6/20/06	.....
Wall Stone Area 2	Atria North Lower Level	6/20/06	6/20/06
Flooring	East Front Basement	6/23/06	.....
Stone Stairs	East Front Principal	6/27/06	.....
Ceiling Stone	East Front Principal	6/27/06	.....
Wall Stone Area 1	East Front Gallery	6/27/06	.....

Source: AOC's January 2006 CVC sequence 2 construction schedule for the scheduled completion dates and AOC and its construction management contractor for the actual completion dates as of June 26.

Senator ALLARD. Thank you very much for your testimony.

Before I raise a question in regard to the milestones, I did worry about all this rain that we're getting, and if we'd end up with any leaks in the Capitol Visitor Center. I understand that it went through all this historic rain in pretty good shape and we really don't have any serious problems there. Is that correct?

Mr. HIXON. Mr. Chairman, we've had a considerable amount of water enter the building on the east side, down the slope. Fortunately, there were no floor finishes in that area. That water migrated down to the mechanical level. It's all being addressed. There are a few pieces of equipment that may have been damaged as a consequence of the water, but it's not an insurmountable problem. There is—

Mr. HANTMAN. The drains are not in place.

Mr. HIXON. We do have drains there. We—the drains were not— are not completed yet.

Senator ALLARD. I see.

Mr. HIXON. And so—

Senator ALLARD [continuing]. That's why we had the problem.

Mr. HIXON [continuing]. So, we had that issue. We had the same thing at the west side, where the drains are in, but, because the rainfall was so great, we weren't able to handle it all, and we had some water come down through the stairwell. So, there's a minimal amount of damage that's occurred to drywall, and a lot of it ended up in the mechanical area, where it's being addressed.

Senator ALLARD. I've been told this is a historic rain. Early on in the project, we made some modifications to control that drainage in case we have another historic rain, 10 years down the road, we can handle it.

Mr. HIXON. Yes, sir, we expect to not have a problem. The design anticipates a 100-year rainfall, yes. But, as a consequence—

Senator ALLARD. This is a 300-year.

Mr. HIXON. Yeah. But the systems were not in place along the east side to capture all the water that came down.

CAPITOL VISITOR CENTER MILESTONES

Senator ALLARD. I see. Okay.

Now, on the milestones, only 2 of the 14 milestones were completed this last month. Mr. Hantman, is AOC missing milestones each month because the schedule is simply not realistic?

Mr. HIXON. Mr. Chairman, the schedule is realistic, but the fact is, we do continue to miss some milestones. We have—a large percentage of the work has been completed, but we are not hitting each item on the schedule. We have slipped in our construction a couple of months, particularly in the east front, which is where a lot of the milestones are currently reflecting the east front work that should be going on. And that's about 6 to 8 weeks behind.

What we expect to do as a consequence of this schedule change on the completion, if this is acceptable to the subcommittee, is to use the current baseline—the current schedule as a baseline, rather than using the January schedule as a baseline. If that's acceptable, then we should be much more accurate in achieving our milestones. There is concern, however, that we are still not meeting things on—as many things on schedule as we should be.

Senator ALLARD. Now, in the past, whenever we had these milestones you said, "Well, we can catch up." But we're at the point now where we're toward the end, and I'm not sure there's much catch-up time on some of these milestones. It remains a concern, from that point of view.

Mr. HIXON. Yes, sir. The purpose of this coordination for trade stacking is to ensure we don't have a problem with that issue. The reality is, there will be issues when we get to the end and we have so much work to be done. So, that's something that requires a lot of coordination, and there are going to be some bumps along the way as we try and reach that. However, in a general sense, there are some elements of the work that are, in fact, completing early. The atria stone is completing early, and that's in the expansion spaces. So, that facilitates, like the fire alarm acceptance testing, because there won't be construction work in some of the egress corridors. So, there are concerns. We don't disagree with GAO's assessment that there are concerns. But there is also great progress being made. So, we do not expect to have construction for the CVC itself continue past the end of the year.

Senator ALLARD. I enjoyed Mr. Dorn's analogy, but I was thinking, you have a cold supper when you get home, but it's not costing you more.

But when our schedule gets delayed, it gets expensive.

Since last month's hearing, the Architect of the Capitol determined the project will take 51 days longer than anticipated. Can you explain the reason for that significant delay, Mr. Hantman?

FIRE ALARM SYSTEM PROGRAMMING

Mr. HIXON. Mr. Chairman, I can answer that question. The programming that was supposed to begin on June 6 is not anticipated to begin until August 15, and that accounts for the 51-day delay. The programming that's required is a critical item within the fire alarm system, and the cause of that delay is—we have to complete the fire alarm acceptance process. The contractor will not proceed

with programming until there's an agreement, an acceptable solution for exactly how this programming's to function. That is being worked very heavily, with weekly work meetings with the fire marshal. We've made a great deal of progress, but we are not finished with that process. We're hoping to improve on the start date of that, because the contractor has advised us that it'll take 6 weeks instead of 4 weeks to actually do the programming now, because it's more complicated.

So, we're expecting to start early, but it'll take a little longer, so we won't be finished much earlier than the August 15 date based on what we know today.

Senator ALLARD. That was due to a policy change worked out between the OOC and the fire marshal, some delays in the fire alarm system, which has required that—

Mr. HIXON. Yes, sir.

Senator ALLARD [continuing]. Reprogramming.

Mr. HIXON. A great deal of that has to do with the programmer understanding exactly how the systems need to function, because this is—it is different—dramatically different from what was in before. And so, he was prepared to do it originally, and it would take him 4 weeks, but, because of the changes, we had to get a revised specification to him which had to be developed after we had determined what the requirements were.

Senator ALLARD. With respect to the fire alarm system, in last month's hearing, Mr. Hantman, you had testified that the programming changes that need to occur will not affect the system installation, should have no significant impact, if any, to the duration of the testing process, and no significant impact on the schedule. Now we've learned that this is not the case, and we need an explanation. Can you share that, for the record, please?

Mr. HIXON. Mr. Chairman, I can share that. I'm the one that provided that information to Mr. Hantman. And the expectation at the time was that the program itself could be easily accommodated. The contractor is reluctant to start this process until we have completed the whole acceptance process. He's concerned that we would—he would get partway through the programming and then have to start over again. And so, the changes require more time than we thought to actually get them clarified exactly to what the requirements are. So, last hearing, we did not expect it to have an impact. I was incorrect; it is having an impact.

Senator ALLARD. Mr. Ungar.

Mr. UNGAR. Yeah, Mr. Chairman, we'd just like to clarify one thing that Bob—Mr. Hixon said, and that is that the 51 days is not primarily driven by the programming change. The real driver there was the need to provide more time to complete the review and approval of the shop-drawing process. And then, subsequent to that, you have the additional time for the programming, and then the fact that the programming, which was believed to have been able to start earlier, prior to about 1 month ago, the team now learned that it has to be sequential; it has to wait until all the shop-drawing elements that are critical to the programming are approved. So, it wasn't the programming itself, or the change in the programming, that really drove the large part of the 51 days, the best we can determine.

Senator ALLARD. And, to that point, Mr. Hixon, what is the status of the fire marshal's review of the shop drawings for the CVC? And have you begun to prioritize those?

Mr. HIXON. The shop-drawing review that's been ongoing, we've just had—we've had a working session for the last two Wednesdays. There'll be another—a third one this Wednesday. The items that were not acceptable when the submission was completed in June included a lot of product data. That data, except for the firemen's telephones, has been resolved. That, and the battery calculations, I believe. We have two levels of devices, additional devices, required by the fire marshal that have all been identified. We have the upper level, to be done today, the annunciator panel. So, we've made great progress in doing that. We are well into this, well beyond half of the items that need to be completed. The goal is to have all of this completed so that the matrix for the operation of the system is acceptable. And that's a key part. It's in the submittal for the fire alarm, but the matrix is what outlines how the system needs to function. That matrix should be done by the 15th, and that's when we're looking for them to start this programming effort. It is true that the programming is not the whole process, but that is what is driving them being able to start their programming.

Senator ALLARD. Is that the 15th of July?

Mr. HIXON. The 15th of July. That would be starting a month earlier than we currently planned—or, I should say that would be starting on July 15, in lieu of June 6. But we would be finished sooner than we had anticipated in the schedule, but now the schedule is going to take 6 weeks. So, the net result of all of that is, we currently hope to be done with the programming the 1st of September. The schedule anticipates completing programming by the middle of September so pretesting can commence.

Senator ALLARD. Has any prioritization been done or attempted on the drawings?

Mr. HIXON. The items that are being addressed in these work sessions are the priorities that were needed first. So, yes, they are being handled in a priority manner that's important to the contractor.

Senator ALLARD. Okay. Yes, Mr. Ungar?

Mr. UNGAR. Mr. Chairman, there are two issues here with respect to priorities. One is the priority in addressing the comments that the fire marshal has already provided, but the other issue with priorities is: What is the total list of shop drawings and other system elements that have to be approved by the fire marshal? And, of that list, what are the priorities and how long is it going to take to resolve all those issues? The system that Mr. Hixon is talking about is only one component—it's a major component—component of a whole series of components to the system.

Senator ALLARD. That's what I'm trying to get at. On the total list, have we had prioritization?

Mr. HIXON. I'm not sure I understand what Mr. Ungar is referring to. We have the fire alarm shop-drawing submittal, which consists of product data and also drawings, about 95 drawings. And so, we have worked through all of those items to reach a conclusion. They are—what you get out of that review is a whole list of 200-and-some items that have to be addressed that relate to the ap-

proval of the drawings and to the fire alarm product data, the manual pull stations and such. So, we are working our way through that. So, I'm not sure—

Senator ALLARD. Do you want to clarify that, Mr. Ungar?

Mr. UNGAR. Yes, it's the other aspects of the system. In other words, there's the House and Senate expansion space, for which shop drawings were just recently reviewed. And there's a separate fire protection system in the exhibit gallery. Plus, there are other components—at least 10 to 15—that we're aware of, different aspects of the system that still have not been approved. There may be others that aren't on the list that they have. So, what we were trying to obtain was a complete list of the items that the fire marshal has to approve, and the prioritization of that list, and some idea as to when the review will be complete so that everybody knows at what point in time we can expect to have all the fire protection and life safety issues resolved.

Senator ALLARD. Okay.

Mr. DORN. My understanding from the fire marshal is, he still doesn't know when to expect all of these future submittals, so it's hard for him to plan when to have people onboard to help him. And the prioritization, he feels like he's getting five priority ones, which is the way work goes a lot of times, but it makes it hard to prioritize. Which one do you want first—which is a 1A, which is a 1B?

Senator ALLARD. Now, does the fire marshal have adequate resources to accomplish this?

Mr. DORN. My understanding is, he could use some help. And it—you know, it's up to him to talk to Alan and Bob to get that help, but he told me this morning he needs help.

Senator ALLARD. Mr. Ungar.

Mr. UNGAR. Yeah, I think the problem that he's facing right now, Mr. Chairman, is that a lot of these submittals will be coming in at the same time.

Senator ALLARD. Right.

Mr. UNGAR. And he's got limited staff. And, of course, he's not staffed for, you know, ongoing construction of the magnitude—

Senator ALLARD. Yes.

Mr. UNGAR [continuing]. Of the Capitol Visitor Center. So, normally he says that in a typical project you wouldn't have all these at the end of the project or toward this part of the project, you'd have them earlier, and they'd be spread out a little bit. Now he's got a number of them to review. And he does plan to get contractor support. He's got some onboard now. But he feels there are certain things that he and his staff have to review. But once that's reviewed, he can obtain contractor support to help do the testing. And so, that's what he'd like to do. But the answer—the bottom-line answer to your question is, he is short right now, in terms of resources.

Senator ALLARD. Mr. Hixon, now you understand the priority concerns.

Mr. HIXON. Now I understand—

Senator ALLARD. Why don't you address that—

Mr. HIXON [continuing]. Exactly what he's addressing.

Senator ALLARD [continuing]. And then also manpower issues.

Mr. HIXON. Yeah. My answer is all related to the CVC proper itself, the system overall for the CVC. There is a submission in for the expansion space submittal that was to be completed on the 26th of this month. And I'm not sure if the review got completed on that date or not. There are other elements, such as in the exhibit area. There are systems called FM200. There is an aspiration system. There are a number of different submittals that have come in to the fire marshal over a long period of time. They have addressed these in a priority manner. The contractor tells them which priority they need first. The one that we elected first was the—certainly the CVC fire alarm system itself, the primary system. They got the expansion space system earlier than they got the CVC, but the fire marshal wanted to wait on the expansion system until they had the base system and could evaluate that. Then they've gone on to the expansion system. So, yes, there are priorities for these other components that are a part of the fire alarm system, and those are being addressed based on a priority that's provided by Manhattan and Gilbane, our construction manager, of what needs to be addressed first.

Senator ALLARD. So, you don't have a list right now, but they're in the process of putting it together?

Mr. HIXON. No, sir. We have a list—there is a list maintained in what we call Prolog, which is the—maintains all the administrative—it's got all of those. I was given a copy of that yesterday for—

Senator ALLARD. I see.

Mr. HIXON [continuing]. Those. We sit down and—every time we meet with the fire marshal, that is reviewed, to look at the list. And there certainly is the complication of five first priorities, but those are the—they're trying to address those and say which ones we need first, which ones we can wait a couple of weeks on. And the fire marshal is addressing those in that order.

Senator ALLARD. Can you help out the fire marshal's manpower needs?

Mr. HIXON. Personally, I cannot. The fire marshal would have to contract with external parties to provide that extra manpower. And Mr. Hantman might be able to address—

Senator ALLARD. Yes. Mr. Hantman?

Mr. HANTMAN. Yeah, we are working on that. He has agreements, as Bernie indicated, with several consultants out there.

Senator ALLARD. I see.

Mr. HANTMAN. I guess the question is when he can effectively bring them on, because he does need to do some of the base work himself and have the consultants help him with the supporting information. So he is working on that. We're working with him to get him the resources to be able to do that.

Senator ALLARD. As soon as you get those, you can move ahead with the extra help that he needs? He can contract that out?

Mr. HANTMAN. That's what—that's exactly what we're working on doing.

Senator ALLARD. Yes.

Mr. Ungar.

Mr. UNGAR. Mr. Chairman, not to belabor the point—Mr. Hixon is correct, there is a list. The question is, number one, Is it com-

plete? It didn't appear to be complete, based on all the discussions we have heard. So, it would be helpful to make sure that it's complete. Now, the last time we saw the list, it was not prioritized. It may be, now. If it's done now, that's fine. And then, third, in terms of help for the fire marshal, he did indicate that there may be a possibility that some of the fire protection engineers that are currently employed by AOC throughout the Capitol campus may be—

Senator ALLARD. I see.

Mr. UNGAR [continuing]. May be able to help. But that would, of course, be—

Senator ALLARD. Okay.

Mr. UNGAR [continuing]. Up to Mr. Hantman. So, that's a possibility.

Senator ALLARD. Those are available, Mr. Hantman?

Mr. HANTMAN. Absolutely.

Senator ALLARD. Okay. Well, when we have the next hearing, I'll have another question on this priority. Then you can sit down with the contractors, in an informal basis, and make sure you understand what you're both expecting. It would help, I think.

CAPITOL VISITOR CENTER UTILITY TUNNEL

On the CVC utility tunnel, Mr. Hantman, you indicated in your testimony that the expected finish date for the utility tunnel is now August. Last month, you indicated it would be complete in June. A few months ago, AOC had testified that the tunnel would be complete in March. Are you confident that the August date can be met?

Mr. HIXON. Mr. Chairman, I'll answer that question. Currently, we have a contractor who's doing cleanup in the tunnels. He's had some difficulty getting in and out, and he couldn't get in on Monday because of rain, but he was back in there doing the cleaning that's necessary before the insulators can begin their work. We were contemplating that the insulators would start last week, last Monday. We expect they will start this coming Monday. They have 2 to 3 weeks worth of work to do to perform that insulation. The only question right now is, we had to remove the boxes of insulation in the tunnel, and they were sitting on the—you know, on Second Street in the rain for the last couple of days. It should not be damaged by rain, but we're not certain yet. But that's the work that'll start here in—it'll start on Monday, and should take 2 to 3 weeks. Once that work is completed, we should be able to turn on the chilled water for the building, and turn on the steam. The flushing process, all the preparation that needs to be done to the piping in CVC was completed last Saturday. So, we are all set with the proper chemical treatment and all that to take the water from the plant and circulate it back to the plant.

Senator ALLARD. So, the tunnels are operational?

Mr. HIXON. The—we have the piping in. We just need to put the insulation on the piping—

Senator ALLARD. Then they'll be operational.

Mr. HIXON [continuing]. Within the "R" tunnel. And as soon as we finish that, we can actually start running the water through the building.

Senator ALLARD. Okay. So, when are the air handlers scheduled to be tested?

Mr. HIXON. The air handlers, at this point, are—they're looking at an August or—an August timeframe, probably, for getting—the mechanical contractor—for getting the systems up and running completely. Based on what we have heard in the last few days, there is some damaged insulation that'll have to be replaced. We're looking at those dates to find out if there's something we can do. We need to—we need to have cooling and dehumidification in the building now, but we couldn't get it in before this. Now we've got to make sure the systems are really ready to receive it.

Senator ALLARD. Are we looking at the first part of August or the latter part?

Mr. HIXON. The schedule reflects August. I have also been told September by the subcontractor. So, we're endeavoring to determine what it is that's caused this to be a problem. We were expecting to be able to turn it on right away and start moving chilled water and steam through the building.

Senator ALLARD. Okay. So, the subcontractor has some doubts whether he'll be ready for August, then.

Mr. HIXON. We—I think the construction manager has some doubts if the subcontractor has everything in place that he needs in order to have the system function properly.

CAPITOL VISITOR CENTER UTILITY TUNNEL EGRESS

Senator ALLARD. Well, we'll follow up on that question when we have our August hearing.

Mr. Hantman, you committed in last month's hearing to have a resolution to the issue of egress in the new utility tunnel. Has AOC and the Office of Compliance agreed to a resolution of that issue? And what kind of costs of adding an escape hatch might we be looking at?

Mr. HANTMAN. Mr. Chairman, as you know, this project was started several years ago under existing codes and criteria. I don't think the Office of Compliance has, as yet, quite determined what criteria we should be working to. As you're well aware, when we talk about the 12,000 feet of other tunnels, we were talking about business best practices, in terms of a 300-foot travel distance as being the longest travel distance. This is a criteria that we've been developing over the past several months for the existing tunnels, and one that we will be applying to the new utility tunnel, as well. What this basically means is that we will open up the visitor center with a certificate of occupancy, and not be impacted by the means of egress in the tunnel right now. From a solution perspective, we believe that this tunnel, which is basically complete, just as the existing tunnels have been up and running for many years, that we'll be able to get another means of egress that would give us the 300-foot travel distance essentially down the road, just as we are in other areas in the tunnel system. We're looking at a vent that currently exists on the northwest corner of the Library of Congress. It's an air vent going into the tunnel, where that vault could be modified to be a means of egress. That will give us the travel distance that we need, and not interfere with the piping. We have discussed this with the fire marshal, mentioned it to the GAO, as

well, and we think that this is a solution, in terms of addressing travel distance, down the road. In terms of the existing operation of the tunnel, we don't think that this would impact it.

So, in terms of moving it, the timeframe for actually doing that work floats free of the CVC, we believe.

Senator ALLARD. Is Mr. Eveleth here? Maybe we can get a comment from you as to the egress on the new utility tunnel and the cost on that escape hatch.

STATEMENT OF PETER EVELETH, GENERAL COUNSEL, OFFICE OF COMPLIANCE

Mr. EVELETH. We cannot give you an estimate on the cost, but we can say that we did do an investigation of what industry practice was, and we concluded that 300 feet was the appropriate travel distance. And I believe that there is a consensus with the GAO on that; and the AOC, as well. There was, as we discussed previously, an exception for—if the area were totally sprinklered, 400 feet would be acceptable. But it was our conclusion that that exception would not apply, because that additional allowance of 100 feet was to encourage sprinklers where there was a fire hazard. That is not the case in the instance of these tunnels, except for maybe a small area. And we had so informed, yesterday, the Architect, as well, that the 300-foot was the appropriate standard. And we had suggested, though not as a requirement, that perhaps some heat sensors could also be installed so that before anybody entered the tunnel, they would be aware if there were a rupture in the steam lines. That is not a mandatory requirement. We did not think it was necessary to sprinkler the whole tunnels, however.

Senator ALLARD. Mr. Hantman, I guess you can't give us a cost estimate, at this point. The thought is that you're going to include this in future budgets. Is that what you're thinking?

Mr. HANTMAN. In the request for funding that we had discussed with this subcommittee before, for the tunnel as a basic area, the numbers per new means of egress was in the range of \$250,000 to \$300,000. We're assuming, although we've not done the design for this, that that would be the same magnitude.

Senator ALLARD. You will put this money in future budgets from your office?

Mr. HANTMAN. I think that would be the way to go forward, because clearly all of the issues for the additional means of egress from the whole tunnel system as it exists right now would be done that same way.

CAPITOL VISITOR CENTER SCHEDULE REASSESSMENT

Senator ALLARD. In your testimony, Mr. Hantman, you state that AOC will complete its reassessment of the schedule by the end of July. We'll be holding our next meeting in early August, and expect that the deadline will be met. Can you give your commitment to complete the reassessment of the schedule by the end of July?

Mr. HIXON. Mr. Chairman, we will be updating the schedule and reviewing the schedule for what we have to do to complete the project. We were not anticipating doing a major review of the schedule with an independent contractor. We were simply going to update the schedule to reflect the things that have occurred here

in the last month, and project out to the end of the job, so that we've got some linkages that were changed in the current May report, about sequential or concurrent fire alarm acceptance, things of that nature. We were not contemplating doing a complete review of the schedule.

Senator ALLARD. Are you going to have a reassessment, though, by the end of July?

Mr. HIXON. We would have a new schedule by the end of July. We were not contemplating something different other than our normal monthly update.

Senator ALLARD. I see.

Mr. HIXON. This has come up, here in the last couple of days, and we're not quite sure what, other than the things we've done to date—there was some assessments of when we could occupy the building, when the expansion space could be—furniture could be moved in, things of that nature that were shared with House Administration, and the Senate Rules Committee earlier in the week—that evaluation has already been done. So, I'm not sure what else we would be looking for.

Senator ALLARD. Mr. Ungar.

Mr. UNGAR. Yes, Mr. Chairman, from our perspective, we plan to use the next schedule that comes out—probably the June schedule—as the basis for our reassessment. So, what we were hoping and expecting would be for AOC, as a very minimum, to ask its construction management contractor to take a hard look at the significant remaining work, which would be the fire acceptance system and the commissioning of the air handling system and some of the finish work, to make sure that the time in the schedule is sufficient and reasonable for that work, given the history of the project. I think Mr. Dorn alluded to the—that the—some of the durations have not been adequate, historically, and we want to make sure that everybody's comfortable, from this point forward, that that's the case, so that we would have an adequate basis to re-look at the schedule, because these are the activities that are going to drive when the facility will be able to open.

Senator ALLARD. I think that's important, if we can get some re-evaluation, so the GAO can do an evaluation in August, so we'll have something for our September hearing.

Mr. HIXON. We can certainly do that, Mr. Chairman, and review it. But we are in the throes right now of just beginning the review for the current June report that should be coming to us shortly. So, we can do the evaluation for that. But that report will be out, the middle of the month, and I'm not sure if that'll be as thorough as GAO is looking for. To get in to do a more thorough evaluation of the durations would take a few weeks, which would result in that data coming out in the mid-August report.

Senator ALLARD. Does that get you started, Mr. Ungar?

Mr. UNGAR. Well, if we have a good start with this schedule, the—the schedule that the team is working on now—that would be helpful. And then, if, a week or two later, AOC would like to provide additional information, we could certainly use that. As long as we had it before the middle of August, we would have enough time, I think, to deal with that. But I think it's very important now, because everybody is really looking toward the next couple of months

to get at least a firmer handle on when we can expect the project to be done.

Senator ALLARD. We'd like to get a firmer handle, if we can.

Mr. HIXON. Well, we can certainly have the construction manager review the data. They're doing that anyway, but we can have them make a special effort to look at the durations that remain for the project.

Senator ALLARD. We'd appreciate that.

Mr. HIXON. Yeah.

ARCHITECT OF THE CAPITOL-WIDE UTILITY TUNNEL MILESTONES

Senator ALLARD. Now, this is to you, Mr. Ayers. Last month, you described some milestones for the utility tunnels. In AOC's testimony, you say only five of the eight milestones were met. Which ones were not met, and why?

Mr. AYERS. Yes, Mr. Chairman. We had three milestones that were not met. First is to begin the asbestos abatement in the "B" tunnel. While we have awarded that contract, the contractor submittals and paperwork has not been satisfactory. We don't want that contractor to proceed until all of that paperwork, safety plans, and submittals are satisfactory and compliant. So, that work has not yet started, but we do expect it to start very soon.

Second, in the "V" tunnel, we had planned to install a crossover in that tunnel, and our material has not arrived. We don't expect it to arrive until the end of July, and install it the latter portion of July and early August.

And, finally, we had noted that we were going to begin the expansion joint replacement in the "Y" tunnel. That work, quite frankly, has turned out to be far more complicated than we anticipated, and we don't believe that work is going to commence until August, as well.

Senator ALLARD. We're going to move into the Power Plant tunnel issues. And, Mr. Hixon, our thought was that we could use your seat there for any additional witnesses that would come in. I apologize.

TUNNEL CONDITION ASSESSMENTS

Now, I understand the structural condition assessment for the "Y" tunnel is complete, and the contractor found the condition was not as dire as the AOC anticipated. And AOC's original plan called for replacing the "Y" tunnel, one of the most expensive elements of the April 10 plan submitted to Senator Durbin and me. Based on the structural assessment, is replacement of the tunnel necessary?

Mr. AYERS. No, sir. Our current assessment does not indicate that it's necessary. We believe that—and our contractor is indicating—that the "R" tunnel may be in worse condition than we had anticipated. We believe those funds may be better used in the "R" tunnel.

Senator ALLARD. Can you tell us when you'll have a plan for repairing the "Y" tunnel, then?

Mr. AYERS. I'll have to respond to that for the record.

Senator ALLARD. Okay.

[The information follows:]

The "Y" tunnel is in need of various upgrades to bring it into compliance with current safety and construction standards. As presented in the AOC's August 31, 2006, Report to Congress, AOC has a plan in place to complete necessary structural, mechanical, and electrical renovations to extend the life of the "Y" tunnel until a new tunnel or alternative system is designed, constructed, and operating. In fall 2006, AOC will commence an Alternatives Study to determine long-term options for delivering utilities to the buildings and will include the "Y" tunnel. The results of the study will provide recommendations for distributing steam, chilled water, and other utilities to buildings serviced by the utility tunnel system.

Senator ALLARD. Now, is Entech® working full time on the remaining structural assessments? And, if not, can you expedite that effort?

Mr. AYERS. They are not working full time. I was advised yesterday that, as of last Friday, they were not onsite, and were not onsite this week. I've asked our contractual representative, this morning, to see if they can get Entech® back onsite for us, and stay onsite full time.

Senator ALLARD. I think that would be helpful.

Mr. AYERS. Yes, sir. I agree.

Senator ALLARD. Yes. When will the structural assessment for all the tunnels be complete?

SPENDING PLAN

Mr. AYERS. We believe that will be complete in mid-August.

Senator ALLARD. Okay. Now, on the spending plan for the tunnels. The President recently signed into law the emergency spending bill for 2006, including the \$27.6 million to address problems in the utility tunnels. What is the status of your detailed spending plan? And do you still anticipate these funds can be obligated prior to the end of the year?

Mr. AYERS. First, of course. We are still awaiting the warrant from the Treasury Department, so the funds are not in our hands to begin executing. We don't have them yet, but we have reached out to the Treasury Department, and we're close to the receipt of those funds.

Regarding a spending plan, we have put together a detailed spending plan, from now through December. It outlines each element of work that we have shared with the subcommittee. I think, in the next 2 to 3 weeks, our priority is to get this spending plan reviewed by the Office of Compliance, as well as the remainder of our team, to be sure it is focused on the highest priority efforts. I can give you some of the highlights of that plan. Of course, in July, we will be awarding approximately \$1.5 million of condition assessment and program support work. We think one of the highest priorities is the concrete repair work. And we expect to award a significant contract for that in July. And, of course, the major portion of that emergency supplemental funding was the replacement of a portion of the "R" tunnel along Second Street by the Madison Building. That is expected to be awarded in December. And that design is underway already.

Senator ALLARD. And what you've discovered in the "R" tunnel is more serious than what you anticipated?

Mr. AYERS. Yes. Yes.

Senator ALLARD. Can you elaborate on that?

Mr. AYERS. Well, we've found delamination—significant delamination in the “R” tunnel, that we were not aware of. We have gone in there, in the past 30 days, and shored that work. So, that gives us indication that it may be in worse condition than anticipated.

Senator ALLARD. I see. Will you be prepared to elaborate on that more when we get into testimony in August, or will we have to wait later for a more complete evaluation on that “R” tunnel?

Mr. AYERS. I think that we will receive the consultant's report in mid-August.

Senator ALLARD. In mid-August, okay.

Mr. AYERS. Yes.

Senator ALLARD. You think we could have that report ready for our September hearing?

Mr. AYERS. Yes, we will.

UTILITY TUNNEL AIR SAMPLING

Senator ALLARD. Captain Joseph Terra, senior program manager of the Federal Occupational Health, Public Health Service, is in attendance.

Captain Terra, could you describe what the Public Health Service has been doing for the Architect of the Capitol?

Captain TERRA. Certainly, Mr. Chairman.

Beginning in 2000, to 2001, the Federal Occupational Health Agency conducted an asbestos survey for the Architect of the Capitol, at which time we found conditions to be good, and also with a recommendation that that material is in—had a potential for—medium to high potential for damage.

On April 20 and May 25, our staff members reviewed exactly 142 personal samples and 49 area air samples that were historical data that were collected from a collection of private contractors or CPP staff. That data, we found to be inclusive in any way, due to the lack of activity characterization and comprehensive task identification. Essentially, the information that goes along with the testing was lacking, and we were unable to provide any conclusive statement regarding that data. We did recommend that we establish procedures to systematically assess potential exposures for the tunnel workers that include addressing 8-hour OSHA time-weighted averages and excursion exposures. We also recommended that the Architect conduct a physical-conditions assessment of the ACM in the tunnels.

On May 1, FOH put an IH technician down in the tunnels to—

Senator ALLARD. “IH,” meaning what?

Captain TERRA. Industrial hygiene. I'm sorry, Mr. Chairman.

Senator ALLARD. Okay.

Captain TERRA. Put an industrial hygiene technician down in— with the tunnel workers to assess exposures, given the activities and personal protective equipment conditions that they're currently using. Since that time, May 1 to this morning, 156 samples were taken. That data generally shows levels below the analytical limit of quantitation and/or OSHA exposure limits for those activities conducted, with the caveat that those activities conducted are not, as noted by our people, representative of the day-to-day activities that tunnel workers normally would experience, because of the cur-

rent conditions there, and their—I guess, their limited activities resulting from that.

On May 19, we reviewed the Capitol Power Plant tunnel worker asbestos decon procedures. We found those procedures generally compliant with OSHA regulations, but not fully implemented. Also, there was some question as to the tunnel pressure air differentials. And those had not been fully characterized. Essentially, which way is the air moving? We could not determine and pass that information on.

On May 23, we began, in the Capitol Power Plant tunnels, conditions assessment that—as had been previously recommended. We are 80 percent complete with that conditions assessment, and reports are forthcoming.

And on June 19, we began the last of those recommendations, which was the development of a Capitol Power Plant tunnel worker asbestos exposure assessment protocol, and that work is ongoing.

Senator ALLARD. Is the AOC taking all appropriate steps to protect worker safety and health?

Captain TERRA. They are following the recommendations that we have put forth to appropriately cover worker protection in those tunnels, that's correct.

DECONTAMINATION PROCEDURES

Senator ALLARD. Okay. And are the appropriate OSHA-compliant decontamination procedures being followed?

Captain TERRA. At the time of our review, no, they had not been. The policy was in place. It still required additional review. We—in our opinion, the policy was sufficient and compliant, but the workers were not following, uniformly, those—that policy.

Senator ALLARD. When did AOC get the workers to follow the policy, do you know?

Captain TERRA. I do not. Our review was conducted on May 19, and the recommendations from that were that——

Senator ALLARD. So, in other words——

Captain TERRA [continuing]. The findings from that.

Senator ALLARD [continuing]. We had the paperwork done, but the officers weren't following procedure.

Captain TERRA. Yes, sir.

Senator ALLARD. And we don't know when they started following procedure.

Captain TERRA. I do not.

Senator ALLARD. Is there anybody that can respond to that timeline?

Mr. Ayers.

Mr. AYERS. We believe they are following the appropriate decontamination procedures now.

Senator ALLARD. Okay.

Mr. AYERS. As well as—in our last hearing, we discussed the requirement to get agreement on that with the Office of Compliance. We do believe we are in agreement now that our procedures are compliant. The Office of Compliance did point out that our procedures required—or didn't require showering, and that they felt that showering is required. We have subsequently changed those proce-

dures, yesterday, and are beginning the implementation of those. So, we believe employees are appropriately following procedures.

Senator ALLARD. As of yesterday.

Mr. AYERS. New procedures, as of yesterday; but, as of some time ago, they were appropriately following the procedures.

Senator ALLARD. Okay.

Has the Office of Compliance verified this, Mr. Eveleth? If you would respond.

Mr. EVELETH. We have been in contact with the Architect of the Capitol regarding these matters, and have reported that to this subcommittee. We found, yesterday, that, for the first time, there was a revised policy that was issued, as was indicated, and that the—requiring that the workers do take showers. And there were several other matters that we brought to their attention, and we are continuing to work with them on that. There are some minor issues that still need to be worked out, I believe, with the Architect of the Capitol, in—but, basically, we believe that they have come into compliance. They had not briefed—from our information, they had not briefed the workers, the tunnel workers, as of yesterday, on all of these procedures, and that they were representing to us that they were going to brief them today on these procedures.

Senator ALLARD. Okay.

Mr. EVELETH. So, we also understood that the Architect's contractors were not briefed on these procedures, and that they were—it was reported to us that they were not properly being decontaminated, but that it was the intention of the Architect to be sure that the contractors, as well, were briefed on these procedures; because, otherwise, the contractors could be tracking asbestos out of the tunnels.

Senator ALLARD. Mr. Hantman, are the workers scheduled to be briefed today? And the contractors, are they scheduled to be briefed?

Mr. AYERS. Yes, Mr. Chairman. It's my understanding that employees were briefed this morning. We have revised our tunnel control access procedures; whereby, before anyone enters the tunnel, they need to check in with our tunnel shop, go through a standard safety briefing, get a status report on the operation of each tunnel. And it's at that meeting that anyone that wants to enter, or needs to enter, the tunnel will receive such a briefing each day.

Senator ALLARD. Captain Terra, are there other things the Architect of the Capitol should be doing? I think you mentioned air differentials need to be dealt with. Are there other things now?

Captain TERRA. That was a question, certainly, that was raised when we reviewed the decon procedures. That recommendation that someone characterized that, essentially that the airflows from the decon area into the dirty area—I can't answer if that—that's an issue that's been followed up on at the agency level.

Senator ALLARD. Maybe we can get those clarified for the next meeting.

Captain TERRA. Certainly.

MEDICAL SURVEILLANCE PROGRAM

STATEMENT OF DR. JOHN EISOLD, ATTENDING PHYSICIAN, U.S. SENATE

Senator ALLARD. Now, Dr. Eisold, could you describe the medical surveillance program that your office provides to the Architect of the Capitol employees who may be exposed to various hazardous materials, and who conducts the medical surveillance?

Dr. EISOLD. Mr. Chairman, the medical surveillance program is a very important program. People who are identified to be potentially in contact with environmental contaminants that might affect their health are put in this program. It's a large program. The primary contractor, through the Architect, is the Washington Occupational Health Associates. We have worked with them for over 11 years, and they are an integral part of our medical surveillance program and have provided a wonderful service for us all. They have over 800 people in that program, 175 of which are under asbestos surveillance. But there are other reasons for following people, whether it's hearing conservation or other environmental contaminants.

Senator ALLARD. We've received a letter from your office, dated June 22, on your procedure and involvement here. We also have a letter from the Washington Occupational Health Associates, Incorporated. I will make that a part of the record.

[The information follows:]

THE ATTENDING PHYSICIAN,
CONGRESS OF THE UNITED STATES,
JUNE 22, 2006.

The Honorable WAYNE ALLARD,
United States Senate, S-128, U.S. Capitol,
Washington, DC.

DEAR SENATOR ALLARD: I am aware that you are concerned about the health of the Architect of the Capitol employees that work in the tunnels of the Capitol Power Plant. I am also aware that there have been suggestions that some of these workers may be suffering health consequences as a result of exposure to asbestos. I would like you to know that these workers participate in the Medical Surveillance Program that is managed by the Environmental and Occupational Health Section of my office. They are evaluated for exposure to asbestos, noise, and their ability to wear respiratory protection equipment. The components of the medical exams afforded to these workers are defined by the Occupational Safety and Health Administration. The medical evaluation is completed by an Occupational and Environmental Health specialist who is contracted by the AOC. The physician is board certified in Occupational and Environmental Medicine as well as Internal Medicine. Up to this point, no workers have been medically excluded from working in this environment.

In response to your concern we have requested that our consultant provide us with a report on the health status of the tunnel workers. You will find a copy of that report attached to this letter. The exams will often reveal health conditions that are not related to occupational exposures. When that happens, the worker is notified of the results and is referred to their own health care provider for appropriate follow up.

If you should have any further questions regarding this matter please contact myself or the head of the Occupational Health section of my office, Mr. Wesley Mills at 202-225-7993.

Sincerely,

John E. Eisold, M.D., F.A.C.P.

WASHINGTON OCCUPATIONAL HEALTH ASSOCIATES, INC.,
Washington, DC, June 22, 2006.

WESLEY E. MILLS, REHS
Environmental Health Specialist, Office of the Attending Physician, United States Congress.

DEAR MR. MILLS: At your request, Washington Occupational Health Associates, Inc. (WOHA) undertook a review of the medical records of employees of the Architect of the Capitol who work in the tunnels of the Capitol Power Plant. Ten individuals were identified for us as performing this function. All are followed in an asbestos medical surveillance program in accordance with OSHA Standard 29 CFR 1926.1101.

Charts of these individuals were reviewed including their history forms, physical examination findings, pulmonary function test results, and x-ray reports. In addition, selected original x-rays were also reviewed. The result of the review indicates no findings in these individuals consistent with dust induced diseases such as asbestosis. There were pleural changes on some x-rays that could be interpreted as markers of possible past asbestos exposure but could also be interpreted as due to confounding factors noted on the histories.

Sincerely,

KENNETH H. CHASE, MD, FACOEM,
President.

SAMUEL J. SCOTT, JR., MD, MPH, FACOEM,
Senior Clinical Associate.

TRANSFER OF MEDICAL RECORDS

Senator ALLARD. There's been some concern about the transfer of medical records to an outside organization. Can you explain whether medical records are transferred outside of your office?

Dr. EISOLD. I'm glad you brought that up, because it was misrepresented in the Hill newspaper the other day, and I'd like to clarify that.

Senator ALLARD. Yes.

Dr. EISOLD. As I have stated before, the Washington Occupational Health Associates is an integral part of our team, so they are part of our healthcare team. The records that were being reviewed by them are the records they did—they screened previously over many years. So, there really was no transfer of records outside of our own circle of influence.

Now, if an employee wanted to have a secondary review by somebody, a different contractor, we would be more than happy, under proper consent by them, to forward whatever records they wanted to somewhere else. But the contractor that was re-reviewing the records was doing it just to be conscientious, and it's our—the same people that have—see these people all the time. So, there really was no breach in confidentiality. And I think that's very important, because that's very important to us.

Senator ALLARD. If I was a patient, and I had my chest x-rayed, perhaps by a family physician, he just would automatically refer that to a consultant to verify any observations, or lack of observations, that he saw. Same thing with bloodwork.

Dr. EISOLD. That is often done—

Senator ALLARD. That's part of doing routine business.

Dr. EISOLD. You work closely with your consultants, but the further the reach goes, then you really do want to get permission to send those records elsewhere. But, in this particular case, they're part of our team, to begin with.

Senator ALLARD. So, they're contracted in, as part of the team.

Dr. EISOLD. Absolutely.

Senator ALLARD. Okay.

Now, the AOC tunnel shop employees have suggested that their health has been affected as a result of exposure to asbestos. We don't expect you to compromise patient confidentiality, but do you have any information confirming this?

Dr. EISOLD. I have absolutely all the information. I have reviewed the charts myself, and there is no information that would confirm that.

I want to make a clear distinction here. Potential exposure to asbestos is what we're talking about.

Senator ALLARD. Yes.

Dr. EISOLD. Medical surveillance is to identify those people who may have some adverse consequence to that potential exposure. If there is an adverse consequence—that is, in this particular case, you call it asbestosis—it is a very specific diagnosis based upon very specific x-ray findings and pulmonary function findings. We have no such findings. So that—we have people who we have cleared to work in that environment, and we have no adverse consequences noted that could be due to asbestos.

Senator ALLARD. Okay. Do you believe a second opinion would be appropriate? And, if so, who should perform this?

Dr. EISOLD. I think that—in this particular case, I don't think a second opinion is necessary, because the objective of that is fairly clear, there's nothing—there are no findings. However, as a physician, I often get second opinions, only because it can confirm what you're doing, or get a second idea. So, there's nothing ever wrong about getting a second opinion.

In terms of who that second opinion should be, there are a myriad of very qualified groups in the local area, within the Federal Government, that could provide such an opinion.

Senator ALLARD. They're board certified.

Dr. EISOLD. Board certified and as I say, we just happened to pick this group years ago, and they've been very effective for us, but there are certainly other very qualified people, and you don't need to go far to find them.

Senator ALLARD. Now, who would make the decision that these folks are entitled to a second opinion? Is it Mr. Hantman that makes that decision?

Dr. EISOLD. You know, I think it would be a combination. Any employee can make that decision himself and decide they want to get a second opinion if—and pay for it out of pocket. So, they're—they are free agents, and I would—you know, if their records needed to be made available, I'd—certainly would do that. So, they're not, you know, closely kept, in that regard.

Senator ALLARD. So, either them or their insurance policy—

Dr. EISOLD. Or—that, or the Architect may want to—decide to have an entity come in to re-review things, you know, if they're—you know, an outside, objective view, so that—whatever seems most appropriate, we could help provide the records.

Senator ALLARD. Okay.

OFFICE OF COMPLIANCE

Mr. Eveleth, what is the Office of Compliance doing to ensure a cooperative approach to resolving the utility tunnel issue? When do you expect the complaint to be settled?

Mr. EVELETH. Well, we are in the process, Mr. Chairman, of negotiating a contract with the Architect of the Capitol, as was alluded to earlier, so that we will have onboard, as a resource to us, necessary experts to—so that we can analyze the AOC's plans for making repairs, both short term and long term, to the tunnels. At the same time, we are discussing with the Architect of the Capitol a resolution—an overall resolution of the complaint. Obviously, our assessment of the plan is what is necessary to do so. So, we are proceeding and meeting with the general counsel, and—of the Office of the Architect of the Capitol, and we will be continuing to do so. I can't, at this point, give you a date when that resolution will be achieved. However, I would say that there is nothing that—the fact that there is litigation pending now is not interfering with our ability to fully discuss all the issues that are involved and to reach a resolution.

Senator ALLARD. Do you believe that the AOC is doing all it can to adequately address the safety and health concerns in the utility tunnels now?

Mr. EVELETH. I think they're making a major effort to do so.

Senator ALLARD. So, you would verify they're making the effort. Is it actually being done?

Mr. EVELETH. Well, in some areas, it is, that we know about; in some areas, we don't know about. In other words, we need to have our experts and—advise us of the plans that the Architect has. This is an ongoing process.

Senator ALLARD. Okay. Now, what will OOC's role be, going forward, once the complaint is settled?

Mr. EVELETH. Well, part of that will be what we will negotiate in the settlement agreement. That is to say, we will—what we—for example, we have developed a scope of work for the expert—that is, the areas that the expert will look at. And what we've agreed with, with the Architect on, that we will mutually share that information. And they are—have agreed to mutually share—to share with us the information that they obtain from their own experts as they move along in assessing the conditions of the tunnels and all the other issues that are involved in rectifying these problems.

SUBCOMMITTEE RECESS

Senator ALLARD. The subcommittee stands in recess until Wednesday, August 2, when we will once again review progress of the CVC construction and the utility tunnels.

[Whereupon, at 11:41 a.m., Wednesday, June 28, the subcommittee was recessed, to reconvene subject to the call of the Chair.]

PROGRESS OF CONSTRUCTION OF THE CAPITOL VISITOR CENTER

WEDNESDAY, AUGUST 2, 2006

U.S. SENATE,
SUBCOMMITTEE ON THE LEGISLATIVE BRANCH,
COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 10:37 a.m., in room SD-138, Dirksen Senate Office Building, Hon. Wayne Allard (chairman) presiding.
Present: Senator Allard.

STATEMENT OF ALAN M. HANTMAN, FAIA, ARCHITECT OF THE CAPITOL

ACCOMPANIED BY:

**DOUG JACOBS, PROJECT ARCHITECT, CAPITOL VISITOR CENTER,
ARCHITECT OF THE CAPITOL**

**KENNETH LAUZIÈRE, CHIEF FIRE MARSHAL, ARCHITECT OF THE
CAPITOL**

**GARY LEE, PROJECT ADMINISTRATOR, CAPITOL VISITOR CENTER,
ARCHITECT OF THE CAPITOL**

OPENING STATEMENT OF SENATOR WAYNE ALLARD

Senator ALLARD. The subcommittee will come to order. We meet today to take testimony on the progress of the Capitol Visitor Center (CVC). This is our 13th hearing on the Capitol Visitor Center construction. We welcome Architect of the Capitol (AOC) Alan Hantman, CVC Project Architect Doug Jacobs, and Government Accountability Office (GAO) representatives, Bernie Ungar and Terry Dorn. CVC Project Director Bob Hixon is on vacation this week but we look forward to seeing him in September. Thank you for your attendance this morning.

Before we begin the hearing, I would like to recognize the fact that Mr. Hantman announced earlier this week that he will not seek a second term as Architect of the Capitol. Alan, many important accomplishments have been made under your leadership as Architect of the Capitol. We appreciate your service to the Congress and to the Nation and I wish you best when it is time to depart.

Since our last hearing, AOC has made good progress on floor stone installation, particularly in the great hall, but there has been slippage in several other areas. In addition, we are concerned about a fire system issue that arose within the last week or so. While a resolution seems to have been identified, the problem is symptomatic of an ongoing problem with communication and coordination between the AOC Project Office and the fire marshal and others.

Mr. Hantman, please proceed with your testimony and then we will turn to GAO for their testimony.

Mr. HANTMAN. Good morning and thank you, Mr. Chairman, for your kind words. I appreciate this opportunity to again report on the progress of the Capitol Visitor Center project. Since our June hearing, the contractor has, as you've indicated, made good progress in many areas of the project site and we've reached some important milestones, which I'll discuss as part of the project update.

FIRE AND LIFE SAFETY SYSTEMS

First, I'd like to update you on the issue that you raised, the CVC's fire and life safety systems. As I've stated before, the CVC is virtually a beta test site for the very complex security and fire and life safety systems that are being installed. Last week, our CVC management team did an excellent job working through a new issue related to the fire alarm system. Since details about any of the fire system components are security sensitive, I cannot address the specifics of this particular issue at the hearing. What I can say, though, is that to ensure life safety concerns are promptly addressed, the team modified a fire alarm component designed to add the necessary redundancy that will ensure the CVC meets fire and life safety requirements. The AOC fire marshal has stated that this approach is preferable to the original design and a contractor has advised that the fix will be less costly and time consuming than he originally thought. After walking the area with the contractor, our AOC team believes this work can be accomplished concurrently with ongoing work but will make a final cost and schedule determination upon review of the contractor's proposal. We will certainly keep you informed of our progress.

To prevent this from happening in the future, Mr. Chairman, we are developing specific measures to ensure that all fire alarm system components yet to be installed are acceptable. We will focus on the unique elements of the CVC's complex fire and life safety systems for which the existing building codes are unclear or do not apply and we will intensify our communication efforts among the team members to ensure that no significant additional issues arise as we work to complete construction on the CVC. To implement these measures, Mr. Chairman, we have asked the construction manager to expand the agenda for the weekly progress meeting to include all outstanding issues that we have not yet brought to closure, specifically fire and life safety requirements. We have also expanded the attendance of our weekly progress meeting to include the fire marshal and a representative from the Capitol Police. Although both have been actively involved in the process, we did not request their presence at every weekly meeting and that now has changed. They will ensure that all fire and life safety and security concerns are identified and that the contractor is aggressively working to bring them to closure. The team will also try to anticipate any future requirements and work together to resolve them before we reach that milestone in the project. The first meeting is scheduled for this week and we are optimistic that this meeting will fix the communication challenges you pointed out and that we have experienced in the past.

OVERALL PROJECT SCHEDULE

Mr. Chairman, due to concerns about the fire and life safety acceptance testing process and some schedule slippage in several project activities, GAO recommended last month that we work with our construction manager to, “take a hard look at the significant remaining work to make sure that the time and the schedule is sufficient and reasonable for that work.” That process has begun and our team has completed an internal cost to complete analysis of the project. That report indicates that we continue to expect the project to be available for a public opening next summer and the construction can be completed with the funding already in place. While the existing funding also can cover the acceleration and delay claims we have received thus far, additional funds may be necessary to accommodate any future delay claims. Since we’ve not received any such claims to date, it would not be prudent at this time to estimate the cost of any future claims prior to their receipt or the negotiation process that might follow. We will keep you and your staff fully apprised of the status of this issue and report back to you if and when potential additional delay costs arise.

Mr. Chairman, with respect to project update, while our team continues to work on these issues, work continues to progress in many areas of the project site. First, I’m pleased to announce that we have now activated chilled water service to the CVC to allow climate control with chilled water. In the weeks ahead, we will continue to work with the contractor on a plan to bring all of the CVC’s air handling units online. The contractor expects to have climate control throughout most of the CVC in the fall.

For our first board, Mr. Chairman, we show the exhibition hall here and as you know, that hall will house historic documents and therefore climate and dust control is most crucial in this space. We are on track for mid-August operation of the first air handling unit to serve this specific space. Having conditioned air in the exhibition hall will also allow the contractor to install millwork and acoustic fabric panels in the ceiling. The final coat of plaster has been applied to the insulated ceiling panels, down the center of the hall, and the scaffolding is being dismantled. This plaster needs to dry before we turn on the first air handling unit and make sure that the ducts are all cleaned as well.

Later this month, a crew will begin assembling the support system in the exhibition hall for a long, curving marble wall, which we refer to as the Wall of Aspirations. This wall will house some 40–50 historic documents at any one time and it is the centerpiece of the exhibition hall.

FLOOR STONE INSTALLATION

Mr. Chairman, another significant milestone met last week was the beginning of floor stone installation in the great hall. Having the space available, now that the ceiling work is complete, has allowed several mason teams to work concurrently. They have made tremendous progress in less than 4 weeks. They are ahead of schedule with more than 50 percent of the work completed on the floor. Above the great hall, the structure and glass for both skylights are in place, as you can see in this photo. By the end of Au-

gust, most of the finishes, with the exception of the light fixtures, will be installed in the great hall.

MILLWORK INSTALLATION

A third significant milestone has been the start of millwork installation. In mid-July, after 2 weeks of dehumidification efforts in the orientation theatres, the millwork contractor began installing wood trim elements in the south orientation theatre ceiling. Similar work is now ongoing in the north orientation theatre and other millwork is being delivered for the exhibition hall and the food service area. In the food service area, wall tile has essentially been completed in the servery and the food preparation areas. Stonework is finished on the columns and the walls in both the servery and sitting areas are ready to receive millwork and other finish elements. Drywall is complete in the food service area. Ceiling and acoustic fabric panels will soon be installed between the soffits. These panels will help reduce noise when the facility is occupied at full capacity. Installation of these finish materials will begin later this month.

CEILING WORK

The ceiling work, Mr. Chairman, continues to be a critical activity, as its completion is necessary to free up the floor space below for mason teams. This work is progressing well. Most of the ceiling soffits above the entrance lobby are complete. Once final inspections are finished, ceiling panels will be set into place and the area will be turned over to the floor stone masons. Another critical project area is the east front transition zone. Much progress has been made here since we last briefed you. Wall stone is complete on the upper level of the CVC. In addition, wall stone installation is nearly done in the carriage way and along the new monumental stair that leads to the crypt. At the crypt level, efforts to remove the lead-based paint on the original sandstone façade are complete. Wall and column stone installation is nearly complete on that level. At the Rotunda level, Mr. Chairman, abatement work is finished on the north side and nearing completion along the south face of the Capitol. Crews will soon begin installing the metal framework that will support all of the wall, column, and ceiling stone at the Rotunda level.

INSTALLATION OF EXTERIOR ELEMENTS

Mr. Chairman, we are seeing good progress being made on installation of exterior elements as well. The historic preservation contractor continues to set paving stones around the north fountain in a decorative paving pattern, reviving an Olmsted design element lost at the beginning of the 20th century. Crews are now completing the final masonry work to prepare the fountains for operation. They've not been functioning for decades and were actually used as planters. Along the large, grass oval panels, something we call the Omsted eggs, mason teams continue to rebuild the historic seat walls. In addition, work is moving forward on new plaza elements, most notably, the seat wall around the great hall skylights. The stonework is now complete around the south skylight and is

well underway under the north skylight. These seat walls will enclose pools of water around the skylights and provide a welcoming spot for people to meet and to sit and enjoy the wonderful views of our Capitol. An area that used to be a huge parking area on the east front of the Capitol will now become a pedestrian zone.

PROJECT MILESTONES

Mr. Chairman, we did an assessment of our project milestones and determined that eight milestone activities were identified for monitoring for the period of June 28 to today. Two of the eight activities were completed on or ahead of schedule. Two others were completed 4–5 working days beyond their scheduled completion dates. These activities involve plaster walls and ceilings in the orientation lobby and the west lobby areas respectively and they are not on the critical path. Of the four remaining activities, the visitor auditorium drywall ceiling is awaiting delivery and installation of winches, which are scheduled to arrive within the week. The visitor auditorium area wall stone has been delayed due to a substrate issue, which should be resolved shortly. We also have an opportunity to gain efficiencies by installing two air handlers concurrently. One air handler was scheduled for completion August 1 and the second air handler is scheduled for completion on September 6. Now both will be complete on August 25.

We are continuing to work the complex fire alarm system and are scheduled to finalize the operation matrix by August 21, so programming of the fire alarm software can proceed.

In summary, Mr. Chairman, of the 45 milestone activities identified for monitoring between January 11 and today, 41 are now complete. Mr. Chairman, I want to personally commend the entire CVC team for their efforts. The scope changes and the requirements to establish alternative building and fire and life safety construction methodologies for this underground public assembly facility, where codes do not adequately address these complex issues, created extraordinary challenges for the Government and the contractor. As you can see, we are continuing to work through these challenges and will present the Congress and the American people with a first-class facility that will stand the test of time.

UTILITY TUNNELS

Mr. Chairman, with respect to the utility tunnels, we reported last month that dust clean up in the “R”/CVC tunnel intersection was begun to facilitate utility tie-in work. I am pleased to report that this work was finished and the portion of the insulation of the chilled water piping that was needed has been completed to allow service to the CVC. Water treatment for the chilled water has been completed in the CVC and chilled water from the Capitol Power Plant is now being provided for use by the contractor for climate control. It is available to the contractor to turn on as each successive air handling unit is put into action and he is ready to do so. All of them should be online this fall.

In addition to addressing this issue, we’ve been working diligently to address and correct issues in the utility tunnels as expeditiously as possible with worker safety remaining the highest priority. At the last hearing, we identified 14 tasks as project mile-

stones to be completed by today and we completed 12 of the 14 milestones. Because of the high temperatures in the tunnels, we had to address the work crew's work and rest schedules during the installation of shoring in the "R" tunnel. Temperatures within the tunnels exceeded 120 degrees on several occasions, which is a safety concern and that slowed our progress. Therefore, we did not meet the milestone to install shoring north of the CVC tunnel for structural testing or the milestone to begin removal of the delaminated concrete. We should begin this work within the next few days. Tasks that were completed included the completion of the shoring in the "R" tunnel and the completion of a statement of work for contracting "Y" tunnel dust cleanup and pipe covering repair. We completed the design and statement of work for installation of an interim emergency lighting system for tunnels and completed the statement of work to study alternative communication systems for the tunnels. Mr. Chairman, I want to thank you again for your support of the emergency supplemental funding. We have begun obligating these funds to execute projects identified in our utility tunnel action plan. We finalized the procurement to rent a portable trailer-mounted air conditioner and exhaust fan to help cool the tunnels. As I previously stated, we also awarded a contract to begin asbestos clean up in the tunnels. In addition, we modified our consultant contract to include the pipe supports in the structural assessment and develop as-built drawings for the tunnels and associated infrastructure such as piping, valves located within the tunnels, and a tunnel power study. We recently received the draft structural report assessment for the tunnels from our contractor, except for the "R" tunnel, due to its partial closure due to weather. We are currently reviewing the report along with our consultant so we can determine the best direction moving forward to upgrade the tunnels and bring them into the condition that provides appropriate levels of safety and service to the Capitol complex.

Last, Mr. Chairman, the Office of Compliance has indicated they require expert assistance to review and comment on the utility tunnel work efforts. Last week, we awarded a contract for this professional service and expertise to be used by both the Office of Compliance and the AOC. We continue to work with the Office of Compliance on settlement and technical matters.

PREPARED STATEMENT

Mr. Chairman, this concludes my statement and once again, thank you for this opportunity to testify.

Senator ALLARD. Thank you for your testimony.

[The statement follows:]

PREPARED STATEMENT OF ALAN M. HANTMAN, FAIA

Good morning, Mr. Chairman. I appreciate this opportunity to again report on the progress of the Capitol Visitor Center project. Since our June hearing, the contractor has made good progress in many areas of the project site and we have reached some important milestones, which I will discuss as part of the project update.

First, I would like to update you on the status of the CVC's fire and life-safety systems. As I have stated before, the CVC is virtually a beta test site for the very complex security and fire and life-safety systems that are being installed. Last week our CVC management team did an excellent job working through a new issue related to a fire alarm system. Since details about any of the fire system components are security sensitive, I cannot address the specifics of this particular issue at this

hearing. What I can say is that to ensure life-safety concerns are properly addressed the team modified a fire alarm component design to add the necessary redundancy that will ensure the CVC meets fire and life-safety requirements.

The AOC Fire Marshal has stated that this approach is preferable to the original design and the contractor has advised that the fix will be less costly and time consuming than he originally anticipated. After walking the area with the contractor, our AOC team believes this work can be accomplished concurrently with ongoing work, but we will make a final cost and schedule determination upon review of the contractor's proposal. We will keep you informed of our progress.

To prevent this from happening in the future, we are developing specific measures to ensure that all fire alarm system components yet to be installed are acceptable. We will focus on the unique elements of the CVC's complex fire and life-safety systems for which the existing building codes are unclear or do not apply, and we will intensify our communication efforts among the team members to ensure that no additional issues arise as we work to complete construction on the CVC.

To implement these measures, we tasked the construction manager to expand the agenda for the weekly progress meeting to include all outstanding issues that we have not brought to closure, specifically fire and life-safety requirements. We have also expanded the attendance of our weekly progress meeting to include the Fire Marshal and a representative from the Capitol Police. Although both have been actively involved in this process, we did not request their presence at every weekly meeting, which has now changed. They will ensure all fire and life-safety and security concerns are identified and that the contractor is aggressively working to bring them to closure. This team will also try to anticipate any future requirements and work together to resolve them before we reach that milestone in the project. The first meeting is scheduled for this week and we are optimistic that this meeting process will fix the communication challenges we have experienced in the past.

Mr. Chairman, due to concerns about the fire and life-safety acceptance testing process and some schedule slippage in several project activities, GAO recommended last month that we work with our construction manager to take a "hard look at the significant remaining work to make sure that the time in the schedule is sufficient and reasonable for that work." That process has begun and our team has completed an internal cost-to-complete analysis of the project. That report indicates that we continue to expect the project to be available for a public opening next summer and the construction can be completed with the funding already in place. While the existing funding also can cover the acceleration and delay claims we have received thus far, additional funds may be necessary to accommodate any future delay claims. Although we have not received any such claims to date, it would not be prudent at this time to estimate the cost of any future claims prior to their receipt or the negotiation process that might follow. We will keep you and your staff fully apprised of the status of this issue and report back to you if or when potential additional delay claim costs is known.

Project Update

Mr. Chairman, while our team continues to work on these issues, work continues to progress in many areas of the project site.

First, I am pleased to announce that we have now activated chilled water service to the CVC to allow climate control with chilled water. In the weeks ahead, we will continue to work with the contractor on a plan to bring all of the CVC's air handling units on line. The contractor expects to have climate control throughout most of the CVC in the fall.

As you know, Mr. Chairman, the Exhibition Hall will house historic documents and therefore, climate and dust control is most critical in this space. Having conditioned air in the Exhibition Hall will also allow the contractor to install millwork and acoustic fabric panels in the ceiling. The final coat of plaster has been applied to the insulated ceiling panels down the center of the Hall and the scaffolding is being dismantled. Later this month, a crew will begin assembling the support system for a long curving marble wall, which we refer to as the Wall of Aspirations. This wall will house between 40 and 50 historic documents at any one time and is the centerpiece of the Exhibition Hall.

Another significant milestone met last month was the beginning of floor stone installation in the Great Hall. Having that space available, now that ceiling work is complete, has allowed several mason teams to work concurrently. They have made tremendous progress and, in less than four weeks, more than 50 percent of the floor is complete. Above the Great Hall, the structure and glass for both skylights are in place. By the end of August, most of the finishes, with the exception of light fixtures, will be installed in the Great Hall.

A third significant milestone has been the start of millwork installation. In mid-July, after two weeks of dehumidification efforts in the orientation theaters, the millwork contractor began installing wood trim elements to the South Orientation Theater ceiling. Similar work is now ongoing in the North Orientation Theater and other millwork is being delivered for the Exhibition Hall and Food Service Area.

In the Food Service Area, wall tile has essentially been completed in the servery and food preparation areas. Stonework is finished on the columns and the walls, and both the servery and seating areas are ready to receive millwork and other finish elements. Drywall is complete in the Food Service Area ceiling and acoustic fabric panels will soon be installed between the soffits. These panels will help reduce noise when the facility is at full capacity. Installation of these finish materials will begin later this month.

The ceiling work continues to be a critical activity as its completion is necessary to free up the floor space below to mason teams. This work is progressing well. Most of the ceiling soffits above the entrance lobby are complete. Once final inspections are finished, ceiling panels will be set into place and the area will be turned over to the floor stone masons.

Another critical project area is the East Front transition zone. Much progress has been made here since we last briefed you. Wall stone is complete on the upper level of the CVC. In addition, wall stone installation is nearly done in the Carriageway and along the new monumental stair that leads to the Crypt. At the Crypt level, efforts to remove the lead-based paint on the original sandstone façade are complete. Wall and column stone installation is nearly complete on that level. At the Rotunda level, abatement work is finished on the north side and nearing completion along the south face of the Capitol. Crews will soon begin installing the metal framework that will support all of the wall, column, and ceiling stone at the Rotunda level.

Mr. Chairman, we are seeing good progress being made on installation of exterior elements as well. The historic preservation contractor continues to set paving stones around the north fountain in a decorative paving pattern reviving an Olmsted design element lost at the beginning of the 20th Century. Crews are now completing the final masonry work to prepare the fountains for operation. Along the large grass oval panels, mason teams continue to rebuild the historic seat walls. In addition, work is moving forward on new plaza elements, most notably the seat wall around the Great Hall skylights. The stonework is now complete around the south skylight and is well underway around the north skylight. These seat walls will enclose pools of water around the skylights and will provide a welcoming spot for people to sit and enjoy the splendor of the Capitol Dome.

Mr. Chairman, we did an assessment of our project milestones and determined that eight milestone activities were identified for monitoring during the period between June 28, 2006 and August 2, 2006. Two of the eight activities were completed on or ahead of schedule. Two others were completed 4 to 5 working days beyond their scheduled completion date. These activities involved plaster walls and ceilings in the Orientation Lobby and West Lobby areas, respectively, and are not on the critical path. Of the 4 remaining activities, the Visitor Auditorium drywall ceiling is awaiting delivery and installation of winches, which are scheduled to arrive within the week. The Visitor Auditorium Area wall stone has been delayed due to a substrate issue, which should be resolved shortly. We also have an opportunity to gain efficiencies by installing two air handlers concurrently. One air handler was scheduled for completion on August 1 and the second air handler is scheduled for completion on September 6. Now both will be complete on August 25. We are continuing to work the complex fire alarm system and are scheduled to finalize the operation matrix by August 21 so programming of the fire alarm software can proceed. Lastly, of the 45 milestone activities identified for monitoring between January 11, 2006 and August 2, 2006, 41 are now complete.

Mr. Chairman, I want to personally commend the entire CVC team for their efforts. The scope changes and the requirement to establish alternative building and fire and life-safety construction codes for this underground public assembly facility created extraordinary challenges for the government and the contractor, but as you can see, we are continuing to work through these challenges and will present the Congress and the American People with a first-class facility.

Utility Tunnels

Mr. Chairman, last month we reported that dust clean-up in the "R"/CVC tunnel intersection was begun to facilitate utility tie-in work. I am pleased to report that this work was finished and a portion of the insulation of the chilled water piping has been completed to allow service to the CVC. Water treatment for the chilled

water has been completed in the CVC and chilled water from the Capitol Power Plant is now being provided for use by the contractor for climate control.

In addition to addressing this issue, we have been working diligently to address and correct issues in the utility tunnels as expeditiously as possible with worker safety remaining the highest priority. At the last hearing we identified 14 tasks as project milestones to be completed by today, and we completed 12 of the 14 milestones. Because of the high temperatures in the tunnels we had to adjust work-crew's work and rest schedules during the installation of shoring in the "R" tunnel. Temperatures within the tunnels exceeded 120 degrees on several occasions, which is a safety concern and slowed progress. Therefore, we did not meet the milestone to install shoring north of the CVC tunnel for structural testing or the milestone to begin removal of the delaminated concrete. But we should begin this work within the next few days. Tasks that were completed include the completion of the shoring in the "R" tunnel; we completed a statement of work for contracting "Y" tunnel dust clean-up and pipe covering repair; completed the design and statement of work for installation of an interim emergency lighting system for tunnels, and completed the statement of work to study alternative communication system for tunnels.

Mr. Chairman, I want to thank you again for your support of the Emergency Supplemental funding. We have begun obligating these funds to execute projects identified in our Utility Tunnel Action Plan. We finalized a procurement to rent a portable trailer-mounted air conditioner and exhaust fan to help cool the tunnels. As I previously stated we also awarded a contract to begin asbestos clean-up in the tunnels. In addition, we modified our consultant contract to include pipe supports in the structural assessment, develop as-built drawings for the tunnels and associated infrastructure such as piping, valves, and equipment located within the tunnels, and a tunnel power study.

We recently received the draft structural condition assessment for the tunnels from our contractor, except for the "R" tunnel due to its partial closure earlier this summer. We are currently reviewing the report, along with our consultants, so we can determine the best direction moving forward to upgrade the tunnels to bring them into the condition that provides appropriate levels of safety and service to the Capitol complex.

Lastly, the Office of Compliance has indicated they require expert assistance to review and comment on the Utility Tunnel work efforts. Last week, we awarded a contract for this professional assistance and expertise to be used by both the OOC and the AOC. We continue to work with the OOC on settlement and technical matters.

Mr. Chairman, this concludes my statement. Once again, thank you for this opportunity to testify. I would be happy to answer any questions you may have.

Senator ALLARD. Mr. Dorn.

STATEMENT OF TERRELL DORN, DIRECTOR, PHYSICAL INFRASTRUCTURE, GOVERNMENT ACCOUNTABILITY OFFICE

ACCOMPANIED BY BERNARD L. UNGAR, DIRECTOR, PHYSICAL INFRASTRUCTURE, GOVERNMENT ACCOUNTABILITY OFFICE

Mr. DORN. Since our last hearing, the CVC team, as Alan has said, has continued to move the project forward and according to the team, the completion dates remain the same. The risk, however, particularly with the fire protection system, have materialized, threatening those dates.

Last week, I attended an annual conference of the Construction Industry Institute (CII) where I heard private sector companies and some Government agencies talk about their implementation of construction and best practices and research aimed at achieving the same process improvements in construction that are seen in other industries. One of the research teams reported out on their work regarding leading indicators to project outcome. The research team was composed of managers from major private sector corporations, a couple of academics, and a representative from our construction manager, Gilbane, and I salute Gilbane for supporting this work, made up this team. What I would like to do is briefly list a few of those leading indicators identified by other major con-

struction owners as indicative of project risk and relate them to our work here on the CVC.

The Construction Industry Institute defines a leading indicator as a fundamental project characteristic or event that reflects or predicts project health and review in a timely manner, which your monthly hearings are certainly doing. These indicators allow for proactive management to influence project outcomes.

The first indicator, in no particular order, is, "The project milestones are not being met and are consequently jeopardizing future project milestones." Since the last hearing, the CVC team missed the timely completion of 50 percent of its scheduled milestones in spite of two things that should have been in their favor. This month, they changed the baseline they measure themselves against, effectively moving the goal posts closer and second, they waited until late in the month to decide what they were going to measure themselves against. Giving some context to the milestones we have discussed so far, chilled water is definitely available to the CVC but it is not able to be used yet because the air handlers, for one reason or another, are not ready to take that chilled water. Second, floor stone has significantly improved in placement over the past few weeks but it is still far behind where they had planned to be at this point in the schedule.

The second indicator was, "Float for project activities are being used at an increasingly high rate and actual scheduled activities are lagging behind the planned scheduled activities over several reporting periods." While the contractor reports that the CVC completion date did not change, again, continuing the trend of recent months, significant amounts of float or schedule contingency were lost all across the project. For example, last month, 17 out of the 23 most critical paths lost time and this month, 17 out of the 24 most critical paths through the project schedule lost time, most of them slipping by over 2 weeks.

The next indicator is, "Significant project scope items are inadvertently omitted from bid packages, and owner and/or contractor are requesting an excessive number of contract changes during the project execution." The project has undergone and continues to experience a number of design and work scope changes. Since the sequence 2 contractor started, about 100 contract modifications have been issued for work that was not anticipated. Since the last hearing, there have been nine design changes issued and another eight are in process. The number of potential change orders in the system continues to rise. The fire alarm system issues are an example of another unanticipated issue that is now likely to cost the Government more money.

Another indicator from CII is that, "The project is using new technology or construction practices that are unproven in commercial or industrial use." The CVC is a large and complex project and as Mr. Hantman described this morning is a beta test site for some technologies. The CII research team recognizes this as a risk that needs to be managed.

Another indicator is that, "The project team's response to requests for information, questions and changing events that can significantly impact the results, is slow, inadequate or incomplete." Over the last couple of months, issues with the CVC's fire protec-

tion system continued. Even though the team has taken the important step of meeting on this subject, issues remain unresolved for months, some affecting cost and schedule. Improved management control in this area is needed and AOC is taking steps to improve its meetings and resolution of critical fire alarm issues. The schedule's most critical path runs through elements of the fire alarm system, meaning that any further delays in this area will delay the completion of construction. The team can take some comfort in knowing that according to the research, the issues faced by the CVC team are the same issues facing other large projects in the private sector. The fact that these issues exist is not a death sentence to successful project completion. They are indicators of project risks that need to be successfully addressed. Some of these the CVC team is already attempting to do and with continued and increased management attention, it is something they can be successful at. In the meantime, we continue to be concerned, and are more concerned, in spite of the team's internal evaluation, that the project schedule may not realistically reflect the remaining risk to the project. Over the next few weeks, we will be conducting a more detailed analysis of the schedule with the anticipation that we can discuss it at the September hearing, assuming we have one.

In addition, we continue to believe that the project is likely to cost between \$556 million and \$584 million, including our analysis of risk and uncertainty. Before the hearing in September, we intend to update our estimate to reflect the events that have happened since our last estimate, such as the continued project delays.

PREPARED STATEMENT

In summary, work on the project has continued. Continued attention to project risk and these leading indicators is needed, particularly to the fire protection system. Delays in several areas of the project happened again this month and we continue to believe that the project's cost and schedule need to be reassessed and we will report out on them at the next hearing. That concludes my statement, Mr. Chairman.

[The statement follows:]

PREPARED STATEMENT OF TERRELL DORN

Mr. Chairman and Members of the Subcommittee: We are pleased to be here today to assist the Subcommittee in monitoring progress on the Capitol Visitor Center (CVC) project. Our remarks will focus 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 June 28, 2006, hearing on the project.¹ As part of this discussion, we will address a number of key challenges and risks that continue to face the project, as well as actions AOC has taken or plans to take to address these risks. In addition, we will discuss the status of the project's costs and funding.

Our remarks 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 the CVC team (AOC and its major CVC contractors), AOC's Chief Fire Marshal, and representatives from the U.S. Capitol Police, the General Services Administration, and the Office of Compliance. We also reviewed AOC's construction management contractor's periodic

¹ GAO, *Capitol Visitor Center: Update on Status of Project's Schedule and Cost as of June 28, 2006*, GAO-06-827T (Washington, D.C.: June 28, 2006).

schedule assessments and daily reports on the progress of interior wall and floor stonework.

In summary:

Since the Subcommittee's June 28 CVC hearing, the CVC team has continued to move the project's construction forward, and the project's overall targeted completion dates have remained about the same as we reported at that hearing. However, risks have materialized, especially in connection with the CVC's fire protection system, and a number of important activities have been delayed, lessening our confidence in the likelihood of the CVC team's meeting the targeted completion dates. We will reassess the project's schedule and monitor the team's progress in achieving effective management control over the CVC's fire protection system work during the next several weeks and report our results to the Subcommittee in September.

- During the past month, work on the project has progressed in a number of areas. For example, chilled water began flowing from the Capitol Power Plant to the CVC this week, and the sequence 2 contractor expects to have dehumidified air in the exhibit gallery by around mid-August. In addition, critical interior wall and floor stone installation has continued, together with other interior and exterior construction work. Almost all of the interior wall stone for the CVC itself (excluding the atrium areas, the East Front, and the tunnels) is now installed.
- A number of problems have developed in connection with the CVC's fire protection system, which we now consider to be the single greatest source of risk to meeting the project's scheduled completion dates. Although the overall schedule for completing this system has not slipped since the Subcommittee's last CVC hearing, some activities have been delayed, and the team continues to encounter new issues or "surprises" with the fire protection system. The CVC's fire protection system has not yet been fully approved, and a significant problem with the installation of one of the system's components was recently identified. Although this problem has been resolved, communication and management issues surfaced that could further affect work on the system if they are not effectively resolved quickly. In addition, critical building systems still have to be commissioned and tested, and certain design or work scope elements are still incomplete or are being clarified, refined, or changed, even though the project's overall design is essentially complete.
- Several activities important to the CVC's completion, such as East Front work, have been delayed since the Subcommittee's last CVC hearing. During the last 5 weeks, the sequence 2 contractor exceeded its target for interior floor stone installation but again fell short of its target for interior wall stone installation. In addition, the sequence 2 contractor met only 2 of the 8 milestones we have been tracking for this hearing. Although this contractor's monthly billings were higher in June than in May, the trend in billings continues to indicate that construction work is more likely to be completed closer to AOC's new target dates than its previous ones.
- AOC's schedule provides additional time to complete work after construction work is scheduled to be done. This additional time will give AOC some leeway, if necessary, to address risks and uncertainties such as those associated with complex building systems and trade stacking, should it occur. The CVC's complex heating, air conditioning, and ventilation (HVAC); fire protection; and security systems have to work together as well as separately, and uncertainties associated with each could affect the schedules for all. During the past month, the sequence 2 contractor has continued work on its area-by-area plans to prevent trade stacking² during finish work. In our reassessment of the project's schedule, we will determine whether the additional time AOC has scheduled is likely to be sufficient to address these and other risks and uncertainties. AOC's construction management contractor has not yet completed its reassessment of the schedule but expects to have it done shortly.

We previously estimated that the total cost to complete the entire CVC project would be about \$556 million without an allowance for risks and uncertainties and \$584 million with such an allowance. To date, about \$530 million³ has been pro-

²Trade stacking can occur when workers from different trades, such as stone masons, electricians, plumbers, or plasterers, have to work in the same area at the same time to meet a schedule, sometimes making it difficult to ensure sufficient space and resources for concurrent work.

³Since our last CVC testimony, the House and Senate Committees on Appropriations approved an AOC request to reprogram about \$1 million from CVC operations funding to CVC construction. We have not reflected this reprogramming in our cost-to-complete estimates or funding figures above, but will include this change, as well any other changes we believe are appropriate, in our next CVC testimony.

vided for CVC construction. AOC and its construction management contractor have completed their reassessments of the cost to complete the project and believe that sufficient funding will be available except for potential delay-related costs, assuming that AOC receives about \$26 million in fiscal year 2007 appropriations for CVC construction. This is the amount our previous cost-to-complete estimate showed would be necessary without provision for risks and uncertainties. We have not increased our \$556 million estimate (which includes this \$26 million) to reflect recent events. The results of our reassessment of the cost to complete the project, which we expect to have by mid-September, will include an assessment of the impact of these events. Although we anticipate that our \$556 million estimate is likely to increase, we have no specific indication at this time that the cost to complete the entire project will exceed our \$584 million estimate, which does include an allowance for risks and uncertainties, such as potential delay-related costs. In addition, as we have previously indicated, AOC preliminarily expects to need about \$950,000 in fiscal year 2007 AOC general administration appropriations to pay for the contractual support needed to complete acceptance testing of the facility's fire protection system in time to meet the project's schedule. AOC plans to determine if it can reduce the amount needed for this contractual support; we will keep the Subcommittee apprised of this situation.

Proposed Completion and Opening Dates Have Held Steady and Construction Has Progressed, but Risks and Delays Threaten the Project's Current Schedule

The proposed completion and opening dates in the CVC project's schedule have remained about the same since the Subcommittee's last CVC hearing, and work on the project has continued to progress, but risks have materialized, delaying several important activities and threatening the project's current schedule. Most important, a problem with a component of the fire protection system was identified and has now been resolved. At this time, the problem seems to have greater implications for the project's cost than for its schedule, but the underlying management control issues that it reveals could adversely affect the schedule, even though AOC has agreed to take actions that we suggested to enhance its management control over the design and completion of the fire protection system. In addition, risks have led to problems in a number of areas, such as the HVAC systems, the gift shops, and the exhibit gallery, causing delays in these activities and increasing the risk of delay for the project as a whole. For example, the proposed opening of the exhibit gallery was deferred about 3 months—to June 29, 2007—after the team learned that it must have a certificate of occupancy before the artifacts for display can be delivered and installed. The indicators of progress that we have been tracking for the Subcommittee showed mixed results during June, but the improvements in some are not sufficient to offset our concerns about the risks and uncertainties and delays. Overall, we have diminished confidence in the likelihood that the team will be able to meet its currently proposed opening dates. As noted, we plan to reassess the project's schedule and report our results to the Subcommittee in September.

AOC's Proposed Completion and Opening Dates Have Remained about the Same

According to the June 2006 project schedule, the base CVC project will be completed in May 2007 (except for the exhibit gallery) and the House and Senate expansion spaces will be completed in August 2007. These dates are about the same as those indicated in the May 2006 schedule. Moreover, according to both schedules, the base project will be opened in July 2007 and the expansion spaces will be opened in August 2007—time frames that AOC believes will accommodate possible additional delays and allow start-up time for operations.

According to the June 2006 schedule, most of the physical construction work in the CVC, the East Front, and the expansion spaces will be completed by December 31, 2006; however, some work extends into 2007—as far as April 2007 for the exhibit gallery and March 2007 for the gift shops, certain East Front mechanical work, and the installation of wayfinding signage. Certain other construction work, such as the completion of space for the Capitol Guide Service, East Front finish work, and seating installation in the auditorium, also extends into 2007. Neither the CVC nor the expansion spaces can be opened until the Chief Fire Marshal has completed acceptance testing for the fire protection and life safety systems, now scheduled for May 2007 for the CVC and August 2007 for the expansion spaces. The Chief Fire Marshal plans to issue a temporary certificate of occupancy for the CVC's base building when he completes his testing of it and a final certificate after he completes his testing of the expansion spaces and limited retesting of the CVC's base building. AOC believes that it may be able to shorten some of the time scheduled for testing the fire protection system and that it may be able to open segments of the expansion

spaces earlier than August 2007. As we have discussed in previous CVC testimonies, AOC is continuing to explore this possibility.

Construction Work Is Progressing

According to information provided by AOC and its construction management contractor and our observations, work on the project has advanced, in terms of both the dollar value of the work in place and individual project elements. In dollar terms, AOC's construction management contractor reported that, as of June 30, the overall CVC project was about 84 percent complete and the sequence 2 work was about 74 percent complete—up from about 82 percent and 71 percent, respectively, as of May 31. Progress on individual project elements includes the following:

- Interior CVC work has moved forward, according to AOC's construction management and sequence 2 contractors. For example, the chilled water systems were flushed, and chilled water began flowing from the Capitol Power Plant to the CVC this week. The sequence 2 contractor expects to have dehumidified air in the exhibit gallery by around mid-August. In addition, the sequence 2 contractor has installed about 95 percent of the floor stone in the exhibit gallery and has installed about half of the floor stone in the great hall. Millwork in the south orientation theater has begun; bulkheads were being hung and finished; and the installation of kitchen wall and floor tile was substantially completed on the lower level. On the upper level and in the auditorium, mechanical, electrical, and plumbing rough-ins were substantially completed. Furthermore, the CVC team and AOC's Fire Marshal Division have continued resolving issues associated with the CVC's fire protection system.
- Surface work continued, including the installation of (1) stone pavers above the CVC, (2) stone steps on the concrete base slab between and around the trees planted alongside the auditorium, and (3) the skylight structure in the north opening above the great hall. Work on the House connector tunnel has also continued.
- Wall stone installation has now been fully completed in the food service area; all but four pieces have been installed in the great hall; and installation has progressed substantially in the East Front basement and plaza levels, atriums, and auditorium. As of last week, the sequence 2 contractor had installed 99 percent of the interior wall stone in the CVC itself, excluding the atrium areas, the East Front, and the tunnels.
- On the East Front exterior, AOC and its construction management contractor reported, the center steps have been reinstalled over new waterproofing material, and air-handling equipment has been placed on the East Front penthouse area.
- In the House and Senate expansion spaces, progress was made in installing and priming drywall; installing mechanical, electrical, and plumbing systems; and inspecting wall and ceiling close-ins.

Risks Associated with the Fire Protection System Pose the Greatest Challenge to the Project's Schedule

According to the project's June 2006 schedule, the completion date for the fire protection system has not changed, but for a variety of reasons, we are concerned that this system is at significant risk of delay. Moreover, delays in completing this system could directly affect the CVC's completion date. Specifically, the activities associated with the fire protection system now constitute the single longest path through the project's schedule, meaning that each day the system's completion is delayed, the CVC's completion could also be delayed.

Our analysis indicates that progress on the fire protection system has been affected by communication and management issues, despite the team's various efforts to coordinate activities and prevent problems, as well as identify and resolve problems. A number of issues or "surprises" have occurred, requiring unanticipated changes to the fire protection system, the interrelated security system, the schedule, or a combination of these elements. The changes include adding control panels for the fire alarm system in the expansion spaces, changing the specifications for the programming of the fire alarm system, adding activities to the schedule for the fire alarm system, and changing the sequence of activities associated with the fire alarm system. AOC and its construction management contractor have attempted to avoid problems such as these by such means as holding biweekly or weekly meetings with the CVC team and AOC's Fire Marshal Division and by meeting with representatives of the U.S. Capitol Police when specific security issues arise. In our opinion, these biweekly or weekly meetings—which started in early 2005 and are chaired by a senior engineer with AOC's construction management contractor—have generally helped to identify and resolve the specific issues being addressed. AOC's weekly risk

management meetings have also been helpful in identifying and addressing specific risks. However, the U.S. Capitol Police, which is responsible for managing the CVC's security system, has not always participated in the fire protection meetings and does not participate in the risk management meetings. As a result, representatives have not always been present to identify issues associated with the interface between the security and the fire protection systems. Furthermore, some issues have not been addressed because the issues have not been included in the meeting agendas or specifically raised. As we reported during the Subcommittee's June 28, 2006, CVC hearing, the CVC team has not had a comprehensive, prioritized list of system designs that have to be approved by AOC's Fire Marshal Division. In addition, although the team does address various parts of the fire protection system during its progress review, fire protection system, and risk management meetings the team is just now developing a comprehensive list of the system elements that can be used to (1) discuss their status or (2) systematically and effectively identify potential or actual problems with the design, installation, or testing of all of the system's components. The team is working to develop such lists and expects to complete them shortly. The lists should be particularly useful in identifying potential issues, including those involving the interface between the security and the fire protection systems.

Notwithstanding the regular meetings between the CVC team and the Fire Marshal Division, a problem with a component of the CVC's fire protection system recently arose. This component is being installed as an alternative to an approach that was originally planned to provide a level of protection specified in the life safety code. Designed to provide an equivalent level of protection, the alternative approach is necessary because the original one could not be accommodated within the CVC's design. However, according to AOC's Fire Marshal Division, the component—which the sequence 2 contractor has almost completely installed—would not provide an equivalent level of protection because it does not meet a survivability standard applicable to the original system. The CVC team and the Fire Marshal Division resolved this issue last week, but additional work is required and additional costs will be incurred. The exact impact of the additional work on the project's schedule and cost is not yet clear, and AOC expects to have more information on both shortly. Moreover, although this issue has been resolved, other issues may arise and other changes may be required because the design of the fire protection system has not yet been fully approved; efforts to resolve open issues for some shop drawings have dragged on for several months; installation is still in progress; and pretesting and testing of the fire protection system have not yet begun.

We have not fully evaluated all of the circumstances surrounding the problem with this component of the CVC's fire protection system. However, according to the information we have gathered, issues in at least two areas—communication and management—contributed to the problem.

—Communication broke down because certain requirements were not stated explicitly in writing, assumptions varied, and information was conveyed largely through document exchanges rather than meetings, during which the unwritten requirements and differences in assumptions could have surfaced, leading to earlier resolution of the problem. According to both the CVC team and AOC's Chief Fire Marshal, much of the communication problem stemmed from the uniqueness of the CVC and the application of the component in question and the fact that the situation being addressed is not specifically covered in the life safety code and other project-related documents.

—Management issues also contributed to the problem with the component, despite all the efforts of the CVC team and the Fire Marshal Division to coordinate and successfully address the fire safety issues. The CVC team and the Fire Marshal Division have not been able to resolve all issues quickly. For example, resolution of the team's shop drawings and product specifications for the fire protection system component in question has dragged on for over 9 months and is still not complete. Resolution of the Fire Marshal Division's comments on some other fire protection system components is also taking several months, but a recent change in AOC's approach to resolving comments seems to have improved the situation. Notably, the Division's comments on the team's February 2006 submittal for another fire protection system component in the exhibit gallery had not yet been resolved as of last week. At the same time, though, the CVC team has been working aggressively to resolve the Division's comments on the drawings for the base project's fire alarm system, and recently, at the Architect of the Capitol's direction, the team and the Fire Marshal Division have been meeting (as well as exchanging documents) to discuss the Division's comments on the team's submittal for this system. This process appears to be working well.

During the last 2 weeks, we met with AOC to discuss our concerns about the fire protection system and suggested that AOC take immediate steps to enhance management control over the completion of the fire protection system as well as its interface with the CVC's security system. In particular, we believe it is important for AOC to determine immediately and on an ongoing basis whether other problems with the design, installation, or testing of the fire protection system and its interface with the security system could have significant adverse effects on life safety, functionality, or the project's schedule or cost. To complement the team's ongoing efforts, which we believe have been quite helpful, we suggested, and AOC agreed, to have weekly meetings with key CVC team members and representatives from AOC's Fire Marshal Division and the U.S. Capitol Police to discuss all elements of the fire protection system and to identify and resolve any concerns, problems, or issues associated with all aspects of the system's design, installation, pretesting, or final testing, including any quality, scheduling, or coordination matters, and to focus on expeditiously attaining fully approved designs for all aspects of the system. In addition, we asked AOC's Chief Fire Marshal if he could develop his plans for acceptance testing of the fire protection system in the next few weeks so that the CVC team could factor these plans into its work, scheduling, and resource planning. The Chief Fire Marshal agreed and said that he has proposed that (1) his Division meet with the CVC team and the U.S. Capitol Police to identify potential submission items; (2) all submission items be tracked in weekly meetings; and (3) the submission items be prioritized for review and resolution. In addition, both AOC and a U.S. Capitol Police representative agreed that participation by the U.S. Capitol Police in more of the team's weekly meetings should prove helpful. Although it may be impossible to prevent all problems or surprises, we believe that these steps, if effectively implemented by all parties, can reduce the risks associated with the fire protection system's completion and the system's interface with the CVC's security system and identify problems early enough to minimize their consequences.

Other Risks Have Materialized, Delaying Activities Important to the Project's Completion

Although the scheduled completion date for the CVC has remained about the same as we reported at the Subcommittee's June 28 hearing, problems in a number of areas have either delayed or could delay activities whose late completion could adversely affect the project's overall completion. For example, according to the construction management contractor, the date for the air-handling units to be mechanically ready slipped by 2 weeks because of further problems in completing tunnel pipe insulation work, and efforts to close in the ceiling in the upper-level orientation and security lobby slipped by 3 weeks because of problematic sequence 1 work that required remediation. According to the project's June schedule, additional delays in these activities of 15 and 25 workdays, respectively, could further delay the project's overall completion. In addition, a delay of as little as 2 workdays in completing the gift shops—whose design, AOC says, has now been agreed upon—could affect the project's overall completion date. As we will discuss later in our testimony, several other activities that are important to meeting the CVC's May 2007 scheduled completion date have also been delayed.

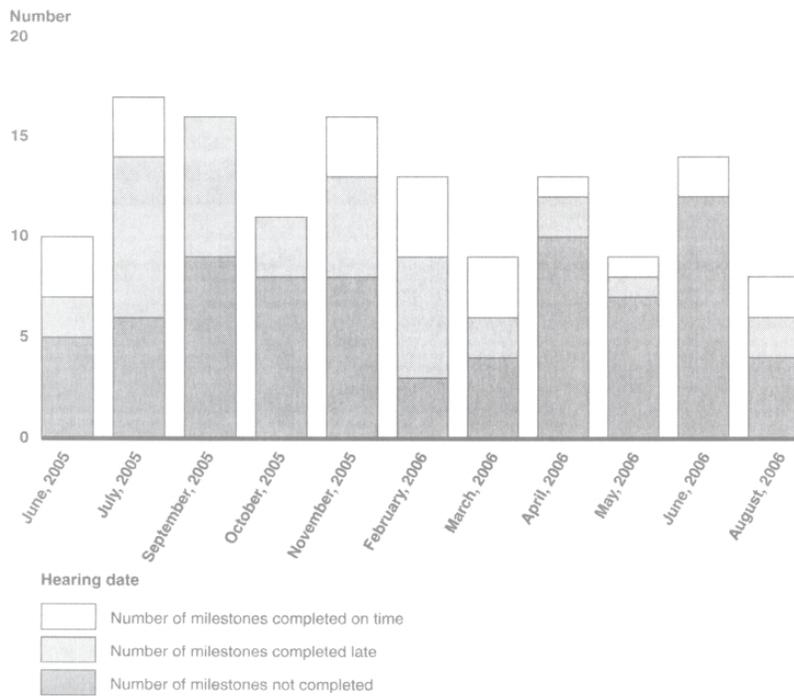
Several activities important to completing the House and Senate expansion spaces have also been delayed since the Subcommittee's last CVC hearing. For example, AOC's construction management contractor reported design-related delays of about a month each in activities involving a custom light fixture, a concrete ramp, and a special fire suppression system. Furthermore, the sequence 2 subcontractor doing the expansion work identified other concerns that could delay the completion of its work, some of which could affect the CVC's opening. For example, the subcontractor reported being instructed to stop certain work in the U.S. Capitol Police's command center pending the resolution of an issue involving the facility's fire protection system. The subcontractor also reported that a lack of humidity controls, caused by the delay in getting the air-handling units operational, could delay certain casework and ceiling tile installation.

Finally, although not critical to the CVC's opening, work being done to connect the Library of Congress's Jefferson building to the tunnel linking it with the CVC may fall behind by as much as 53 calendar days because of an asbestos problem. However, the contractor believes that it may be able to recover some of this time after the asbestos abatement work is completed.

Indicators of Construction Progress Show Mixed Results

The four indicators of construction progress that we have been tracking for the Subcommittee show mixed results since the Subcommittee's June 28 CVC hearing. An update on these indicators follows:

Sequence 2 contractor has continued to miss most milestones.—Starting with the Subcommittee’s June 2005 CVC hearing, at the Subcommittee’s request, we and AOC have been selecting and tracking sequence 2 milestones to help the Subcommittee monitor construction progress. These milestones include activities that were either on the project’s critical path or that we and AOC believe are critical to the project’s timely completion. As figure 1 shows, the sequence 2 contractor has generally missed these milestones. For today’s hearing, the contractor met 2 of the 8 milestones that were due to be completed, according to the project’s June 2006 schedule, and for both, the work was completed ahead of schedule. However, the contractor was late in meeting 2 other milestones and had not met the remaining 4 milestones as of July 31. (See app. I.) The sequence 2 contractor attributed the slippages to a number of factors, including the need to do remedial or other work first, the work itself or necessary preceding work taking longer than expected, and a resequencing of work by the contractor.



Source: Sequence 2 contractor, AOC and its construction management contractor, and GAO.

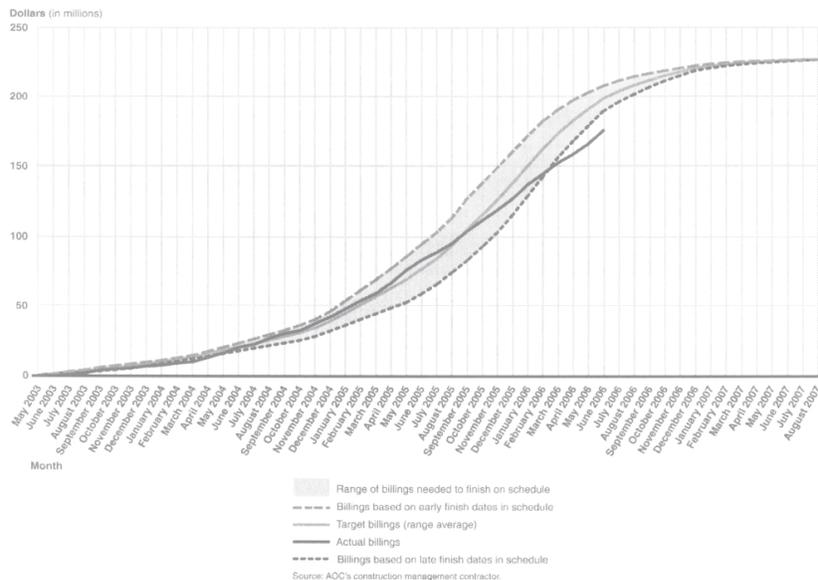
FIGURE 1.—*Sequence 2 Contractor’s Progress in Meeting Selected Milestones as of CVC Hearing Dates*

In total, AOC’s construction management contractor reported delays in 17 of 24 critical and near-critical paths that AOC’s construction management contractor identified as important to meeting the base project’s overall completion date.⁴ According to AOC’s construction management contractor, delays occurred in, but were not limited to, the utility tunnel, East Front, orientation theaters, exhibit gallery,

⁴ Construction projects typically have one critical path, which is the sequence of activities having the longest duration through the schedule. There is no slack time associated with these activities, meaning 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. Some projects have multiple critical paths simultaneously; in practice, the CVC had what essentially amounted to two concurrent critical paths in May—(1) acceptance testing of the fire protection system and (2) fit-out of the gift shops. In June, there was one critical path—acceptance testing of the fire protection system. Generally, the more critical and near-critical activities a project has, the greater is the risk of late completion because there are more opportunities for slight delays that can adversely affect the project’s completion.

certain elevator installations, the upper level assembly room, the atrium, and the Library of Congress tunnels. According to the CVC team, these other delays were attributable to such factors as water leaks, deficient sequence 1 work, changes in the sequence of work activities by the sequence 2 contractor, the need to do lead abatement work, and inaccessible work areas. Even more important than the individual delays themselves, however, is their likely impact on the CVC team's ability to complete construction work on schedule. So many activities have fallen behind schedule that relatively short additional delays could push the CVC's overall completion date further back. The number of critical and near-critical paths increased from 23 in the project's May schedule to 24 in the June schedule, and a number of the activities that slipped in June had also slipped in the May schedule.

Value of completed work increased in June, but trend continues to indicate completion in late spring or summer of 2007.—Another indicator of construction progress that we and AOC's construction management contractor have been tracking is the value of the completed construction work billed to the government each month. Although the sequence 2 contractor's billings for June were about \$2.2 million higher than for May, both we and the construction management contractor believe that, overall, the sequence 2 contractor's monthly billings, including the bills for March through June 2006, indicate that AOC is more likely to finish closer to its currently scheduled completion dates than its previously scheduled completion dates. While this indicator has some limitations (for example, billings lag behind construction), it is generally regarded in the construction industry as a useful measure of how likely a project is to be completed on time. Figure 2 compares the sequence 2 contractor's billings since May 2003 with the billings needed to complete construction work on schedule and indicates that the sequence 2 contractor is unlikely to finish the project until at least late spring or summer 2007 unless the value of completed work increases significantly and is sustained at the increased level. We believe that such a significant increase will be difficult, given the limited number of areas that will be ready for finish work at any given time.



Notes:

1. The early and late lines on this figure reflect the cumulative billings that would be required to complete the project through contract modification number 110 (\$226.8 million total contract value) by the early and late finish dates shown in the sequence 2 contractor's schedule, which is based on the September 2006 contractual completion date.

2. The actual line reflects the sequence 2 contractor's actual monthly billings.

3. Although bills are typically submitted for payment after work is completed, it is often likely that construction work will be completed on schedule when the actual billing line falls between the early and late lines in the figure. With respect to the CVC, the actual billing line has been trending below, and in March 2006 went below, the late finish line, where it remained through June 2006. Even with the lag in billings, this trend indicates that the amount of work being completed each month is not sufficient to finish the project by the previously scheduled completion date.

FIGURE 2.—Total Billings by the Sequence 2 Contractor for the Entire CVC Project Compared with the Billings Needed to Finish Construction Work on Schedule

Interior wall stone installation is taking longer than expected, but floor stone installation exceeded target.—Overall, about 84 percent of the CVC's interior wall stone has been installed (in the CVC, East Front, atrium areas, and tunnels), according to AOC's construction management contractor, and the sequence 2 contractor installed 2,890 pieces of interior wall stone during the last 5 weeks, about 61 percent of its 4,736 piece production target. During the same period, the sequence 2 contractor installed about 7,130 square feet of floor stone, or about 5 percent more than the 6,770 square feet specified in the floor stone installation plan that the contractor recently provided to AOC. In addition, 2 of the 8 schedule milestones that we and AOC have been tracking for the Subcommittee for today's hearing are related to interior wall stone installation, and the sequence 2 contractor completed work for one ahead of schedule, but has not yet completed the other one, according to AOC's construction management contractor. Although the sequence 2 contractor made good progress in installing interior wall stone in the base project, it encountered delays in installing wall stone in the East Front and atrium areas. According to the construction management contractor, the East Front delays were attributable to a need for remedial, preparatory, and lead abatement work, and the atrium delays were attributable to the need to do remedial work and a decision by the sequence 2 contractor to resequence work affecting those areas.

Figures 3 and 4 show the sequence 2 contractor's progress in installing interior wall and floor stone since January 23 and February 13, 2006, respectively.

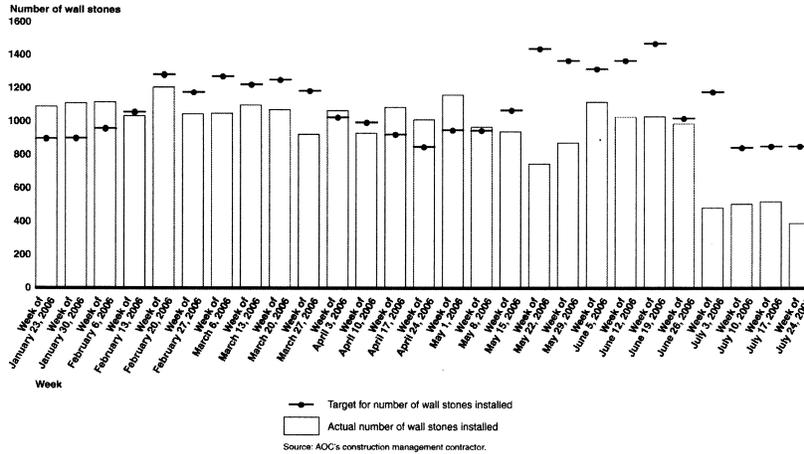


FIGURE 3.—Progress of CVC Interior Wall Stone Installation Compared with Targets Set by the Sequence 2 Contractor

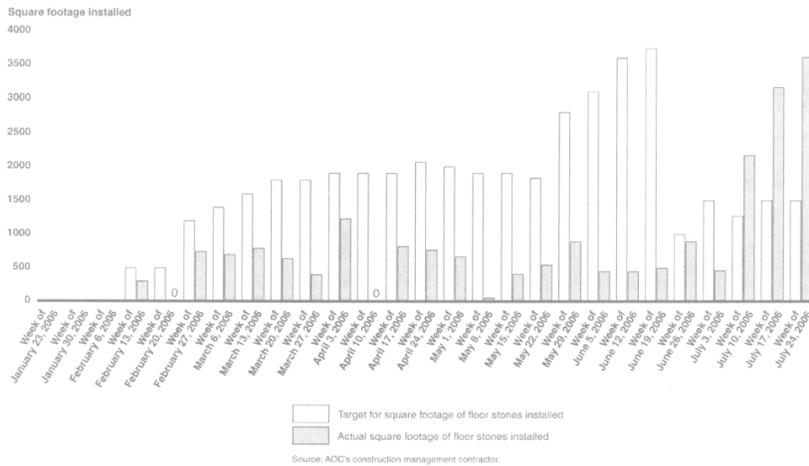


FIGURE 4.—Progress of CVC Interior Floor Stone Installation Compared with Preliminary Targets Set by the Sequence 2 Contractor

Project's Schedule Remains Vulnerable to Challenges, Risks, and Uncertainties

As we have indicated during the Subcommittee's previous CVC hearings, we believe that the CVC team continues to face challenges, risks, and uncertainties in completing the project. In our view, the remaining work associated with the fire protection system poses the greatest single risk to meeting AOC's July and August 2007 proposed opening dates. At this time, we are uncertain whether the 2 to 3 months that AOC has added to the schedule for addressing the challenges, risks, and uncertainties that continue to face the project—including the fire protection system—will be sufficient, particularly given the project's history of delays, the difficulties the CVC team has encountered in getting effective control over the fire protection system, and the large number of near-critical activities that can affect the project's overall completion if they incur relatively short additional delays. Accordingly, we plan to monitor the actions taken by the CVC team to enhance its control over the completion of the fire protection system, reassess the project's schedule this summer, and report our results to the Subcommittee by mid-September 2006. A

brief update follows on the challenges, risks, and uncertainties the CVC team continues to face and the team's plans for addressing them:

- Complex building systems remain a significant risk.*—The CVC will house complex building systems, including HVAC, fire protection, and security systems. These systems not only have to perform well individually, but their operation also has to be integrated. If the CVC team encounters any significant problems with them, either separately or together, during the resolution of design issues, installation, commissioning, or testing, the project could be seriously delayed. The risks and uncertainties associated with the fire protection system are apparent: the shop drawings for some elements of the system have not yet been approved; installation has begun, and issues other than the problem we discussed earlier may require resolution. In addition, the process for testing the system is not yet clear; the time needed to complete these activities is uncertain, and the fire protection system must work in tandem with the security system. The unanticipated problems that emerged in reviewing the design of the fire alarm system and in programming it illustrate the impact such problems can have on the project's schedule. Additional delays could occur if the team takes longer than expected to get approved shop drawings, if the proposed system does not meet the project's design specifications or the life safety code, or if the fire protection system does not work effectively with the security system.⁵ Additionally, the Chief Fire Marshal noted that delays could occur if the CVC team does not adequately pretest the system and correct any problems found during the pretesting. On March 23, AOC's commissioning contractor submitted its plan for testing the performance of the CVC's smoke control system, which is a critical component of the CVC's fire protection system and must work properly before the CVC can be opened to the public. As of July 27, this plan had not yet been submitted to or approved by the Fire Marshal Division. Moreover, as we have previously noted, the Chief Fire Marshal's timely completion of the fire protection system's acceptance testing depends on his ability to obtain sufficient funding for a contractor to help perform the tests.
- Trade stacking could delay completion.*—As we discussed during the Subcommittee's previous CVC hearings, trade stacking could hold up finish work, such as drywall or ceiling installation, electrical and plumbing work, plastering, or floor stone installation. This work could be stacked because of delays in wall stone installation. Trade stacking could also increase the risk of accidents and injuries. Hence, it remains important, as we said at previous CVC hearings, for the CVC team to closely monitor construction to identify potential trade stacking and promptly take steps to address it. The CVC team has also identified trade stacking as a high risk. The sequence 2 contractor has developed plans that show when various subcontractors will be working in each area of the CVC except the East Front, which the sequence 2 contractor does not expect to be ready for finish work for several weeks. According to the sequence 2 contractor, it intends to continue meeting regularly with its subcontractors to review and update the area plans and to have the area plan for the East Front done before finish work begins there. According to the sequence 2 contractor, its area-by-area plans have prevented trade stacking to date.
- Building design and work scope continue to evolve.*—The CVC has undergone a number of design and work scope changes. Since the Subcommittee's June 28 CVC hearing, AOC's architectural contractor has issued nine design changes or clarifications. As of July 27, 2006, this contractor reported, another eight were in process. In addition, since the project began, AOC has executed about 100 sequence 2 contract modifications for work that was not anticipated.⁶ Some of these changes, such as changes in the exhibit gallery and in the East Front, have resulted in delays. Furthermore, although shop drawings have been approved for almost all project elements except the fire protection system, according to AOC, further design or scope changes in various project elements are likely, given the project's experience to date. In fact, in reporting on the June schedule, AOC's construction management contractor noted that anticipated changes to the House expansion space could affect ceiling close-ins. Project de-

⁵ According to the sequence 2 subcontractor that is fitting out the House and Senate expansion spaces, the delays in getting approved shop drawings for the fire protection system have already postponed ceiling close-ins in the expansion spaces, and AOC believes that further such delays, along with possible requests for design changes, pose the greatest risks to the completion schedule for the expansion spaces.

⁶ These data exclude sequence 2 contract modifications for work that was planned but not included in the sequence 2 base contract. Examples include the fit-out of the House and Senate expansion spaces, the construction of the utility tunnel, and the purchase and installation of food service equipment.

sign and scope changes are typically reflected in the development of potential change orders (PCO), many of which result in contract modifications. Figure 5 shows the PCOs submitted for consideration for sequences 1 and 2 since September 2003. Although PCOs are not always approved, they are often regarded as a reasonably good indicator of likely future design or scope changes that can affect a project's cost and schedule. Even more important, the adverse impact of scope and design changes on a project's schedule is likely to increase as the project moves toward completion. For example, changes in the design of the gift shops are likely to affect the project's schedule more adversely now than if the changes had been made several months ago.

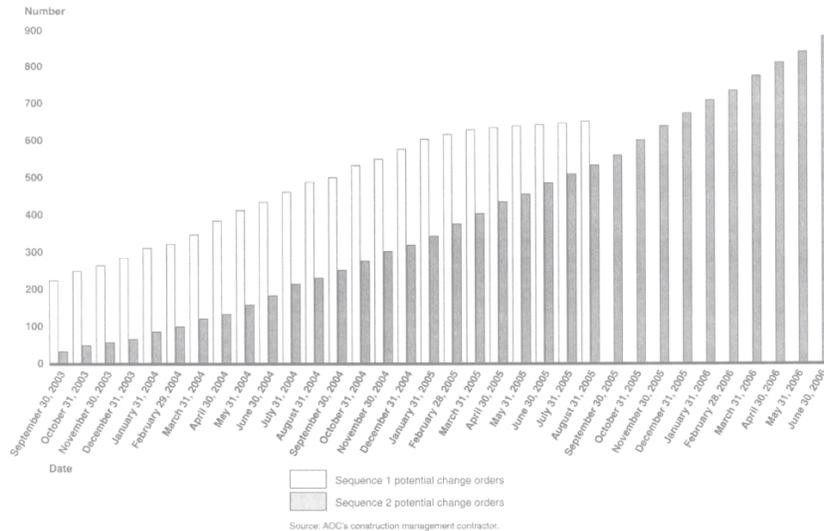


FIGURE 5.—Cumulative Number of Potential Change Orders Submitted for CVC Sequences 1 and 2 between September 2003 and June 2006

As the figure indicates, new PCOs for sequence 1 were submitted until shortly before, and even for several months after, November 2004, when AOC determined that the sequence 1 contract work was substantially complete. Similarly, PCOs for sequence 2 are still being submitted, and we have seen no indication that their submission is likely to stop soon. It therefore appears likely to us that some of the design or scope changes indicated in PCOs could lead to contract modifications that will affect the project's schedule. AOC agrees that it is important to minimize the impact of proposed design and scope changes.

Additional delays associated with the CVC's new utility tunnel have resulted, or are likely to result, in additional work or slippages. As we have previously testified, the delay in starting up the utility tunnel's operations has necessitated the use of temporary humidity control equipment for the orientation theaters to avoid damage to finish work and ceiling tile. Moreover, utility tunnel delays could require additional equipment in other areas, subject certain work to risk of damage, or delay finish or ceiling work in areas not suitable for the use of temporary humidity and temperature control equipment. For example, the CVC team installed ceiling tile in portions of the great hall to take advantage of the scaffolding in place, even though neither the temperature nor the humidity were controlled in that area. According to the CVC team, the installed tile could be damaged if the temperature or humidity is not within the specified levels. The CVC team has completed the preparatory work necessary to begin running chilled water through the CVC utility tunnel and expects to have steam running through the tunnel by mid-August. The team expects to have the first air-handling unit—which serves the exhibit gallery—providing dehumidified air to the exhibit gallery by mid-August. To keep the CVC and expansion space finish work on schedule, the team will have to either get the other air-handling units operational within the necessary time frames or obtain temporary equipment to provide conditioned air, where feasible.

—*Opening the CVC and expansion spaces at different times is likely to result in a temporary cap on CVC occupancy and could increase costs.*—AOC's current plan to open the CVC in July 2007 before the expansion spaces are scheduled for completion is likely to result in a temporary cap on CVC visitor occupancy and may necessitate the construction of temporary emergency exits for fire and life safety protection.⁷ AOC is proposing this sequential approach because it believes that conducting acceptance testing for the fire protection system for the CVC and the expansion spaces concurrently would delay opening the CVC to the public. AOC's proposed July 2007 opening date for the CVC depends on the timely completion of work not only on the base project but also on the expansion spaces, since certain expansion space work must be completed before the CVC's opening. Because certain work on both the base project and the expansion spaces has been delayed during the last several months, we believe that it will be especially important to monitor the progress of construction to determine what additional work (and funding) may be needed to meet AOC's planned date for opening the CVC, including what temporary work may be required in the expansion spaces for the opening to occur before the expansion space work is completed. AOC's Chief Fire Marshal has not yet worked out the details of how he will conduct his acceptance testing for the CVC and the expansion spaces; so the order in which various CVC and expansion space areas will be available for opening is not yet clear. More information on this sequencing issue should be available by the Subcommittee's next CVC hearing because the Chief Fire Marshal expects to have his testing plan done soon.

—*Risks from insufficient stone deliveries appear to be diminishing.*—Although wall stone shortages have caused delays in the past, they have not recently been a problem. All of the wall stone for the base project and atrium areas has been delivered, and AOC does not anticipate a problem with the remaining wall stone deliveries. According to the construction management contractor, about 3,700 pieces of wall stone for the East Front and all of the wall stone for the tunnels still have to be delivered. For a time, the sequence 2 contractor did have a problem with the delivery of floor stone for the exhibit gallery, but that problem has been resolved, and the contractor does not anticipate problems with floor stone deliveries for other areas. The sequence 2 subcontractor doing the House and Senate expansion space work said that some wall stone for the expansion spaces has been delivered, and at this time he does not anticipate a delivery problem with the remaining wall stone.

Finally, as we have said in previous discussions with AOC, its construction management contractor, and the Subcommittee, it will be important for AOC to have adequate analysis and documentation of the reasons and responsibilities for delays.⁸ On April 11, 2006, AOC executed a contract modification authorizing its construction management contractor to have one of its managers who has not been involved in the CVC project assess the adequacy of this type of information. The manager submitted his report to AOC in early June. He reported generally positive findings but also identified desired improvements. He made several recommendations to AOC, which AOC has generally agreed with and plans to implement consistent with the availability of resources. As we have previously stated, we believe it is important for AOC to complete its analysis of delays expeditiously given the current September 15, 2006, sequence 2 contract completion date and the impact this analysis is likely to have on delay-related costs.

Estimated Project Cost and Funding

Our most recent estimate of the cost to complete the CVC project was made several months ago. At that time, we estimated that the total cost to complete the entire CVC project would be about \$556 million without an allowance for risks and uncertainties and could be as much as about \$584 million with such an allowance. To date, about \$530 million⁹ has been provided for CVC construction. This amount includes about \$3.6 million that was made available for either CVC construction or operations and has been approved for CVC construction by the House and Senate

⁷ According to AOC, the CVC's occupancy at any one time would be temporarily limited to 3,500, compared with about 4,200, the normal anticipated occupancy level, until acceptance testing of the fire protection system for the expansion spaces has been completed. Although AOC anticipates the need for some temporary work, it does not believe that the associated costs will be substantial.

⁸ See for example: GAO, *Capitol Visitor Center: Effective Schedule Management and Updated Cost Information Are Important*, GAO-05-811T (Washington, D.C.: June 14, 2005).

⁹ See footnote 3.

Committees on Appropriations.¹⁰ AOC and its construction management contractor have completed their reassessments of the cost to complete the project and have concluded that the amount of funds provided to date plus the \$26 million that AOC hopes to receive in fiscal year 2007 CVC construction funds will be sufficient to complete the project except for possible delay-related costs. (This \$26 million in additional funds is the amount our previous cost-to-complete estimate showed would be necessary without provision for risks and uncertainties.) AOC and its construction management contractor acknowledged, however, that in drawing their conclusions, they assumed that some funds that have been slated for use for possible delay-related costs may have to be used for other purposes, thus possibly requiring additional funding for potential delay-related costs. As we testified during the Subcommittee's June 28 CVC hearing, recent events have raised questions about the sufficiency of the \$556 million cost-to-complete estimate, given that it does not provide an allowance for risks and uncertainties. Although recent events suggest to us that our previous \$556 million estimate may increase, we have not changed it yet pending the results of our reassessment of the cost to complete the project, which we expect to have by mid-September. Notwithstanding our pending reassessment, we have no specific indication that the total cost to complete the project will exceed our \$584 million estimate, which does include an allowance for risks and uncertainties.

In addition, AOC has indicated that it plans to use about \$950,000 of the fiscal year 2007 general administration appropriations it has requested to provide contractual support for its Fire Marshal Division. As we stated in our last several CVC testimonies, AOC believes that it may be able to reduce the amount of funds it will need in fiscal year 2007 to provide contractual support for testing the CVC's fire protection system and is exploring ways to do so. We plan to monitor this situation and report to the Subcommittee as soon as AOC has a firmer estimate.

AOC currently has sufficient contingency funding available to cover anticipated possible delay-related costs associated with the asbestos problem identified in connection with the work being done to connect the tunnel running from the CVC to the Jefferson Building. Even after considering use of the contingency to address anticipated possible costs for the asbestos problem, AOC would have contingency funding available for some additional problems or changes related to the Jefferson Building work. We will continue to monitor this work and the use of the contingency funds for it.

Mr. Chairman, this completes our prepared statement. We would be pleased to answer any questions that you or Members of the Subcommittee may have.

APPENDIX I.—CAPITOL VISITOR CENTER CRITICAL CONSTRUCTION MILESTONES, JUNE 29, 2006–
AUGUST 2, 2006

Activity	Location	Scheduled completion	Actual completion
Wall Stone Area 3	East Front Ground	7/17/06	¹ 7/15/06
Plaster Walls	Orientation Lobby	7/18/06	¹ 7/25/06
Plaster Ceilings	West Lobby Assembly	7/19/06	¹ 7/25/06
Hang VP Drywall Ceiling	Congressional Auditorium, Lower Level	7/20/06	(²)
Wall Stone Area 6	Congressional Auditorium	7/20/06	(³)
Flush and Treat HVAC Piping	CVC	7/24/06	6/24/06
Fire Alarm Record Submittal	CVC	7/31/06	(⁴)
Install AHU-EF-1	Mechanical System	8/01/06	(⁵)

¹ Work noted as substantially complete by contractor.

² Preceding work took longer than expected.

³ Work delayed by concrete tolerance issues related to sequence 1.

⁴ Contractor needed to incorporate a revised sequence of operations specification recently received from AOC, and other issues took longer than expected to resolve.

⁵ Work was re sequenced after schedule was updated in June and is now expected to be done in late August.

Source: AOC's June 2006 CVC sequence 2 construction schedule for the scheduled completion dates and AOC and its construction management contractor for the actual completion dates and reasons for missing milestones.

¹⁰ Public Law 108-447, enacted on December 8, 2004, provided that up to \$10.6 million (reduced to \$10.5 million by a subsequent budget rescission of \$84,800) could be transferred from AOC's Capitol Building appropriation account for the use of the CVC project. The use of the amount transferred is subject to the approval of the House and Senate Committees on Appropriations. AOC has now received approval to obligate the entire \$10.5 million, which we will discuss further in our next CVC testimony.

Senator ALLARD. Mr. Dorn, I want to thank you for your testimony and your help to the subcommittee in following the progress of this very complex, difficult and important project. I want to direct my first question to Mr. Hantman. It has to do with our appropriation process. It looks like we are going to have some delays here. We have some challenges in having our legislation ready by the first of October. What impact might there be if we don't get the 2007 appropriations bill passed on time?

POTENTIAL IMPACT OF CONTINUING RESOLUTION

Mr. HANTMAN. My sense, Mr. Chairman, and I would ask Gary Lee, who is monitoring our dollars for us, to verify that this is the case, is that the dollars that already have been appropriated but not yet obligated, could potentially be used if we modified an obligation plan. We have dollars for future settlements and things of that nature, that we might have to, depending on the length of a continuing resolution, to move from one pot into another. My sense is that with the dollars that we do have already, we should be able to get by that period of time.

Senator ALLARD. A continuing resolution would keep us at last year's funding level. Ordinarily that is the case, at the minimum and it could be more, depending on what it might say but historically, that's what we've done. So you are saying the difference between that and the increases in there, you could get by.

Mr. HANTMAN. Gary, did I speak correctly on that?

Mr. LEE. Yes, if it was a lengthy delay, we would face the risk of running out of money for some things that we need to extend, such as our construction management staff. We currently have them onboard through December, some into January.

We have a construction management staff that is assisting the AOC in managing the project and we have, of course, a contract with Gilbane as the CM. We have already negotiated an extension for their contract that carries their staff through—some of them until December, some extend into June of next year. We would have to potentially do an extension beyond that if the job runs over. We have money in the 2007 appropriation to cover that so if that money was delayed, then we wouldn't be able to process that extension and we could be in trouble there if we didn't have it by December.

Senator ALLARD. For the record, would you give us your name and your position?

Mr. LEE. I'm Gary Lee. I'm the Project Administrator. I work under Bob Hixon, Project Executive for the project team.

COST TO COMPLETE

Senator ALLARD. Very good. Now, I'd like to go to the cost reassessment. Mr. Hantman, the Architect of the Capitol's office has reassessed the cost of completing the Capitol Visitor Center, and doesn't believe there is any additional costs beyond that included in the 2007 appropriations bill with the exception of future delay claims.

Mr. HANTMAN. That's correct, sir.

Senator ALLARD. Do you think that is realistic Mr. Ungar?

Mr. UNGAR. Mr. Chairman, we haven't done our reassessment yet but based on all the events that have occurred over the last few months, our confidence is lessened, less than it was 1 month or so ago, so we believe that there may be the need for additional funds, over and above the amounts that AOC anticipates that would be needed for delay related costs but we are not in the position yet to give any specific numbers.

Senator ALLARD. Mr. Hantman, earlier estimates included contingency amounts for delayed claims.

Mr. HANTMAN. That's correct.

Senator ALLARD. Does your estimate assume using those contingencies to pay for some of these items?

Mr. HANTMAN. As the negotiations for delayed claims go on, we get a better handle on as we move forward. We have a significant amount of dollars currently appropriated to handle existing delayed claims. What I think Bernie and I are talking about is potential future ones that may come up—we've not heard anything about it from the contractors as of yet. We know, for instance, on the delay on the "R" tunnel and the utility lines coming on through. Those kinds of issues do impact contractors and their flow of work. So we may be hearing something on that. We've not yet heard that to date and couldn't quantify any potential issues relative to that.

Senator ALLARD. Mr. Ungar.

Mr. UNGAR. Mr. Chairman, at this point, again, we don't have any specific numbers but our thinking is that it is likely that AOC would have to use some of its money that is, I'll use the word slated, for delays right now, for changes that are forthcoming. But again, the exact amount, we are not in a position right now to estimate.

Senator ALLARD. Now, when in September are you anticipating having a reassessment available?

Mr. UNGAR. Before your hearing, sir.

Senator ALLARD. We wanted to hear that!

Mr. UNGAR. We're targeting right now for mid-September. We don't know exactly when the hearing is going to be, but by the 15th we'll be ready.

Senator ALLARD. Yes, the 18th is when we are looking at for a hearing.

Mr. UNGAR. Okay.

DOCUMENTING REASONS FOR DELAYS

Senator ALLARD. Now, the CVC project has experienced a number of delays during sequence 2 and the Government Accountability Office has emphasized the importance of you having adequate analysis and documentation of the reasons and responsibilities for delays, something that did not happen during sequence 1. The September 15 contract completion date for sequence 2 is rapidly approaching. What have you done to ensure that you have adequate information on the reasons for delays during sequence 2 as well as a view regarding responsibility for the delays? Mr. Hantman?

Mr. HANTMAN. We've certainly been talking with the contractors. The detailed delay claims that have come through, Mr. Lee has been reviewing, along with Gilbane, and we've been settling those as we can. Mr. Lee can talk specifically about some of them, rather

than in general as we have talked about them in these hearings. There are more that are still outstanding. Negotiations are ongoing on those delay claims.

Senator ALLARD. So there have been requests at this point in time for additional extensions?

Mr. HANTMAN. Yes. There are time and dollar impacts on some of the claims that have come in, yes. And we have negotiated some of those.

Senator ALLARD. All right.

Mr. HANTMAN. And the process of negotiating them is ongoing.

Senator ALLARD. Will you be able to give us a report on the 18th?

Mr. HANTMAN. I think basically, the issue, Mr. Chairman, is the contract completion date is September 15 right now. We have not negotiated with the contractor yet, an extension of time beyond September 15 for them to complete the project. Although, the schedules that we have been working on basically contemplate the idea of a completion in the December timeframe. We still need to negotiate those but the CVC contract calls for the construction of a complete and usable Capitol Visitor Center. It's really not a level of effort contract where we purchase construction services for a finite period of time. So, when the contract completion date is reached, the contract still remains in place and the contractor still remains obligated to continue working. The contract itself provides the remedies of relief that we and the contractor are entitled to, in the event of late completion. So we still need to negotiate all of those. We will be sending a letter to the contractor prior to September 15 reminding him of the completion date and that he needs to give us whatever claims he has for ongoing work or for delays. We will send him that letter and that timely completion remains essential but we request that he submit any requests for additional time to which he believes he is entitled.

Senator ALLARD. But you do need some sort of contractual change, don't you?

Mr. HANTMAN. Ultimately, it will have to be—yes. And how that is addressed is something that we and our attorneys are talking about right now.

Senator ALLARD. Are they indicating to you that they can have this done rather quickly here, with the 15th coming up?

Mr. HANTMAN. I don't think it will be done prior to the 15th. Gary, do you have any sense of that?

Mr. LEE. No, I don't believe it is going to be done by the 15th. We will be in negotiations with the contractor to work out a revised completion date and once we have that worked out, we'd be issuing a modification to their contract.

PROJECT MILESTONES

Senator ALLARD. On the milestones, only two of the eight milestones were completed on time in the last month, two were completed late; four have yet to be completed. Why haven't all the milestones been met? The excuse that was given to us at the last hearing, by Mr. Hixon, was that they were going back to a January schedule. AOC moved the schedule to June and you are still missing milestones. Can somebody respond to that?

Mr. JACOBS. Mr. Chairman, the milestones that we're tracking are not necessarily contractual milestones. They are just indicators that the contractor uses to try to make sure that the work is getting done in a timely manner. Other priorities often arise where they have to re-sequence some things. In this case, although we were able to get two done on time and two done very shortly thereafter, there were issues that arose. For instance, the air handlers. One of those was intended to be done in August but the contractor found that it would be more efficient to actually bring it online with two air handlers at the same time. Therefore, although we didn't meet that milestone, it helped to improve on a later milestone.

Senator ALLARD. I noticed that in your testimony and the Architect of the Capitol's testimony. But do we have a milestone there that is going to have the potential of delaying the project where it can't be done concurrently?

Mr. JACOBS. No. Well, of those lists, the one that there is some risk on, is the fire alarm, resolving the fire alarm programming issues. So we are tracking that one very closely. We are working with the contractor to get their submittal in. It will be one of the topics of the upcoming fire alarm meeting with the fire marshal on Friday. We expect to be able to return comments within a week or so. Therefore, August 21 is the date that we anticipate that all of the issues related to that programming will be complete and that the contractor can start programming the fire alarm system.

Senator ALLARD. Okay, now that does move us into the fire monitoring issue. Mr. Ungar, did you have a comment?

Mr. UNGAR. Oh, no sir. I was going to agree with Mr. Jacobs that that would be the milestone that we would have picked also, that could be real problematic if it continues to slip.

FIRE ALARM ACCEPTANCE TESTING

Senator ALLARD. I want to pursue your problem with the fire alarm system and I want to be sensitive to your statement that for security reasons, there are some aspects of this that we probably wouldn't want to discuss in a public forum but I am going to press you for giving us additional comments about how this problem came about in a general sense.

Mr. JACOBS. We only learned about this problem very recently. It was a concern that the fire marshal had about a particular component of the life safety systems. This particular component is actually unique to the CVC, that it is an equivalency that the fire marshal's office and the designers had come up with to address some conflicting code versus security requirements on the project. As such, because there is not really a standard for this, there were no standard details, no standard specifications to which the designers could refer. In addition, because this is unique to the CVC and it is not industry standard, the contractor did not realize that there were any special needs related to this particular system component. As a result, we really didn't realize until just recently that there was an issue. When we did realize it, we immediately sat down with the contractor and with the fire marshal's office and we were able to work out a compromise that basically kept all of the existing work in place but added to it to improve some redundancy.

Senator ALLARD. I'd just comment that it has been over a 9 month period that this subcommittee has consistently brought up issues with the fire alarm system and demanded that we had some plans as we moved along. It is disappointing that we continue to push this issue and we continue to have problems with the fire alarm system. Mr. Hantman, the reason AOC brought on the project management contractor, Gilbane Building Company, was to try and identify problems like we have with the fire damper monitoring system, long before it becomes a problem. Are you satisfied with the support they are providing?

Mr. HANTMAN. We have directed them, Mr. Chairman, to include on their list of works and their meetings, full involvement and review of the prioritized list of fire and life safety issues and to take that list on a weekly basis, as opposed to biweekly, and include all of the key players. That would include the fire marshal, the Capitol Police, and all of the contractors, to make sure that, on a weekly basis, all of these issues are constantly reviewed. They had not been constantly reviewed in the past. Key issues were addressed as they came up as opposed to an overview of the whole list of issues on that priority list.

Senator ALLARD. And now you are beginning to involve them in your meetings, where in the past, the fire marshal and the police, you hadn't involved them in your meetings?

Mr. HANTMAN. They had been involved in our meetings, definitely, but not every weekly meeting. Now they will be at every weekly meeting to make sure that we are touching base and giving progress reports on a weekly basis.

Senator ALLARD. I think that should be helpful. I'm glad to hear that change in your plans. When, Mr. Hantman, will you know the exact cost impact associated with the fire dampers?

Mr. HANTMAN. Gary, do we have a sense of that?

Mr. LEE. Well, it will probably still be a couple of weeks before we have a better idea on this. Basically, we're having to—although we have an approach, we have to work out the specifics on this. That is something that we will be talking to the contractor about on Friday. Because of the sensitivity of this, we need to make sure that the fire marshal's office is in full agreement on the specifics of how they plan to tackle this issue. So once we know the specifics, we'll be in a much better position to understand how much time is going to be involved and what the potential cost will be.

Senator ALLARD. Okay, now let's move on to some of the other fire system issues. They've dragged on for several months and many of those remain unresolved. At last month's hearing, Mr. Hixon testified that the matrix for the fire alarm system, outlining how the system needs to function, was to be completed by July 15. Did that happen?

Mr. JACOBS. No, Mr. Chairman, unfortunately it did not. It is a very complicated issue, trying to put this on paper and figure out how all of the different parts of the program need to work. The contractor is working on it and that also is something that we expect to have a draft of from them this Friday. We are then anticipating that there will be about 2 weeks of back and forth with the fire marshal reviewing that matrix. So that was the date that Mr.

Hantman had referred to as being August 21, when we think that it will be fully approved and when programming can start.

Senator ALLARD. What other components of the Capitol Visitor Center's fire protection system have not been approved and what steps are you taking to ensure that additional surprises do not occur with design, installation or testing of these components?

Mr. JACOBS. At this point in the project, there are not any outstanding submittals or I should say, not any submittals that the fire marshal's office has not seen before. All of them have been submitted in some portion. There are quite a number that are still not fully approved that we are still going through the resubmittal process on. That is the intent of this list that we're talking about. We've had a list in the past that tracked the submittals, the status of the submittals. What we've done is we've expanded that list to not only include submittal specific items but also to include over-riding—you know, larger issues, basically, that may not be submittal specific. So the idea is, that by looking at these issues themselves, we can track those much better and make sure that we are moving forward in resolution on those.

Senator ALLARD. Mr. Ungar, are you satisfied with that? Do they have the systems in place to ensure that we don't have any more surprises like this?

Mr. UNGAR. Mr. Chairman, I don't think we totally have the system in place. Hopefully it will be working shortly but I did just want to clarify one thing that Mr. Jacobs mentioned, that is I do not believe that all of the aspects of the fire protection system have yet been provided to the fire marshal. One in particular that I know hasn't come to him yet, has to do with particular, separate fire alarm panels that will be required in the House and Senate expansion spaces. I believe there may be others. I don't know how much of a potential problem they present but to our knowledge, the fire marshal hasn't seen those and one of the issues that we are concerned about is making sure that there is a complete list so everybody agrees where the project stands in that regard.

Mr. JACOBS. And I would follow up just to say that that is a component of a larger submittal that they have seen. That particular element, Mr. Ungar is correct, still needs to be provided to them.

Senator ALLARD. But don't you agree we need to have a fully approved design for the fire protection system?

Mr. JACOBS. Absolutely.

Senator ALLARD. And when will you have that done?

Mr. JACOBS. Again, we have the list that we will be tracking all of these issues on and there are target dates for all of these. They probably will continue now through early fall.

Senator ALLARD. Here is part of the problem as I see it. The fire marshal has got his staff year around but then you dump a whole bunch of work on him at the end. It is difficult for him to meet these deadlines and so that is why we have been pushing to get these to him so that he can plan for his whole year. According to GAO, the Capitol Visitor Center's fire protection system now represents the single greatest risk to project completion. Mr. Hantman, do you agree with GAO's assessment?

Mr. HANTMAN. Yes, I do, Mr. Chairman. In the past, we had an awful lot of discussion about the stonework and the deliveries and

the courts' suits and things of that nature. I think that is basically in hand. We have still a modicum of stone to be delivered and installed but there is no doubt that the fire alarm system, the installation of it and the ultimate testing of it, is the most critical path.

Senator ALLARD. Is there anything you personally plan to do to oversee the successful completion of the fire protection system?

Mr. HANTMAN. We've established Wednesday meetings, which I have initiated and I attend. I push people for resolution of issues so that we just don't discuss something and push it off into the future. I think we've made an awful lot of progress over the last couple of months with the addition of these meetings, with all people around the table. I just lock the door and say, "Nobody leaves until we resolve these issues."

Senator ALLARD. Our subcommittee recently provided some reprogramming dollars so the fire marshal could deal with some of these fire system-testing procedures. Does the fire marshal have sufficient resources with these funds?

Mr. HANTMAN. Yes, I believe he does. He has already brought one consultant on. He has three other consultant firms that he is talking to and is ready to bring on so that he can meet the workload. He is working very closely with the contractors to find out when this information is going to flow and he has the resources now to bring that help on.

Senator ALLARD. Now, can you give us some idea of when we will have a complete schedule for testing all of the life safety systems?

Mr. HANTMAN. Do we have information on that? That is something that the fire marshal's office is working on. We have preliminarily put together what we believe the plan, the schedule would be. The fire marshal, his office is further developing that. I'm not sure exactly when. Maybe we can introduce the fire marshal himself and he can respond to that.

Senator ALLARD. Mr. Lauziere, would you like to comment, perhaps? Identify yourself for the record and state your position, if you will.

Mr. LAUZIERE. Thank you, Mr. Chairman. My name is Kenneth Lauziere. I am the Chief Fire Marshal for the Office of the Architect of the Capitol. We do have a plan that we've been working on with both our consultants and with my office for the fire protection system acceptance plan as well as the overall commissioning plan for the building systems. As you certainly know, the entire system of fire protection and life safety also encompasses all of the building systems, whether it be the security, the air handling, emergency generators, things of this nature.

Senator ALLARD. That's why they emphasized all—

Mr. LAUZIERE. That's exactly—yes, very much so. So we're working on that plan. We do have a list that we had submitted to the CVC team some time ago, which encompassed all of the code mandated, the fire code and building code mandated subsystems that needed to be affirmed and tested prior to occupancy of the building. We are now expanding that to make sure that we not only pick up those elements but that we also provide all of the subsets of what each of those encompasses so that we can get a handle on just how much time and what effort the contractor needs to make sure he

does his pre-testing in preparation for our final acceptance of the systems.

Senator ALLARD. You've got some more work to do.

Mr. LAUZIERE. We do have some more work to do. My goal is that by the end of August, we're going to have our plan together that will give them the entire subset listing of what the life safety components are so that they can make sure that we have that in target with the contractor.

Senator ALLARD. It sounds like we're going to have a lot to cover on September 18.

Mr. LAUZIERE. Possibly so, that's correct, yes.

CAPITOL VISITOR CENTER UTILITY TUNNEL

Senator ALLARD. Okay, thank you. On the CVC tunnel, I'm curious as to what the status of connecting the new CVC utility tunnel to the existing "R" tunnel. Has the necessary asbestos remediation and re-insulation work been completed?

Mr. HANTMAN. Yes, it has, Mr. Chairman. There is one section of insulation that will have to be replaced later on but that will be contained until that gets done. The basic insulation of all of the pipes tied in now has been completed. That space had been remediated so you don't need to wear protective gear in that particular "T" intersection where the "R" tunnel ties into the CVC tunnel. So that's why we now have the valves open and the chilled water flowing right now.

Senator ALLARD. Now, just so everybody understands, the focus on the hearing is the Capitol Visitor Center, we are particularly interested in the tunnel issue because that had an impact on our completion date on the Capitol Visitor Center.

We have some separate issues on the utility tunnels that we will pursue in a different forum because we are focusing on the Capitol Visitor Center issues at these hearings.

Mr. HANTMAN. That's fine, sir.

CAPITOL VISITOR CENTER AIR HANDLING UNITS

Senator ALLARD. Mr. Hantman, you said that the chilled water is now available from the utility tunnel. Is it actually being used and are any of the air handlers in the Capitol Visitor Center now providing cool air to the exhibited area and if not, why not?

Mr. HANTMAN. The air handling unit number one was the first air handling unit scheduled to be online. Chilled water now sits at the valve right at that unit. There is still some additional testing and cleaning that needs to be done in the exhibition area before that valve is turned on and water actually flows into air handling unit number one. For instance, in the ceiling of the exhibition area, in the photo that we showed earlier, they just completed cement issues work on the ceiling. There is still debris that needs to be cleaned up. That work has been done, the painting has been done. The scaffolding is beginning to come down and all of that debris that has fallen beneath the scaffolding needs to be cleaned up before we turn on the air handling unit. We can't risk the debris in that area being sucked into the air handling units.

Senator ALLARD. So when the air handlers are used, how do we isolate the areas from the unheated portions?

Mr. HANTMAN. The access to the exhibition area, for instance, Mr. Chairman, that air handling unit number one serves, has basically three entry points.

Senator ALLARD. I see.

Mr. HANTMAN. We currently have them all covered right now, for dehumidification purposes as well as ultimately for turning on the air conditioning in that space and finishing off the work.

Senator ALLARD. When do you think steam would be available for the air handling units?

Mr. JACOBS. It should be the middle of this month; August 18 is our current date.

Senator ALLARD. How are you controlling the humidity in the meantime?

Mr. HANTMAN. We have temporary dehumidifiers that are in the orientation theatres and we've been dehumidifying, I believe, the exhibition space as well so that we can begin the installation of millwork and ceiling panels. So that work, that may have been temporary units that are sitting on the plaza and we pipe in dehumidification air so that we can keep the very uncomfortable air that we see here from impacting the finishes that we are installing.

Senator ALLARD. Mr. Ungar, do you have any comments on this plan and some of the things that they've explained as far as the air handling units?

Mr. UNGAR. Yes, Mr. Chairman, one thought. As far as Mr. Hantman explained it, that's fine. We also have seen some information pulled together by the construction management contractor that raises some concerns and issues with respect to the readiness of the air handling units. We're not in a position to fully evaluate those but we have been seriously considering bringing on a consultant very shortly to help us sort through those, particularly with respect to our reassessment of the schedule and being confident that we are where we are supposed to be and that we can rely on the schedule and that the problems that have been identified either will or will not affect the ability to bring the air handling units on when the schedule would indicate.

Senator ALLARD. The bottom line is this air handling unit issue could impact our completion schedule?

Mr. UNGAR. It could, yes sir. It is very important.

It is very important too, not only from the standpoint of the eventual opening but a lot of the work that Mr. Hantman talked about, the finish work, will require conditioned air and it is going to be more difficult in some areas to get that and right now. One particular problem the sequence 2 subcontractor responsible for the House and Senate expansion space is having is being delayed and being able to do some of his ceiling work because he lacks conditioned air. So it is very important that that be taken care of.

Senator ALLARD. Mr. Dorn.

Mr. DORN. In addition, the air handling system needs to be completed so that you can get your testing of the fire alarm system done. So one of those is going to become the longest pole in this tent and it is just which one finishes first. But the air handler system is critical to finishing this job.

EXHIBIT GALLERY

Senator ALLARD. We hope to hear some good news in September. I understand that the opening of the exhibit gallery cannot occur until the end of June. That's the current schedule, because there must be a certificate of occupancy on hand before the artifacts can be installed in the visitor's center. It looks to me like we're cutting it a bit close, from our June completion date to a July opening. I wonder if you would comment on that, Mr. Hantman?

Mr. HANTMAN. We have talked in that timeframe, Mr. Chairman, in the June/July timeframe of being able to bring in visitors for test cases with our guides to train them in terms of how people can move through the visitor's center. We still anticipate that we'll be done. One of the things with our artifacts and the agreements that we have with the various institutions that will be lending us these artifacts—and sometimes they are only lent for a period of 5 or 6 months—is that we really don't want to take the original artifacts until we are ready to have our grand opening, whatever date the Congress ultimately agrees on. So if that is in September or October—whatever it turns out to be, we would want to be bringing in the those artifacts perhaps a month beforehand and not have our clock ticking on borrowing them for 5 or 6 months in advance. So we would certainly have the capability of putting in replicas and so labeling these exhibits as temporary exhibits, so that we can have that in there, test out the systems and have people see what will ultimately be the originals.

Senator ALLARD. So July would be a training period, basically? Our actual opening period is going to be some time after July?

Mr. HANTMAN. I think the Capitol Preservation Commission is discussing that now.

Senator ALLARD. Okay. Are you working with the office that provides the certificate of occupancy so that issues that might come up at the end have been discussed and talked about before we get to that point?

Mr. HANTMAN. Yes. Our fire marshal, Ken Lauziere, essentially will be providing the certificate of occupancy so he is very much involved in when people can come on in and what we can do in the space.

Senator ALLARD. So he is the one that will be providing that certificate?

Mr. HANTMAN. That's correct, sir.

Senator ALLARD. Mr. Ungar, any comments as we close up the hearing?

Mr. UNGAR. Just one suggestion, Mr. Chairman, for Mr. Hantman, that came to my mind after we did our statement and that is, given the importance of the fire protection system, he might want to look at the staffing level within the team to deal with this issue. When you look at this, there is no one particular person on the AOC team who is really an expert in this area. The construction management contractor has an individual who is overseeing this, a senior engineer who is very good and is doing generally a very good job. The problem is, is that there are a lot of issues and he is handling not only the fire protection issue, but he is also handling the heating, air-conditioning and ventilation sys-

tem and the security system. There are so many things coming up that they just might want to take a look at this and make sure that they have enough capacity to handle all these issues in a timely way. One problem that they are having is that the submissions that relate to the fire protection system for the review and approval of the fire marshal are languishing. Many of them are taking as many as 9 months and maybe even more to get through the process and a whole series of things that have to happen, so again, I think they need to look at the staffing level very closely.

Senator ALLARD. Those are helpful comments. Mr. Hantman, do you have any closing comments?

Mr. HANTMAN. Mr. Chairman, we are making progress as evidenced by the photographs and the documentation that GAO is also providing. This is a magnificent challenge, Mr. Chairman, no doubt about that, a very complex project. As you pointed out and I've also talked about, a beta test site. I have no doubt that we are going to be able to work through any challenges and this project is going to be something that the Congress and the American people will be very proud of for generations to come. We have had some bumps in the road. We're working them out and I think the project team has, in fact, been able to integrate the many changes that have come forward and we've been directed to make, many multi-million dollar changes. I think one of the things that we've not been very good at is determining what the impact of those changes would be on the base project or the schedules. We do appreciate the work that GAO has done, looking at risk on this. I think doing the actual work, getting it incorporated is something we've done well, but in terms of projecting out, the impacts on the project, this is something that we could and will improve upon.

SUBCOMMITTEE RECESS

Senator ALLARD. Thank you both for your testimony and the panel. The subcommittee stands in recess until September, a date that has yet to be determined. Thank you. The subcommittee is in recess.

[Whereupon, at 11:40 a.m., Wednesday, August 2, the subcommittee was recessed, to reconvene subject to the call of the Chair.]

PROGRESS OF CONSTRUCTION OF THE CAPITOL VISITOR CENTER

THURSDAY, SEPTEMBER 21, 2006

U.S. SENATE,
SUBCOMMITTEE ON THE LEGISLATIVE BRANCH,
COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 10:30 a.m., in room SD-138, Dirksen Senate Office Building, Hon. Wayne Allard (chairman) presiding.
Present: Senators Allard and Durbin.

OPENING STATEMENT OF SENATOR WAYNE ALLARD

Senator ALLARD. The hour of 10:30 having arrived, we'll go ahead and call the subcommittee to order.

Before beginning the hearing today, I'd like to comment on the serious incident which occurred on Monday in which an individual was able to breach several security checkpoints and penetrate the Capitol through a Capitol Visitor Center (CVC) construction door, demonstrating a major flaw in Capitol Police security. The security of the Capitol complex is of utmost importance. And for us to discover a hole in our security system in this manner is completely unacceptable to me and to this subcommittee.

We have every expectation that a thorough review is being undertaken to ensure such a situation could never be repeated. This is a very serious matter, and we'll be following up with the police chief. I expect a full report on what happened, what changes have taken place to prevent a similar reoccurrence, and how the police are reevaluating our security plans already in place.

The police force has increased by about one-third since September 11. Clearly, the resources are available to fully protect the Capitol complex against this type of breach. And this happened after we had had assurances time and time again from the Sergeant at Arms and the police chief that the Capitol was adequately secured. And so, this is disturbing to me.

I also want to take just a moment to commend those employees in the flag office who helped—who actually subdued this individual—Karen Livingston, who is the supervisor, Dennis Anthony, who is the assistant supervisor, and Isaac Livingston, who is a clerk there. Without their heroic efforts, who knows where that individual may have gone. We need to recognize them in a public way for their great job.

We meet today to take testimony on the progress of the Capitol Visitor Center. This is our 14th hearing on the CVC. We welcome Architect of the Capitol Alan Hantman, CVC Project Executive Bob

Hixon, and the Government Accountability Office (GAO) representatives Bernie Ungar and Terry Dorn.

Mr. Hantman, we know progress has been made since our last hearing, but I'm very disappointed that more hasn't been accomplished and momentum seems to be sliding. Since we were last briefed, 7 weeks ago, the project schedule has slipped 4½ months, there have been additional changes to the fire and life safety system, the pace of work on the air handling units has slowed considerably, and new issues have arisen, such as the need to redesign the archway on the east front. Only 2 out of 17 milestones were accomplished on time since our last hearing. Schedule slippages occurred in all 18 critical, or near-critical, paths.

It's been a longer period of time than we usually have between hearings, and I'm often asked the question, "Well, are your hearings making a difference?" It's been a while since we've had a hearing, there's been some slippage occurring. I'm going to let you know we're going to continue to have these hearings until we get completion, because it's obvious they are making a difference.

The CVC team will tell us that the project will be completed in September 2007. One year ago, the Architect testified before this subcommittee that the project would be completed September 15, 2006. In that hearing, we discussed concerns with the fire-protection system's design and testing. Today, we will have a conversation that should give us all an unfortunate feeling of "déjà vu."

At last year's hearing, GAO predicted a spring or summer 2007 opening, which the Architect expressed disagreement and even irritation with. Now it appears the GAO was entirely too optimistic. As to the price tag, it appears the cost likely will exceed GAO's earlier high-end estimate of \$584 million. Mr. Hantman, we need your action plan on how we will get this project on track. We need a plan for an opening that is realistic and attainable. We cannot continue to lose 2 weeks each month in the project schedule. The project team must focus on those high priority activities that have the most impact on the completion date. The action plan is due to the subcommittee by October 20. Owing to the congressional schedule, we will not be able to hold a hearing in October, but would like to hold a hearing in November. We expect to see all the milestones set for the next 2 months to be met. We want your contractors and subcontractors to be devoting the full effort and resources needed to achieve these targets.

Mr. Hantman, please proceed with your testimony, and then we will turn to GAO for their statement.

STATEMENT OF ALAN M. HANTMAN, FAIA, ARCHITECT OF THE CAPITOL

ACCOMPANIED BY BOB HIXON, PROJECT DIRECTOR, CAPITOL VISITOR CENTER, ARCHITECT OF THE CAPITOL

Mr. HANTMAN. Thank you, Mr. Chairman, and good morning. And thank you for your sobering comments, as well.

As you point out, since our August hearing the contractor has made progress on the project, but there are areas of concern, and we are continuing to monitor those areas.

FIRE AND LIFE SAFETY SYSTEMS

First, I'd like to update you on the status of the CVC's security and fire and life safety systems. As we discussed last month, the implementation of the CVC's fire alarm system and associated programming requirements continues to be our main focus, since the pretesting and final testing sequences directly impact the occupancy of the facility. As of late August, the fire alarm system contractors have received the new detailed design requirements and are now finalizing their submittals.

The fire marshal has been an active participant throughout this process, because the timely installation of all fire alarm system components is critical to ensure that the contractor's pretesting process is completed as expeditiously as possible. The fire marshal would then begin the anticipated 5½ month final acceptance testing of the fire and life safety systems.

It should be noted, Mr. Chairman, that this duration now includes 1 month instead of 2 months to test the House and the Senate expansion spaces, since these spaces are now tracking to be completed at the same time as the CVC. While this pushes the completion date for the fire and life safety testing of the CVC portion of the project 1 month, we agree with the fire marshal that it would be prudent to test the facility as a whole rather than test them sequentially.

MANAGEMENT CONTROLS

Mr. Chairman, recognizing, as you clearly indicated, that delays have resulted from the integration of new requirements or revisions related to security and fire and life safety systems and the continued slippage in several of the project activities from stone installation, east front, to the operation of air handling units, we have further strengthened management controls to address these matters.

Last month, we discussed our efforts to intensify communication among team members. Toward that end, the AOC and Gilbane are tracking the submittal and review process continuously to ensure that potential issues are identified early and included on the weekly meeting agenda with the fire marshal. We continue to resolve potential conflicts related to the unique elements of security and fire and life safety systems for which the existing building codes are unclear.

In addition, the subcontractors have joined the general contractor in attending our weekly meetings to review their individual schedules and discuss issues of concern.

To reduce the turnaround time for information, we're now walking the site with the contractors on a frequent basis to ensure that all parties fully comprehend the specific design or construction issues of concern. This enabled our team to resolve, specifically, four issues within 1 week.

Looking ahead, I recently assigned my new deputy director for technical support as a fresh set of eyes to look for opportunities to improve and control the schedule. Mr. Bradley Macomber has just joined us from Arlington County. He's a retired lieutenant colonel with the Army Corps of Engineers, with much experience in terms

of scheduling and project management. He just joined us this week, and he will be taking a look at the scheduling and seeing what we can add to that.

Another critical schedule item remains. It is the HVAC system and the required testing, balancing, and commissioning of its many components. I am pleased to report that this week chilled water is being delivered to all 21 units. Now that we've resolved the outstanding issues related to the delivery and return of chilled water and steam, we expect the contractor will be able to air condition the entire CVC by mid-fall. This will clear the way for installation of finish materials in all areas, as well as the placement of the 5,000 fire and life safety devices on those finished surfaces, a process that's necessary for the completion of the pretesting phase.

FUNDING REQUIREMENTS

As you're aware, Mr. Chairman, the original project completion date for sequence 2 was revised as a consequence of delays during the completion of the sequence 1 contract. Funds for the expected cost of those delays are included in our current appropriations and the fiscal year 2007 budget request. We're anticipating that additional funds will be necessary in the 2008 budget to accommodate additional work or delay costs incurred by the sequence 2 contractor. Again, since we've not received any potential cost proposals from the contractor, it would be imprudent at this time to make any estimates prior to their receipt and prior to the negotiation process that would follow. We'll keep this subcommittee fully apprised when potential delay costs do become known.

In addition, we're concerned that the contractor continues to miss monthly milestones, as you indicated, Mr. Chairman. This trend is an issue, since it could result in potential trade-stacking, which could cause delays. Currently, the contractor's trade-stacking plan has been effective, but we recognize the need to avoid further delays and complete the final acceptance testing process by next summer. To help avoid potential delays, we've had frequent meetings with the contractor and major subcontractors to identify scheduled activities that must be completed quickly and possibly expedited to ensure the timely completion of pretesting activities.

We've also reviewed the mechanical system requirements with the mechanical subcontractor to ensure the systems will be ready for commissioning in December 2006, and he's assured us that this can be done.

OVERALL PROJECT UPDATE

Mr. Chairman, while these initiatives are underway, the contractor is making good progress in many areas of the project site. For example, in the great hall, mason teams have set all of the floor stone within the walls of the hall. They're now setting stone at the top of the central west stairs, in the adjacent corridors, and the threshold transitions from the great hall leading to the food service area.

In the exhibition hall, Mr. Chairman, masons have completed setting all floor and wall stone. A final coat of ceiling paint was applied at the end of August, and crews have now dismantled the scaffolding in the space. As shown here, workers are currently as-

sembling the steel support system for the marble wall of aspirations, which will house approximately 50 historic documents. Most of the engraved white marble wall stones are on pallets in the exhibition hall, awaiting installation.

Inside the north and south orientation theaters, a millwork contractor is continuing to install wood ceiling panels. The ceiling work should be completed in both theaters by mid-October, clearing the way for crews to dismantle the scaffolding and begin installing the metal stud wall framing that will support the acoustic wall panels on the theater walls.

Now, just outside the theaters, at the upper level, floor stone installation continues, and is nearly complete in the lobby outside the south orientation theater. The masons are moving east along the south corridor toward the CVC entrances, where other mason teams are already busy setting floor stone at the east side lobby. So, you can see, Mr. Chairman, floor stone is now the primary activity, as nearly all of the approximately 46,000 pieces of wall stone inside the CVC proper have been installed. There are only about 150 or so pieces inside the CVC proper to be installed.

Ceiling work continues to be a critical activity throughout the facility, as its completion is necessary to free up the floor space for the mason teams. This work is progressing well, especially in the corridors flanking the great hall on both levels and in the CVC entrance lobby, where many of the final ceiling inspections have been completed, allowing floor stone installation to proceed.

In the east front, Mr. Chairman, where the CVC connects to the Capitol Building, stone installation has been completed on the basement level. Masons are nearly finished setting stone in the crypt level, and crews continue installation of the metal framework that will support the stone at the Rotunda and the gallery levels. Masons have completed the installation of original marble panels in the east front, near the law library and the memorial doors. The sequence 2 contractor is undertaking measures with the stone contractor to expedite the fabrication and delivery of new stone for a redesigned support beam above the new central stair in the east front transition zone. The completion of this stonework is critical to allow for the installation of east front escalators.

In the food service area, Mr. Chairman, ceiling drywall installation is complete, and crews have installed many of the light trays and have completed the framework for curving soffits that will support acoustic fabric ceiling panels. The installation of the ceiling panels is expected to begin next week. As you can see on the right-hand side over there, kitchen equipment is being installed in virtually finished space for the kitchen area.

In the House expansion space, crews are installing metal stud framing that will support stone and millwork panels in the two-story hearing room. Workers are also finishing up work on the bulkheads and soffits in the adjacent meeting rooms, and masons continue setting stone for the pilasters in the adjacent corridors.

In the Senate expansion space, electricians continue installing light fixtures in the ceiling grids and in the meeting rooms, while carpenters continue to lay out the millwork for the meeting room walls. Meanwhile, crews continue assembling the formwork and reinforcing steel for the subway entrance ramp that will connect the

Russell subway tunnel to the upper level, near the Senate stairwell atrium. In the Senate Recording Studio, on the upper level, only minor above-ceiling work remains to be done.

Finally, Mr. Chairman, we're making progress on the exterior elements, as well. In August, masons were busy near the House and Senate steps restoring some of the approach sidewalks and adjacent areas. Those masons have moved back on the east front plaza and are continuing to rebuild the historic seat walls around the House and the Senate eggs, while other masons are setting pavers in a decorative paving pattern around the north and the south fountains.

In addition, stonework is nearly complete on the seat walls around the great hall skylights, and waterproofing tests for the fountain features around the skylights have been conducted.

Mr. Chairman, repair work will have to be done at the north skylight seat wall where the intruder's car—which you discussed earlier today—cracked several stone pieces.

In summary, Mr. Chairman, the contractor's making progress in many areas of the project site, and we continue to expect that construction of the CVC proper will be completed in the December-January timeframe, with completion of the expansion space following in February. This will allow the pretesting of security and fire and life safety systems to occur early in 2007, with the final testing to begin in March 2007. We continue working with our consultants and the contractors to facilitate the resolution of the issues related to security, fire and life safety, and HVAC systems to allow occupancy of key areas within House and Senate expansion spaces next August and the CVC, as a totality, in September 2007.

Mr. Chairman, this concludes my statement, and, once again, thank you for this opportunity to testify.

[The statement follows:]

PREPARED STATEMENT OF ALAN M. HANTMAN, FAIA

Good morning, Mr. Chairman. I appreciate this opportunity to report on the status of the Capitol Visitor Center project. Since our August hearing, the contractor has made progress on the project site, but there are areas of concern that we are continuing to monitor.

First, I would like to update you on the status of the CVC's security, and fire and life-safety systems. As we discussed last month, the implementation of the CVC's fire alarm system and associated programming requirements continues to be our main focus since the pre-testing and final testing sequences directly impact the occupancy of the facility.

As of late August, the fire alarm system contractors have received the new detailed design requirements and are now finalizing their submittals. The Fire Marshal has been an active participant throughout this process because the timely installation of all fire alarm system components is critical to ensure that the contractor's pre-testing process is completed as expeditiously as possible. The Fire Marshal would then begin the anticipated 5½ month final acceptance testing of the fire and life-safety systems. It should be noted that this duration now includes one month instead of two months to test the House and Senate expansion spaces since these spaces are now tracking to be completed at the same time as the CVC. While this pushes the completion date for the fire and life-safety testing of the CVC portion of the project one month, we agree with the Fire Marshal that it would be prudent to test the facility as a whole rather than test them sequentially.

Mr. Chairman, recognizing that delays have resulted from the integration of new requirements or revisions related to security, and fire and life-safety systems, and the continued slippage in several of the project activities from stone installation, East Front, to the operation of air handling units, we have further strengthened

management controls to address these matters. Last month, we discussed our efforts to intensify communication among team members. Toward that end, the AOC and Gilbane are tracking the submittal and review process continuously to ensure that potential issues are identified early and included on the weekly meeting agenda with the Fire Marshal. We continue to resolve potential conflicts related to the unique elements of the security, and fire and life-safety systems for which the existing building codes are unclear. In addition, the subcontractors have joined the general contractor in attending weekly meetings to review their individual schedules and discuss issues of concern. To reduce the turn-around time for information, we are now walking the site with the contractors on a frequent basis to ensure that all parties fully comprehend the specific design or construction issues of concern. This enabled our team to resolve four items within one week. Looking ahead, I recently assigned my Deputy Director for Technical Support as a fresh set of eyes to look for opportunities to improve and control the schedule.

Another critical schedule item remains the CVC's complex HVAC system and the required testing, balancing, and commissioning of its many components. I am pleased to report that this week chilled water is being delivered to all 21 units. Now that we have resolved outstanding issues related to the delivery and return of chilled water and steam, we expect that the contractor will be able to air condition the entire CVC by mid-fall. This will clear the way for installation of finish materials in all areas as well as the placement of the 5,000 fire and life-safety devices on those finished surfaces, a process that is necessary for the completion of the pre-testing phase.

Funding Status

As you are aware, Mr. Chairman, the original project completion date for Sequence 2 was revised as a consequence of delays during the completion of the Sequence 1 contract. Funds for the expected costs of those delays are included in our current appropriations and fiscal year 2007 budget request. We are anticipating that additional funds will be necessary in the fiscal year 2008 budget to accommodate additional work or delay costs incurred by the Sequence 2 contractor. Again, since we have not received any potential cost proposals from the contractor, it would be imprudent at this time to make any estimates prior to their receipt and prior to the negotiation process that would follow. We will keep the Subcommittee fully apprised when potential delay costs become known.

In addition, we are concerned that the contractor continues to miss monthly milestones. This trend is an issue since it could result in potential trade-stacking, which could cause additional delays. Currently, the contractor's trade-stacking plan has been effective, but we recognize the need to avoid further delays and complete the final acceptance testing process by next summer. To help avoid potential delays, we have had frequent meetings with the contractor and major subcontractors to identify schedule activities that must be completed quickly, and possibly expedited, to ensure the timely completion of pre-testing activities. We have also reviewed the mechanical system requirements with the mechanical subcontractor to ensure that the systems will be ready for commissioning in December 2006.

Project Update

Mr. Chairman, while these initiatives are underway, the contractor is making good progress in many areas of the project site. For example, in the Great Hall, mason teams have set all of the floor stone within the walls of the Hall. They are now setting stone at the top of the central west stairs, in the adjacent corridors, and the threshold transitions from the Great Hall leading to the food service area.

In the Exhibition Hall, masons have completed setting all floor and wall stone. A final coat of ceiling paint was applied at the end of August and crews have now dismantled the scaffolding in the space. Workers are currently assembling the steel support system for the marble "Wall of Aspirations," which will house approximately 50 historic documents. Most of the engraved white marble wall stones are on palettes in the Exhibition Hall awaiting installation.

Inside the North and South Orientation Theaters, a millwork contractor is continuing to install wood ceiling panels. The ceiling work should be completed in both theaters by mid-October, clearing the way for crews to dismantle the scaffolding and begin installing the metal stud wall framing that will support the acoustic wood panels along the theater walls.

Just outside the theaters at the upper level, floor stone installation continues and is nearly complete in the lobby outside the South Orientation Theater. The masons are moving east along the south corridor toward the CVC entrances where other mason teams are already busy setting floor stone at the eastside lobby. As you can see, Mr. Chairman, floor stone installation is now the primary activity as nearly all

of the approximately 46,000 pieces of wall stone inside the CVC proper have been installed, with only 150 or so pieces remaining.

Ceiling work continues to be a critical activity throughout the facility as its completion is necessary to free up the floor space for the mason teams. This work is progressing well especially in the corridors flanking the Great Hall on both levels and in the CVC entrance lobby where many of the final ceiling inspections have been completed allowing floor stone installation to proceed.

In the East Front, where the CVC connects to the Capitol Building, stone installation has been completed on the basement level and masons have nearly completed setting stone in the Crypt level. Crews continue installation of the metal framework that will support the stone at the Rotunda and Gallery levels and masons have completed the installation of the original marble panels in the East Front near the Law Library and Memorial Doors. The Sequence 2 contractor is undertaking measures with the stone subcontractor to expedite the fabrication and delivery of new stone for a redesigned support beam above the new central stair in the East Front transition zone. The completion of this stonework is critical to allow for the installation of East Front escalators.

In the food service area, ceiling drywall installation is complete and crews have installed many of the light trays and have completed the framework for curving soffits that will support acoustic fabric ceiling panels. The installation of the ceiling panels is expected to begin next week.

In the House expansion space, crews are installing metal stud framing that will support stone and millwork panels in a two-story Hearing Room. Workers are also finishing up work on the bulkheads and soffits in the adjacent meeting rooms and masons continue setting stone for the pilasters in the adjacent corridors.

In the Senate expansion space, electricians continue installing light fixtures in the ceiling grids and in the meeting rooms while carpenters continue to layout the millwork for the meeting room walls. Meanwhile, crews continue assembling the formwork and reinforcing steel for the subway entrance ramp that will connect the Russell Subway Tunnel to the upper level near the Senate stairwell atrium. In the Senate Recording Studio on the upper level, only minor above-ceiling work remains before close-in inspections can occur.

Finally, we are making progress on the exterior elements as well. In August, masons were busy near the House and Senate steps restoring some of the approach sidewalks and adjacent areas. Those masons have moved back on the East Front Plaza and are continuing to rebuild the historic seat walls around the House and Senate "eggs" while other masons are setting pavers in a decorative paving pattern around the north and south fountains. In addition, stone work is nearly complete on the seat walls around the Great Hall skylights and waterproofing tests for the fountain features around the skylights have been conducted.

In summary, the contractor is making progress in many areas of the project site and we continue to expect that construction of the CVC proper will be completed in the December/January time frame, with completion of the expansion space following in February. This will allow the pre-testing of security, and fire and life-safety systems to occur early in 2007 with the final testing to begin in March 2007. We continue working with our consultants and contractors to facilitate the resolution of issues related to security, fire and life-safety, and HVAC systems to allow occupancy of key areas within House and Senate expansion spaces next August and the CVC as a totality in September 2007.

Mr. Chairman, this concludes my statement. Once again, thank you for this opportunity to testify. I would be happy to answer any questions you may have.

Senator ALLARD. Mr. Dorn.

STATEMENT OF TERRELL DORN, DIRECTOR, PHYSICAL INFRASTRUCTURE, GOVERNMENT ACCOUNTABILITY OFFICE

ACCOMPANIED BY BERNARD L. UNGAR, DIRECTOR, PHYSICAL INFRASTRUCTURE, GOVERNMENT ACCOUNTABILITY OFFICE

Mr. DORN. Thank you, Mr. Chairman.

Today, we've provided the subcommittee a 22-page report with details about the current status of the Capitol Visitor Center, but I can sum it up much quicker than that. The CVC is late, and it's getting later. Significantly later when compared to this time last year or to this time last month. It is later for a number of reasons, including the late addition of more detail to the schedule, re-

sequencing of work already in the schedule, additional changes that are adding work to the contractors, and what could be perceived by some as sluggish work in some areas, activities not starting when they're planned, and, they're taking longer to do once they are started. No rocket science there.

The contractor continues to miss milestones from the schedule. This month, he only completed 2 of the 17 milestones on time. The most critical path lost over 60 days last month. A number of near-critical paths lost over 100 workdays last month. The contractor's monthly billing, as a leading indicator, is still insufficient to finish the project on schedule.

The AOC's estimate is that the project will now be finished September 17, 2007. This is not comparable to the September 2007 opening that they mentioned last month, because last month's schedule included additional time after construction to prepare for operations and other problems that they might have. This month's schedule does not include that same amount of time. This month's schedule has been described by CVC team members as aggressive.

Since the last hearing, the AOC, Gilbane, and Manhattan worked together, and aggressively, to iron out details of the fire alarm system and to find other ways to shorten the schedule. Because of those positive efforts by Manhattan and the others to change and improve the situation, the contractor's schedule, like last year, was too uncertain for GAO to conduct the detailed analysis that we had planned for this month. We do, however, have comments and predictions about the CVC schedule.

With a couple of caveats, the September 2007 schedule, as stated by the CVC team, is doable. First, provided that the continuing fire alarm analysis that is scheduled to be completed in October does not extend the schedule, and, second, not without improved execution and increased accountability among the CVC team members. To get different results, something has to change. Without those changes in the mitigation of risks previously identified, it is more likely that the project will finish later in the fall or winter.

Historically, as you said, this contract has lost 2 to 3 weeks per month, for various reasons. Assuming that there are about 6 months of construction left before the testing phase begins, it would indicate that, unless something changes the project's momentum, the project is much more likely to be completed in November to December 2007, with CVC opening at some point after AOC completes its work, at Congress' discretion.

A new risk that may adversely affect the needed forward momentum of this project is the pending and well-deserved retirement of Mr. Hantman, along with the likely, but unannounced, retirements of two very key AOC members of the CVC team. The loss of institutional knowledge and direction from these three fine gentlemen couldn't hit the project at a worse time. In addition, the likely reduction in onsite services from the project architect, RTKL, planned to begin next month, could increase the amount of time it takes to resolve project issues and further slow the project down. The team relies heavily on Tim, from RTKL—too much, some may say, but that is because he does good work and he's a valuable team player.

We were able to prepare a new cost-to-complete estimate. Our previous estimate of the project was that it would cost somewhere between \$556 million and \$584 million, based on the number of risks and uncertainties that could occur in the future. But we were concerned that the project could cost more.

Due to these continued delays and to the number of proposed changes to the project that are still remaining to be processed, we now estimate that the CVC project is likely to cost about \$584 million without an allowance for risk and uncertainties, and as much \$596 million with an allowance for risk and uncertainties. To date, about \$531 million has been provided for CVC construction by the Congress. AOC has requested an additional \$27 million for construction and fire alarm testing in the fiscal year 2007 budget. Some additional funding beyond that request may be required in fiscal year 2007, with the remainder expected to be needed in fiscal year 2008.

Given the magnitude of the continuing problems, we are recommending that AOC promptly develop an action plan setting forth specific steps that the AOC and the rest of the CVC team will take to enhance the execution of the schedule and the project.

Items they should consider in the development of this plan include making more visible, aggressive, and focused efforts to ensure that priority is placed on critical activities, and that they are completed as planned; continue to consider targeted acceleration, where it can be justified and where it will not affect safety or quality; and ensure that mechanisms are in place to promptly resolve issues as they arise.

So, in summary, Mr. Chairman, we believe the AOC schedule is doable, but not without dramatic change, and that the project is much more likely to be completed in November to December 2007, and, without change, beyond that.

We believe that the CVC is now likely to cost about \$584 million, possibly rising to as much as \$596 million if the AOC is not able to adequately address the continuing risk and uncertainties facing the project.

And, third, we recommend that the AOC promptly develop an action plan to enhance the execution of the project.

This concludes my statement. Mr. Ungar and I are available to try and answer any questions that you all may have.

[The statement follows:]

PREPARED STATEMENT OF TERRELL DORN

Mr. Chairman and Members of the Subcommittee: We are pleased to be here today to assist the Subcommittee in monitoring progress on the Capitol Visitor Center (CVC) project. Our remarks will focus on (1) the Architect of the Capitol's (AOC) progress in achieving selected project milestones and in managing the project's schedule since the Subcommittee's August 2, 2006, hearing on the project; (2) our assessment of the project's currently scheduled completion date; and (3) an update on the project's expected cost at completion and funding situation.¹ As part of this discussion, we will address a number of key challenges and risks that continue to face the project, as well as actions we believe that AOC will need to take to meet its currently scheduled completion date.

Our remarks today are based on our review of schedules and financial reports for the CVC project and related records maintained by AOC and its construction man-

¹GAO, *Capitol Visitor Center: Update on Status of Project's Schedule and Cost as of August 2, 2006*, GAO-06-828T (Washington, D.C.: Aug. 2, 2006).

agement contractor, Gilbane Building Company; our observations on the progress of work at the CVC construction site; and our discussions with the CVC team (AOC and its major CVC contractors), AOC's Chief Fire Marshal, and representatives from the U.S. Capitol Police. We also reviewed AOC's construction management contractor's periodic schedule assessments, potential change order log, and daily reports on the progress of interior wall and floor stonework. We retained a mechanical consulting engineering firm (Kincaid/Bryant) to help us assess the CVC team's progress in completing the project's heating, ventilation, and air-conditioning (HVAC) system. In addition, we reviewed the contract modifications made to date and the estimates of cost increases provided by AOC and its construction management contractor, including their estimates of the costs related to delays,² and their preliminary cost estimates for recent changes to the CVC's fire protection and security systems. Our assessment was somewhat constrained because the CVC team is still analyzing the impact on the project's schedule and cost of the recently identified changes required for certain components of the fire protection and security systems. The team expects to have firmer schedule and cost information around mid-October, at which time we may have to revise our estimates if this later information differs significantly from the current information.

In summary:

- Since the Subcommittee's August 2 CVC hearing, the CVC team has continued to move the project's construction forward, but the project's overall targeted completion date has slipped significantly. The schedule for the project's most critical activity—the fire protection system—has slipped about 4 months, bringing the new targeted overall completion date to mid-September 2007, and other important activities have also been significantly delayed. Unlike the previous CVC schedule, the new schedule (1) does not allow any time to address problems that may arise or to prepare for operations after a certificate of occupancy has been issued; (2) assumes that AOC will be able to bring exhibits into the CVC before a certificate of occupancy has been issued; and (3) provides for opening the CVC and the House and Senate expansion spaces at the same time. It is not yet clear to us whether the need for time to prepare for operations or for a certificate of occupancy to receive the exhibits will affect the facility's opening date, but these factors should not delay the completion of construction.
- During the past month, work on the project has progressed in a number of areas. For example, the sequence 2 contractor expects to have dehumidified air in the exhibit gallery by around mid-October. In addition, critical interior floor stone installation has continued, together with other interior and exterior construction work. Almost all of the interior wall stone for the CVC itself (excluding the East Front and the tunnels) is now installed.
- A number of problems have developed in connection with the CVC's fire protection system, which is the principal cause of the completion date's slippage and continues to be the single greatest source of risk to meeting the project's new scheduled completion dates. Although the CVC team has worked closely with AOC's Chief Fire Marshal and has made substantial progress in resolving issues, the resolution, along with necessary changes to certain security system-related components, has resulted in a need for significant additional work. The CVC team based its mid-September 2007 project completion date on its preliminary estimate of the time needed to do this additional work. Although the team believes that the time it added to the schedule should be sufficient, it will not make a definitive determination until it completes its analysis of the required changes, which it expects to do by mid-October.
- Several other activities important to the CVC's completion, such as the HVAC system's installation and East Front work, have been delayed since the Subcommittee's last CVC hearing—an outcome anticipated by our assessment of the CVC team's performance against the indicators of progress that we and the Subcommittee have been tracking. For example, during the last 7 weeks, the sequence 2 contractor did not meet its overall target for interior floor stone installation and continued to experience delays in installing wall stone in the East Front. In addition, the sequence 2 contractor met only 2 of the 17 milestones that we have been tracking for this hearing. The project continues to face risks

²The estimates for most of the delay-related costs were provided by AOC and its construction management contractor for budgetary purposes only and do not reflect any judgments by GAO of the validity of any potential contractor claims.

and uncertainties, such as getting its complex building systems to function together as well as separately and trade stacking.³

According to our assessment of the project's new schedule, the revised completion date is achievable if the CVC team confirms that it has added enough time to the schedule to make the necessary changes to the fire protection and security system components and if, and only if, the team promptly makes significant improvements in its execution of the project and its schedule. To facilitate such changes, we are recommending that AOC develop and submit to Congress an action plan as soon as possible, but no later than mid-October 2006, setting forth the specific steps it will take to meet its scheduled completion dates. We are identifying specific actions that we believe AOC should consider in developing this plan, including, for example, (1) making more aggressive, visible, and focused efforts to keep the work on schedule, with particular emphasis on critical and key near-critical activities; (2) making sure sufficient work is performed to meet the scheduled dates and quickly identifying and addressing problems that arise; and (3) promptly responding to design questions and concerns and requests for design instructions and clarifications. AOC generally agreed with our recommendation. AOC's prompt development and effective implementation of this action plan is critical because the construction work that has to be done in the next 3 to 4 months is a prerequisite to other work that is essential to the CVC's completion, including the CVC team's pretesting of the fire protection system and the Chief Fire Marshal final acceptance testing of the CVC. In addition, Congress can use this plan as a mechanism for holding AOC accountable for managing the project and as a vehicle for working closely with AOC to ensure that the schedule implications of all proposed scope or design changes are quickly determined and considered by all appropriate stakeholders before final decisions on the proposed changes are made.

We previously estimated that the total cost to complete the entire CVC project would be about \$556 million without an allowance for risks and uncertainties and \$584 million with such an allowance. Our updated assessment indicates that the estimated cost of the entire CVC project at completion is likely to be about \$584 million without an allowance for risks and uncertainties and about \$596 million with such an allowance—increases of \$28 million and \$12 million, respectively. Delay-related costs (which AOC and its construction management contractor have estimated for budgetary purposes only) are the largest component of the increase, followed by the additional costs estimated by the CVC team for changes to the fire protection and security systems and additional contingency funds for future changes. Our estimate could change if the additional costs turn out to be significantly different from the preliminary estimates. To date, about \$531 million⁴ has been provided for CVC construction. For fiscal year 2007, AOC has requested \$26 million in CVC construction appropriations, plus \$950,000 in AOC general administration appropriations for contractual support to complete acceptance testing of the CVC's fire protection system on schedule. During fiscal year 2007, AOC is also likely to need, but has not yet requested, some additional funds to pay for changes. Although AOC agrees that it will likely need additional funds, it does not believe that it will need as much as we have estimated. We believe our estimate is reasonable. In addition, AOC notes that it may be able to cover at least part of the increased costs from funding sources other than new appropriations after obtaining the necessary congressional approvals.

Construction Has Progressed, but the Scheduled Completion Date Has Slipped Further, and Several Actions Are Needed to Meet the Current Schedule

Work on the CVC project has continued, but the scheduled completion date has slipped about 4 months beyond the date discussed at the Subcommittee's August 2 CVC hearing. At that hearing, we said that despite some improvement in the indicators of progress we have been tracking, we were losing confidence in the ability of the CVC team to meet its scheduled completion dates, given the delays experienced thus far and the risks and uncertainties facing the project. Unfortunately, our concerns materialized. For example, certain important work related to the CVC's fire protection and HVAC systems and the East Front was not completed on time, and further delays occurred in the schedules for these areas—all of which are important to the project's timely completion. Although AOC significantly enhanced its manage-

³Trade stacking can occur when workers from different trades, such as stone masons, electricians, plumbers, or plasterers, have to work in the same area at the same time to meet a schedule, sometimes making it difficult to ensure sufficient space and resources for concurrent work.

⁴Since we last updated information on the amount of funding provided for CVC construction, the House and Senate Committees on Appropriations approved an AOC request to reprogram about \$1 million from CVC operations funding to CVC construction.

ment control over the design of the CVC's fire protection system, as we had recommended, the team determined that it will take more time than previously expected to install certain components of the fire protection and security systems to meet life safety and security requirements. The CVC team is still determining the precise impact of this additional work on the schedule, but has developed preliminary time estimates that it believes it can achieve and may even be able to shorten after its analysis is done. Recognizing these uncertainties, the team has established a mid-September 2007 date for completion and possible occupancy for both the CVC and the House and Senate expansion spaces.⁵ Our discussions with CVC team managers and staff, analysis of the project's current schedule, and observations, together with the results of our mechanical consultant's work, indicate that this September 2007 time frame is reasonable and achievable, pending the completion of the team's analysis, if and only if meaningful and significant changes occur in the project's execution from this point forward. We will discuss the necessary actions shortly.

AOC's Scheduled Completion Dates Have Slipped

According to the June 2006 project schedule—the schedule in effect at the Subcommittee's last CVC hearing—the base CVC project was to be completed in May 2007 (except for the exhibit gallery), and the House and Senate expansion spaces were to be completed in August 2007, although their physical construction work was to be substantially completed in January 2007. The project's current schedule (August 2006) shows both the base CVC project and the expansion spaces completed on September 17, 2007, although the physical construction work in the expansion spaces is now scheduled to be substantially completed in March 2007. However, this schedule is based on a preliminary estimate and provides no time for additional delays. Specifically, the sequence 2 subcontractor responsible for the installation of certain fire protection and security system components is still analyzing the impact on the schedule of changes needed to meet life safety and security requirements. This subcontractor has made a preliminary estimate that it believes is reasonable and achievable pending the completion of its analysis, but it will not commit to a date until its analysis is completed, which it believes will be around mid-October. In addition, unlike the June and July schedules, the current schedule for completing the base project allows no time for additional delays, for starting up operations, and for delivering exhibits to the exhibit gallery after a certificate of occupancy is issued. Although the sequence 2 contractor believes it may be able to shorten the time in the current schedule for making changes to the fire protection and security system components, this possibility has not been confirmed, and it is uncertain whether the elimination of schedule time for the three items discussed above will be problematic.

As we have previously testified, most of the physical construction work in the CVC, the East Front, and the expansion spaces is scheduled to be completed by December 31, 2006; however, some work extends into 2007—as far as May 2007 for the exhibit gallery and certain East Front work, April 2007 for the gift shops, and March 2007 for the installation of wayfinding signage and turnover of audio-visual equipment in the orientation theaters. Certain other construction work, such as the completion of space for the Capitol guide service and the installation of seats in the auditorium, also extends into 2007. Neither the CVC nor the expansion spaces can be opened until the Chief Fire Marshal has completed acceptance testing for the fire protection and life safety systems, now scheduled for September 2007 for the CVC and the expansion spaces. However, unlike the previous project schedules, the current schedule shows that AOC's Chief Fire Marshal plans to begin testing the expansion spaces before he completes his testing of the base CVC building so that some of the testing will be done concurrently. Previous project schedules showed that the expansion space testing would not start until the base building testing was complete. According to the CVC team and the Chief Fire Marshal, this change should eliminate the need for temporary construction measures and a temporary certificate of occupancy for the base building and for limited retesting of the base building after the expansion spaces have been tested. Also, according to AOC's Chief Fire Marshal, AOC may be able to open certain parts of the expansion spaces earlier than mid-September 2007. As we have discussed in previous CVC testimonies, AOC is continuing to explore this possibility.

⁵ AOC's June and July schedules provided time between the base project's completion and the CVC facility's opening to prepare for operations and to install the exhibits in the exhibit gallery because the CVC team believed that a certificate of occupancy was required before the exhibits could be brought into the building. The team now believes that it may be able to fully prepare for opening and install the exhibits before it has a certificate of occupancy. As of September 15, it was not clear to us that these assumptions had been validated.

Construction Work Is Progressing

According to information provided by AOC and its construction management contractor and our observations, work on the project has advanced, in terms of both the dollar value of the work in place and individual project elements. In dollar terms, AOC's construction management contractor reported that, as of August 31, the overall CVC project was about 86 percent complete and the sequence 2 work was about 77 percent complete—up from about 84 percent and 74 percent, respectively, as of the Subcommittee's last CVC hearing. Progress on individual project elements includes the following:

- Interior CVC work has moved forward, according to AOC's construction management and sequence 2 contractors. For example, 9 of the CVC's 21 air-handling units were reportedly capable of providing cool air to certain parts of the building. In addition, the sequence 2 contractor is expecting to charge the CVC's entire HVAC system with chilled water this week and to start providing dehumidified air to the CVC soon. The sequence 2 contractor has also installed all of the floor stone in the exhibit gallery and inside the great hall. The installation of wood ceiling panels is essentially complete in one of the two orientation theaters; the installation of ceiling drywall is complete in the food service area; and ceiling framing has been ongoing in the assembly rooms, auditorium, and great hall lobby.
- Surface work continued, including the installation of stone pavers above the CVC and seat wall stone around the great hall skylights. Work on the House connector tunnel and on linking the Library of Congress tunnel with the Jefferson Building has also continued.
- Wall stone has now been fully installed in the food service area, upper level west lobby, East Front basement and ground levels, and atrium areas. As of last week, only about 130 pieces of wall stone had not been installed in the CVC itself, excluding the upper two levels of the East Front and the tunnels.
- In the House and Senate expansion spaces, preparations for wall and ceiling close-in inspections have continued.

Schedule Slippages in Critical and Key Near-Critical Paths Have Worsened, Significantly Extending the Project's Completion Dates and Complicating Project Management

During the Subcommittee's last CVC hearing, we expressed considerable concern about the risk of delay in work on the CVC's fire protection system, as well as on other important areas, such as the CVC's HVAC system, the East Front, and ceiling close-ins in the upper level security lobby. Together, delays in these areas, according to AOC's construction management contractor, have extended the CVC's completion date by 95 workdays, from May 2007, as projected for the Subcommittee's last CVC hearing, to September 2007, as shown in the project's August 2006 schedule. This delay was primarily driven by slippages in the schedule for completing the CVC's fire protection system, which constitutes the CVC project's critical path—the single longest path through the project's schedule, meaning that each day the system's completion is delayed, the CVC's completion could also be delayed. AOC has significantly improved its control over the design of the facility's fire protection system, and the CVC team has been working closely with AOC's Chief Fire Marshal and U.S. Capitol Police representatives. We believe that these steps have resulted in improved coordination and communication and facilitated quicker resolution of problems and issues than previously occurred. However, the changes that have to be made to certain fire protection and security system components to address life safety and security issues have added considerable time to the schedule. These include (1) changes to the fire alarm system's programming; (2) architectural changes in a number of locations to enhance their fire protection capability; (3) wiring changes associated with having to add a major new fire alarm system control panel, enhance the fire damper monitoring system, use a different testing method, and link a security system component with a fire protection system component; and (4) changes associated with adding fire alarm system control panels to meet security requirements. According to the CVC team, the amount of time added to the August schedule to make these changes reflects the team's best thinking but is preliminary pending the team's receipt of all the detailed information it needs to estimate the impact of these changes on the schedule. The team has received much of this information and expects to receive the rest within the next several days. The needed information consists largely of shop drawings being prepared by the sequence 2 fire alarm subcontractor, which reflect the changes required for life safety and security. The team believes that it will be able to make a firm estimate by around mid-October.

As we have pointed out in our previous CVC testimonies, this project has many near-critical paths that can also affect its completion date, some with relatively

small slippages. Such a situation greatly complicates project management because problems arising in multiple areas can adversely affect the completion date, and the team must focus on a number of important areas simultaneously to avoid delaying the project's overall completion. AOC's construction management contractor identified 21 near-critical paths in the August schedule, 5 of which the CVC team considers particularly important because of their potential impact on the project's completion. These are the CVC's HVAC system, ceiling close-ins in the upper level security lobby, and three East Front paths. According to the CVC team, further delays in these areas could postpone testing of the CVC's fire alarm system, which, in turn, could delay the project's completion. According to AOC's construction management contractor, these areas have slipped by 74, 68, and over 100 workdays, respectively, compared with the schedule in effect at the Subcommittee's last CVC hearing. According to this contractor, these slippages occurred because of an electrical problem and problems with steam condensate that affected the HVAC system; problematic sequence 1 and preceding work that complicated the ceiling close-ins; and multiple issues that limited progress on the 3 East Front near-critical paths, including lead abatement requirements; electrical, ductwork, and structural conflicts; competition for space for workers; and a need to redesign and order new stone for the archway above the stair and escalators on the East Front.

Because the CVC's HVAC system affects many activities, has had a number of problems, and poses significant risks to the project's successful completion, we asked our mechanical engineering consultant to assess the status of the CVC's 21 air-handling units. He observed the status of the units on August 11, and September 6, 2006, and compared their actual and scheduled mechanical readiness to provide conditioned air to the CVC. On the basis of his observations at the CVC site on those 2 days, he reported the following:

- The units' actual and scheduled stage of completion did not always match; some units were ahead of and some were behind schedule.
- The scheduled completion dates for the units did not always match those for work in the spaces where the units have to be balanced or where the space has to be clean for the units to operate safely, suggesting a possible misalignment of priorities for finishing the spaces and finishing the units.
- Only limited progress was made between his visits to the site. Remaining work included insulating pipe, wiring control units, and cleaning the units and ducts.
- On both visits, he saw relatively few workers near the units, and little work was being performed on them.

We discussed these observations with AOC's sequence 2 and construction management contractors, as well as the sequence 2 subcontractor responsible for the work. The construction management contractor confirmed that efforts to finish the units had been limited, and the sequence 2 contractor and the subcontractor committed to completing all the work necessary for all 21 units be operational by December 31, 2006, except for the final commissioning of some units. The sequence 2 contractor said that it would ensure the alignment of the schedules and priorities for finishing the units and the spaces they are to serve. Last Friday, AOC's construction management contractor said that finishing the scheduled work for the CVC's air-handling units in a timely manner is important, and completing the work necessary to get steam and chilled water to all the units over the next 3 weeks is critical to meeting the project's revised completion schedule. Accordingly, we have arranged for our mechanical engineering consultant to reassess the status of this work in October.

The construction management contractor reported slippages in all of the remaining near-critical paths since the Subcommittee's last CVC hearing. In the 2-month period covered by the schedules between this hearing and the last one, 5 near-critical paths lost at least 100 workdays and 11 lost at least 40 workdays. For example, the exhibit gallery path slipped 105 workdays; the bronze door path slipped 43 workdays; the auditorium path slipped 98 workdays; and the orientation theater path slipped 85 workdays, as reported by AOC's construction management contractor. Slippages occurred for various reasons. For instance, according to the construction management contractor, the orientation theater path slipped because of slow progress in installing wood ceiling panels and in the sequence 2 contractor's resequencing of work; the exhibit gallery path slipped because of problems in finishing the ceiling and schedule logic changes; and the bronze door path slipped because of production problems at the fabricator's plant.

Several activities important to completing the House and Senate expansion spaces have also been delayed since the Subcommittee's last CVC hearing. For example, AOC's construction management contractor reported a 23-workday delay in completing the circular stairs in the atrium areas. This delay occurred because the spaces housing the stairs were not available while sequence 2-related work was

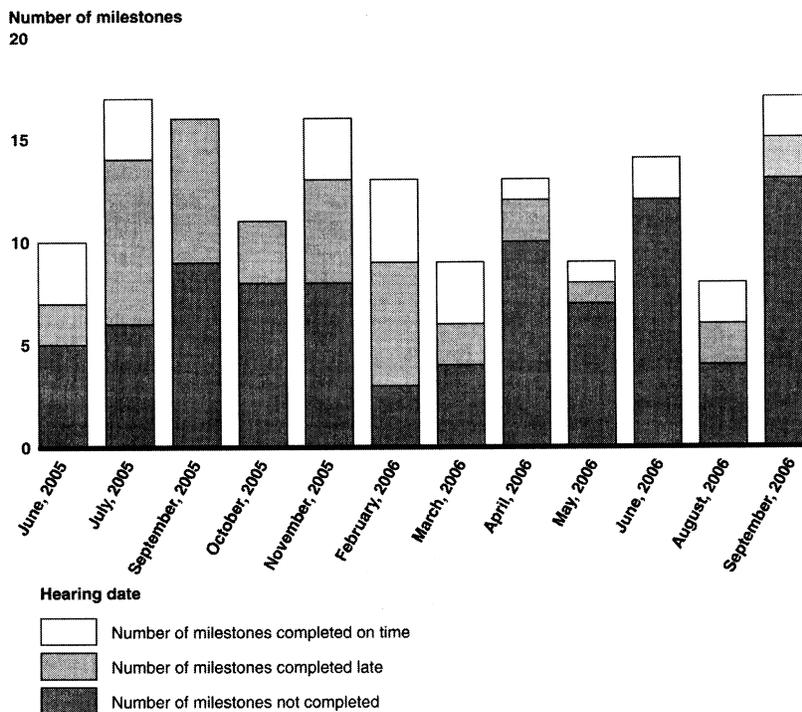
being done in those areas. Also delayed were ceiling close-ins that had to wait for approval of the fire alarm system, a special fire suppression system that was not installed because it had not been approved, and millwork that was not installed in the Senate lower level because of delays in getting approved shop drawings. Furthermore, the sequence 2 subcontractor doing the expansion work identified a number of concerns that could affect the project's completion. For example, the subcontractor reported that ceiling close-in delays could postpone testing and balancing of the HVAC system; a lack of conditioned air could adversely affect certain casework and ceiling tile work; and changes being considered in the design of the expansion spaces could delay their completion, including work that could affect the testing and balancing of the HVAC system.

Finally, although not critical to the CVC's opening, work being done to connect the Library of Congress's Jefferson building to the tunnel linking it with the CVC has fallen about a month behind because of an asbestos problem. This delay was shorter than initially estimated. Overall, the project's schedule today, compared with the schedule in effect at the Subcommittee's September 15, 2005, CVC hearing, reflects an average loss of about 3 out of every 4 weeks due to schedule slippages.

Indicators of Construction Progress Do Not Instill Confidence in the CVC Team's Ability to Meet Scheduled Completion Dates

The four indicators of construction progress that we have been tracking for the Subcommittee support extension of the project's schedule and suggest that changes in the project's execution will be necessary to achieve the scheduled dates. An update on these indicators follows:

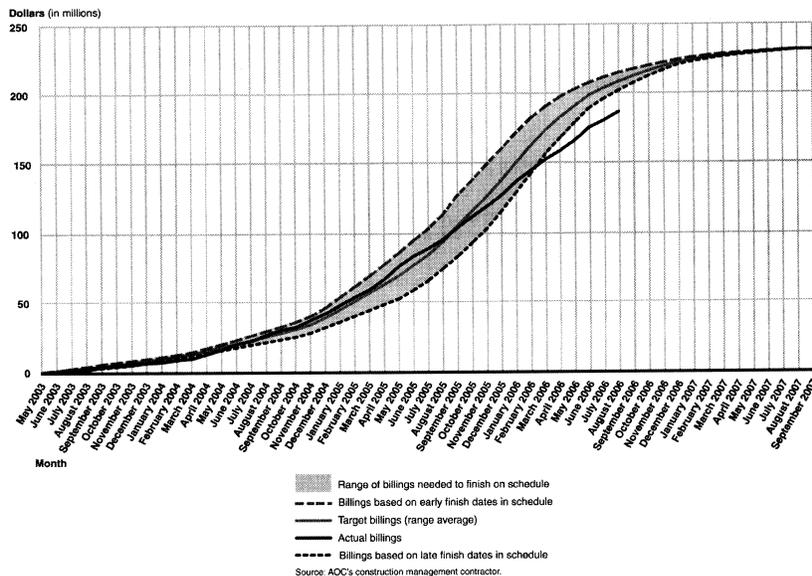
Sequence 2 contractor has continued to miss most milestones.—Starting with the Subcommittee's June 2005 CVC hearing, at the Subcommittee's request, we and AOC have been selecting and tracking sequence 2 milestones to help the Subcommittee monitor construction progress. These milestones include activities that were either on the project's critical path or that we and AOC believe are critical to the project's timely completion. As figure 1 shows, the sequence 2 contractor has generally missed these milestones. For today's hearing, the contractor met 2 of the 17 milestones that were due to be completed, according to the project's June 2006 schedule, and for both, the work was completed ahead of schedule. However, the contractor was late in completing work for 2 other milestones and had not completed the work for the remaining 13 milestones as of September 15, 2006. (See app. I.) The sequence 2 contractor attributed the slippages to a number of factors, including the need to replace water-damaged insulation, necessary preceding work taking longer than expected, and a resequencing of work by the contractor.



Source: Sequence 2 contractor, AOC and its construction management contractor, and GAO.

FIGURE 1.—Sequence 2 Contractor’s Progress in Meeting Selected Milestones as of CVC Hearing Dates

Value of completed work has increased since the last hearing, but trend reflects the sequence 2 contractor’s difficulties in meeting scheduled completion dates.—Another indicator of construction progress that we and AOC’s construction management contractor have been tracking is the value of the completed construction work billed to the government each month. Overall, the sequence 2 contractor’s monthly billings, including the bills for March through August 2006, indicate that AOC is more likely to finish closer to its new scheduled completion dates than its previously scheduled completion dates. While this indicator has some limitations (for example, billings lag behind construction), it is generally regarded in the construction industry as a useful measure of how likely a project is to be completed on time. Figure 2 compares the sequence 2 contractor’s billings since May 2003 with the billings needed to complete construction work on schedule and indicates that a late summer 2007 completion date is reasonable.



Notes:

The early and late lines on this figure reflect the cumulative billings that would be required to complete the project through contract modification number 126 (\$232.5 million total contract value) by the early and late finish dates shown in the sequence 2 contractor's schedule, which is based on the September 2006 contractual completion date.

The actual line reflects the sequence 2 contractor's actual monthly billings.

Although bills are typically submitted for payment after work is completed, it is often likely that construction work will be completed on schedule when the actual billing line falls between the early and the late lines in the figure. With respect to the CVC, the actual billing line has been trending below, and in March 2006 went below, the late finish line, where it remained through August 2006. Even with the lag in billings, this trend indicates that the amount of work being completed each month is not sufficient to keep the project on schedule.

FIGURE 2.—Total Billings by the Sequence 2 Contractor for the Entire CVC Project Compared with the Billings Needed to Finish Construction Work on Schedule

Installation of interior wall and floor stone is taking longer than expected.—Overall, about 86 percent of the CVC's interior wall stone has been installed (in the CVC, East Front, atrium areas, and tunnels), according to AOC's construction management contractor, and the sequence 2 contractor installed 1,325 pieces of interior wall stone during the last 7 weeks. Although the sequence 2 contractor has installed almost all of the wall stone in the CVC itself and all of the wall stone in the atrium areas, wall stone installation in the East Front is significantly behind schedule. According to the sequence 2 contractor's January 2006 wall stone installation schedule, the East Front wall stone was to be completely installed by July 10, 2006. As of September 15, about 4,700 pieces of wall stone remained to be installed in the East Front. During the same 7-week period, the sequence 2 contractor installed about 24,040 square feet of interior floor stone, or about 73 percent of the 33,000 square feet specified in the floor stone installation plan that the contractor provided to AOC. According to the construction management contractor, the sequence 2 contractor installed the floor stone inside the great hall sooner than planned, but work has been impeded in other areas by the lack of available space.

Figure 3 shows the sequence 2 contractor's progress in installing interior floor stone since February 13, 2006.⁶

⁶We have discontinued presenting the figure we previously included in our testimonies comparing actual to targeted wall stone installation because all targeted quantities were to have

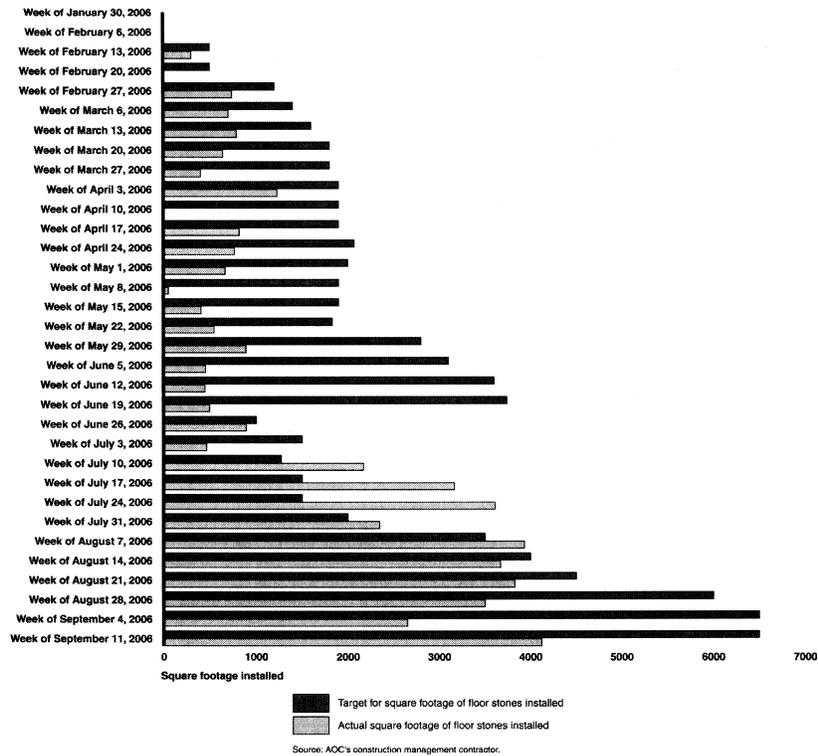


FIGURE 3.—Progress of CVC Interior Floor Stone Installation Compared with Preliminary Targets Set by the Sequence 2 Contractor

Project's Schedule Remains Vulnerable to Challenges, Risks, and Uncertainties

As we have indicated during the Subcommittee's previous CVC hearings, we believe that the CVC team continues to face challenges, risks, and uncertainties in completing the project. Given the project's history of delays, the difficulties the CVC team has encountered in resolving problems that arise quickly, and the large number of near-critical activities that can affect the project's overall completion, the CVC's efforts to identify potential problems early and resolve issues quickly will be even more important from this point forward, since AOC has left no "slack" in the schedule for contingencies. In our view, the remaining work associated with the fire protection system poses the greatest single risk to meeting AOC's mid-September 2007 completion date. The steps AOC has taken to mitigate this risk have been helpful, but much work remains to be done on the CVC's fire protection system and its linkages with other building systems. In addition, the project continues to face risks and uncertainties associated with other work important to its completion, such as the CVC's HVAC system, the East Front, and ceiling close-ins. AOC's current project schedule does not provide the 2 to 3 months that its previous schedule allowed for addressing the ongoing challenges, risks, and uncertainties. Accordingly, we plan to continue to monitor the CVC team's efforts to meet its schedule for the fire protection system and other key near-critical activities as well as the timeliness of the actions taken by the CVC team to address problems, concerns, and questions that arise. A brief update follows on the challenges, risks, and uncertainties the CVC team continues to face and the team's plans for addressing them:

—*Complex building systems remain a significant risk.*—The CVC will house complex building systems, including HVAC, fire protection, and security systems.

been installed by August 7, 2006, according to the sequence 2 contractor's January 2006 installation plan.

These systems not only have to perform well individually, but their operation also has to be integrated. If the CVC team encounters any significant problems with them, either separately or together, during the resolution of design issues, installation, commissioning, or testing, the project could be seriously delayed. The unanticipated problems that emerged in reviewing the design of the fire alarm system and in programming it illustrate the impact such problems can have on the project's schedule. Additional delays could occur if the team takes longer than expected to get approved shop drawings, if the proposed system does not meet the project's design specifications or the life safety code, or if the fire protection system does not work effectively with the security or other building systems.⁷ Additionally, the Chief Fire Marshal noted that delays could occur if the CVC team does not adequately pretest the system and correct any problems found during the pretesting. On March 23, AOC's commissioning contractor submitted its plan to the CVC team for testing the performance of the CVC's smoke control system, which is a critical component of the CVC's fire protection system and must work properly before the CVC can be opened to the public. As of September 13, this plan had not yet been submitted to or approved by the Fire Marshal Division. Moreover, as we have previously noted, the Chief Fire Marshal's timely completion of the fire protection system's acceptance testing depends on his ability to obtain sufficient funding for a contractor to help perform the tests.

—*Trade stacking could delay completion.*—As we discussed during the Subcommittee's previous CVC hearings, trade stacking could hold up finish work, such as drywall or ceiling installation, electrical and plumbing work, plastering, or floor stone installation. This work could be stacked because of delays in wall stone installation. Trade stacking could also increase the risk of accidents and injuries. Hence, it remains important, as we said at previous CVC hearings, for the CVC team to closely monitor construction to identify potential trade stacking and promptly take steps to address it. The CVC team has also identified trade stacking as a high risk. The sequence 2 contractor has developed plans that show when various subcontractors will be working in each area of the CVC except the East Front. According to the sequence 2 contractor, it intends to continue meeting regularly with its subcontractors to review and update the area plans. The CVC team identified one recent instance of trade stacking that occurred in an effort to expedite certain East Front work. In transmitting the team's monthly progress report for August, AOC noted that the compressed time frame for bringing all of the air-handling units on line will require bringing more technicians and mechanics to complete the work and may result in trade stacking.

—*Building design and work scope continue to evolve.*—The CVC has undergone a number of design and work scope changes. Since the Subcommittee's August 2 CVC hearing, AOC's architectural contractor has issued nine design changes or clarifications. As of September 14, 2006, this contractor reported, another six were in process. In addition, since the project began, AOC has executed over 100 sequence 2 contract modifications for work that was not anticipated.⁸ Some of these changes, such as changes in the exhibit gallery and in the East Front, have resulted in delays. Furthermore, although shop drawings have been approved for almost all project elements except the fire protection system, according to AOC, further design or scope changes in various project elements are likely, given the project's experience to date. In fact, in reporting on the August schedule, AOC's construction management contractor noted that anticipated changes to the House expansion space could affect ceiling close-ins. Project design and scope changes are typically reflected in the development of potential change orders (PCO), many of which result in contract modifications. Figure 4 shows the PCOs submitted for consideration for sequences 1 and 2 since September 2003. Although PCOs are not always approved, they are often regarded as a reasonably good indicator of likely future design or scope changes that can affect a project's cost and schedule. Even more important, the adverse impact

⁷ According to the sequence 2 subcontractor that is fitting out the House and Senate expansion spaces, the delays in getting approved shop drawings for the fire protection system have already postponed ceiling close-ins in the expansion spaces, and AOC believes that further such delays, along with possible requests for design changes, pose the greatest risks to the completion schedule for the expansion spaces.

⁸ These data exclude sequence 2 contract modifications for work that was planned but not included in the sequence 2 base contract. Examples include the fit-out of the House and Senate expansion spaces, the construction of the utility tunnel, and the purchase and installation of food service equipment.

of scope and design changes on a project's schedule is likely to increase as the project moves toward completion.

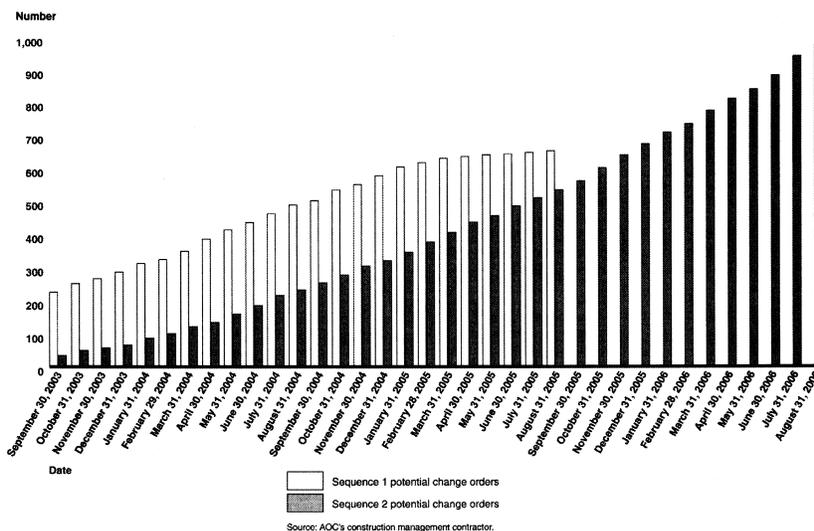


FIGURE 4.—Cumulative Number of Potential Change Orders Submitted for CVC Sequences 1 and 2 between September 2003 and August 2006

As the figure indicates, new PCOs for sequence 1 were submitted until shortly before, and even for several months after, November 2004, when AOC determined that the sequence 1 contract work was substantially complete. Similarly, PCOs for sequence 2 are still being submitted, and we have seen no indication that their submission is likely to stop soon. It therefore appears likely to us that some of the design or scope changes indicated in PCOs could lead to contract modifications that will affect the project's schedule. AOC agrees that it is important to minimize the impact of proposed design and scope changes.

Additional delays associated with the CVC's new utility tunnel have resulted, or could result, in additional work or slippages. As we have previously testified, the delay in starting up the utility tunnel's operations has necessitated the use of temporary humidity control equipment for the orientation theaters to avoid damage to finish work and ceiling tile. Moreover, delays in getting conditioned air inside the CVC have resulted in the sequence 2 contractor's bringing additional temporary equipment into the auditorium area. Such delays may subject certain work to the risk of damage or delay finish or ceiling work in areas not suitable for the use of temporary humidity and temperature control equipment. For example, the CVC team installed ceiling tile in portions of the great hall to take advantage of the scaffolding in place, even though neither the temperature nor the humidity was controlled in that area. According to the CVC team, the installed tile could be damaged if the temperature or humidity is not within the specified levels. The CVC team has been providing cool air to the food service area and on the service level, but planned to turn off the chilled water supply to the CVC this week so that it can charge the entire CVC system with chilled water. At the Subcommittee's last CVC hearing, we reported that the CVC team had expected to have steam running to the CVC and to be providing dehumidified air to the exhibit gallery by mid-August. However, as we discussed earlier, the team experienced problems. The CVC began receiving steam earlier this week and now expects to be able to provide dehumidified air to the CVC by mid-October. Remaining risks involve having sufficient manpower to meet the scheduled dates for getting the HVAC system fully operational and being able to quickly overcome any problems that may arise in getting the system properly balanced, controlled, and commissioned.

—*Late identification or slow resolution of problems or issues could delay completion.*—Historically, the project has experienced or been at risk of experiencing some delays resulting from slow decision-making. In addition, some CVC team

members believe that some of the problems that have resulted in delays, such as certain problems associated with the East Front or with problematic sequence 1 concrete work could have been identified and addressed earlier than they were. In responding to these comments, the sequence 2 contractor said that although earlier identification of these types of problems is conceptually possible, it is difficult in practice. Looking forward, we do not believe that the team will be able to meet its scheduled completion date if it does not quickly decide on issues; respond to concerns, questions, and submittals; or resolve problems. Last week, AOC told the CVC team that starting October 1, the architectural contractor will be decreasing its staffing support to the project. In our opinion, this increases the risk of slow responses to design questions or requests for design instructions at a very critical time, particularly since we have not seen evidence of a decrease in potential change orders. AOC believes that it will be able to provide its CVC construction contractors with sufficient architectural support to respond to appropriate questions or requests in time to avoid delays. We believe that this situation needs close monitoring, as well as corrective action if problems arise.

—*Risks from insufficient stone deliveries appear to be diminishing.*—Although wall stone shortages have caused delays in the past, they have not recently been a problem. All of the wall stone for the base project and atrium areas has been delivered, and AOC does not anticipate a problem with the remaining wall stone deliveries. According to the construction management contractor, about 2,400 pieces of wall stone for the East Front and all of the wall stone for the tunnels still have to be delivered. For a time, the sequence 2 contractor did have a problem with the delivery of floor stone for the exhibit gallery, but that problem has been resolved, and the contractor does not anticipate problems with floor stone deliveries for other areas. The sequence 2 subcontractor doing the House and Senate expansion space work said that some wall stone for the expansion spaces has been delivered and at this time he does not anticipate a delivery problem with the remaining wall stone.

Finally, as we have said in previous discussions with AOC, its construction management contractor, and the Subcommittee, it will be important for AOC to have adequate analysis and documentation of the reasons and responsibilities for delays.⁹ On April 11, 2006, AOC executed a contract modification authorizing its construction management contractor to have one of its managers who has not been involved in the CVC project assess the adequacy of this type of information. The manager submitted his report to AOC in early June. He reported generally positive findings but also identified desired improvements. He made several recommendations to AOC, which AOC has generally agreed with and plans to implement consistent with the availability of resources. As we have previously stated, we believe it is important for AOC to complete its analysis of delays expeditiously given the September 15, 2006, sequence 2 contract completion date and the impact this analysis is likely to have on delay-related costs. AOC has been working with the sequence 2 contractor to address this issue.

New Project Schedule Appears Achievable Only under Certain Conditions

Last week, the CVC team completed the development of a new project schedule—the August 2006 schedule—that reflects the results of its preliminary analysis of the impact on the schedule of recent changes to certain components of the fire protection and security systems. While the team believes that its preliminary estimate is likely to provide sufficient time to accomplish the needed work, it does not believe it can make a definitive determination until after it has had a chance to fully analyze the changes to these systems. Although the team was striving to have all the necessary submittals approved by October 1, this is not likely. However, the sequence 2 contractor and its subcontractor responsible for most of the related work believe that they expect to have enough of the needed information in the next several days and will be able to make a definitive determination on the amount of time needed by around mid-October. The team plans to reflect any changes necessary in the September project schedule, which it expects to issue at about that same time.

The August project schedule shows that all physical construction work on the CVC, the East Front, and the expansion spaces will be completed by spring 2007 and that the pretesting and final testing of all of fire protection, life safety, and related systems for these areas will be carried out between then and mid-September 2007. The schedule reflects the amount of time that AOC's Chief Fire Marshal said he would need to perform his acceptance testing, although the team is working with

⁹ See, for example, GAO, *Capitol Visitor Center: Effective Schedule Management and Updated Cost Information Are Important*, GAO-05-811T (Washington, D.C.: June 14, 2005).

him to see if certain aspects of the testing can be done differently to achieve some time savings. Unlike the previous project schedule, the new schedule does not allow any time for addressing problems, risks, or uncertainties or for preparing for operations; it also assumes that the exhibits can be delivered and set up before the final acceptance testing of the facility has been completed. The team assumes that it will be able to arrange for the delivery and set up of the exhibits and to prepare adequately for operations before it receives a certificate of occupancy, but had not confirmed this assumption as of September 15, 2006.

Accordingly, we are focusing the results of our schedule assessment on the completion of the CVC's construction, including the facility's acceptance testing but excluding preparations for operations and the delivery and setup of the exhibits. Although we would feel more comfortable if the schedule did contain some time for addressing problems, risks, and uncertainties, our analysis of the schedule; observations of the team's progress; discussions with CVC team managers and members, U.S. Capitol Police representatives, and AOC's Chief Fire Marshal; and the results of our mechanical engineering consultant's work indicate that the mid-September time frame for completing the project is achievable subject to two conditions:

- The team's remaining analysis of the impact of the fire protection and security system changes shows that the team can finish the necessary work within the scheduled time.
- The team promptly makes significant changes in its execution of the schedule and project.

Recommendation

Given the magnitude of the recent schedule slippages and the consequences of the risks that have materialized, the time it has taken the team to identify and resolve problems, the team's performance relative to the indicators of progress that we and the Subcommittee have been tracking, and the risks and uncertainties that continue to face the project, we are convinced that the team will not be able to meet the new schedule or any schedule with completion dates close to mid-September 2007 unless it quickly and substantively changes its execution of the project and schedule. We are recommending that the Architect of the Capitol promptly develop an action plan setting forth specific steps that AOC and the CVC team will take to enhance AOC's execution of the schedule and project. Types of actions the team should consider are as follows:

- Make more visible, aggressive, and focused efforts to manage activities in the project's critical and key near-critical paths according to the schedule, making sure that priority activities receive priority attention.
- See that sufficient effort is applied to meet important dates. The CVC team may wish to consider including the use of targeted acceleration when it is justified and will save time without adversely affecting worker safety, work quality, or facility functionality or causing trade stacking. In addition, any consideration of acceleration should balance its impact on the schedule against its potential impact on cost.
- Ensure that mechanisms are in place to identify and quickly resolve problems, issues, risks, questions, and concerns raised by construction contractors or others; provide needed design guidance and instructions; and respond to submittals effectively and quickly, including closely monitoring the turnaround time for architectural support from this point forward.
- Continuously ensure the effective operation of mechanisms put in place to coordinate work among the many contractors and subcontractors constructing the building and to coordinate with AOC's Chief Fire Marshal, U.S. Capitol Police, and the Capitol Power Plant.
- Continue to see that requests for discretionary changes to the project's scope or design are promptly brought to the attention of the Capitol Preservation Commission, along with the impact of such requested changes on the project's schedule.

AOC agreed that additional actions are needed to improve the extent to which the CVC team meets its scheduled dates and said that it would identify and take such actions. To help put the CVC team in a better position to meet the project's scheduled completion date, after considering the actions we have identified, the Architect of the Capitol should promptly provide the Capitol Preservation Commission, the House and Senate Committees on Appropriations, and the Senate Committee on Rules and Administration and the Committee on House Administration with a plan setting forth the actions it and the CVC team will take to enhance their execution of the project and its schedule—particularly to accomplish all of the critical work that needs to get done in the next 3 to 4 months. AOC should submit the plan as soon as possible, but no later than mid-October 2006. Congress can then use this

plan to hold AOC accountable for managing the project and to work closely with AOC to ensure that the schedule implications of all proposed scope or design changes are quickly determined and considered by all appropriate stakeholders before final decisions on the proposed changes are made.

Project's Estimated Cost and Funding

Relying on cost estimates provided by AOC and its construction management contractor, we now estimate that the total cost to complete the entire CVC project will be about \$584 million without an allowance for risks and uncertainties and could be as much as about \$596 million with such an allowance. This updated \$584 million estimate is about \$28 million greater than our previous estimate of \$556 million, which did not include an allowance for risks and uncertainties, and matches our previous estimate of \$584 million, which did include an allowance for risks and uncertainties. The \$28 million increase consists of estimated costs related primarily to additional delays and, to a lesser extent, the recently identified changes to the CVC's fire protection and security systems and provision for future changes. (AOC estimated the additional delay-related costs for budgetary purposes only and did not provide for possible concurrent delays.) Moreover, with additional risks and uncertainties, we believe the entire project could cost another \$12 million at completion (\$596 million minus \$584 million). The mounting costs of delays are a major reason for our emphasis on the need for AOC and its other CVC team members to make significant changes in their project management.

To date, about \$531 million has been provided for CVC construction. This amount includes about \$3.9 million that was made available for either CVC construction or operations¹⁰ and has been approved for CVC construction by the House and Senate Committees on Appropriations. Our previous cost-to-complete estimate showed that another \$26 million in construction funds would be necessary without an allowance for risks and uncertainties to reach the previous cost estimate of \$556 million. AOC has requested this additional \$26 million in its fiscal year 2007 budget for CVC construction. AOC has also requested \$950,000 in fiscal year 2007 general administration appropriation funds to provide contractual support for the Chief Fire Marshal's final acceptance testing of the CVC. Given the new cost-to-complete estimate, AOC will likely need some additional funding for changes during fiscal year 2007.

AOC agreed that it would likely need additional funds but did not believe it would need quite as much as we had estimated for future changes and contingencies. Given the project's experience with cost growth and the trends in the number of potential change orders submitted, we believe our estimate is reasonable. In addition, AOC noted that it could possibly use some funds that have been slated for covering sequence 2 delay-related costs for other CVC-related costs during fiscal year 2007, assuming that some of this delay-related funding may not be needed for some time. AOC recognized, however, that it may need additional funding for potential delay-related costs if it were to do this. AOC also noted that it may be able to cover some portion of the increased costs by reprogramming funds from other sources after obtaining the necessary congressional approvals.

Mr. Chairman, this completes our prepared statement. We would be pleased to answer any questions that you or Members of the Subcommittee may have.

APPENDIX I.—CAPITOL VISITOR CENTER CRITICAL CONSTRUCTION MILESTONES, JULY-SEPTEMBER 2006

Activity	Location	Scheduled completion	Actual completion
Lower level—Hang VP drywall ceiling	Congressional auditorium	7/20/2006	¹ 9/9/2006
Wall stone Area #6	Congressional auditorium	7/20/2006	¹ 9/11/2006
Install AHU-EF-1/AHU-EF-2	Mechanical system	8/1/2006	(²)
Install bronze doors	Food service	8/3/2006	(³)
Grid for wood ceiling	Orientation theater	8/8/2006	(⁴)
Pre FPT controls test	SF fans	8/15/2006	(⁵)
Wood doors and frames	Food service	8/21/2006	(⁶)
Finish paint	West lobby assembly	8/21/2006	.....
Install wood ceiling panels	Orientation theater	8/22/2006	(⁴)

¹⁰ Public Law 108-447, enacted on December 8, 2004, provided that up to \$10.6 million (reduced to \$10.5 million by a subsequent budget rescission of \$84,000) could be transferred from AOC's Capitol Building appropriation account for the use of the CVC project. The use of the amount transferred is subject to the approval of the House and Senate Committees on Appropriations. AOC has now received approval to obligate the entire \$10.5 million.

APPENDIX I.—CAPITOL VISITOR CENTER CRITICAL CONSTRUCTION MILESTONES, JULY-SEPTEMBER 2006—Continued

Activity	Location	Scheduled completion	Actual completion
Wall stone Area #1	East Front principal	8/28/2006	(⁷)
Ceiling fabric	Congressional auditorium	8/28/2006	.....
Install stone	Exhibit gallery	8/31/2006	(⁸)
Plaster ceiling	East Front Basement	9/5/2006	.....
Controls Pt. to PT. check	AHU-01	9/8/2006	8/5/2006
Wall stone Area #2	East Front principal	9/12/2006	(⁶)
Ceiling panels	Orientation lobby	9/12/2006	.....
Floor stone	Food service	9/19/2006	9/4/2006

¹Work is substantially complete.

²Assembly of the upper level air-handling units has been slowed during replacement of water-damaged insulation.

³Bronze door installation has been rescheduled to make upper level security doors the highest priority.

⁴Installation has been slowed while coordinating with the audio-visual contractor on the installation of above-ceiling equipment.

⁵Test could not be done because preceding work had not been completed.

⁶Installation of wood doors has been rescheduled; a template was developed to prevent delays of follow-on work.

⁷Installation of principal level wall stone has been affected by ductwork revisions and metal stud design issues.

⁸Aspiration wall-stone installation has been delayed because preceding work took longer than expected.

Source: AOC's June 2006 CVC sequence 2 construction schedule for the scheduled completion dates, AOC and its construction management and sequence 2 contractors for the actual completion dates, and the sequence 2 contractor or subcontractors for reasons for delay.

Senator ALLARD. Thank you.

I will now call on Senator Durbin.

Senator DURBIN. I don't have an opening statement.

Senator ALLARD. We'll now go on to our question and response period.

CHANGES TO PROJECT EXECUTION

The first question I have deals with changes to project execution. Now, according to the GAO, the completion date is achievable, and I quote, "if, and only if, the team promptly makes significant improvements in the way it executes the project and its schedule."

Mr. Hantman, do you agree with that assessment?

Mr. HANTMAN. Mr. Chairman, clearly with project milestones having not been met, to the extent they nearly should be met, and with continued communication being needed to strengthen all of the issues that occur on a day-to-day basis, some of them known, some of them unknown, that we do, in fact, need to strengthen these communications. My testimony indicated we've taken several steps in that direction; I think continued oversight is necessary—day-to-day communication at all levels, with the contractors and with our consultants, is something that we are involved with right now in—very actively. We will continue to do so, and I think we will certainly identify specifics in an action plan that will tie all of this together.

Senator ALLARD. Will you commit to delivering an action plan by October 20?

Mr. HANTMAN. Yes, I will.

Senator ALLARD. Thank you.

Mr. Ungar, can you elaborate on what the CVC project team must do to get the project on track?

Mr. UNGAR. Yes, sir, Mr. Chairman, Senator Durbin. First and foremost, as you indicated in your opening statement, Mr. Chairman, focus on the schedule—more aggressive, more direct, more visible effort to manage the project to the schedule. In our view, that hasn't been done sufficiently in the past, and, if it's not done

in the future, the prediction that Mr. Dorn made is certainly very likely.

It's true, as Mr. Hantman indicated, that the team does get together quite often, talks about issues and problems, and works toward resolving them, but they're not within the framework, with the specific dates in the schedule, to the best that we can see, particularly not focusing on the critical path and the key near-critical paths, many of which have slipped extremely significantly over the last several months. So, without that significant effort on the schedule, progress is going to be limited.

Some other efforts are also very important, though. Next would be to make sure that the team applies sufficient both supervisory and work effort to meet the schedule. As Mr. Dorn indicated, we have seen some instances where it would appear as though the lack of sufficient effort is contributing to not meeting the schedule. And the prime example of that would be the heating, air-conditioning, and ventilation system. Because of some concerns there that we've had, we had a consultant come in recently and look at that, and his basic conclusion was that there's nothing that would prevent the work from getting done, other than effort being applied to it, that he could see. And we have talked to the team about that, and they have committed to apply the effort to get that work done by the end of the year, except for possibly some commissioning activities. And that's very critical, because it contributes to the fire protection system.

Another point I'd like to stress is one that Mr. Dorn mentioned, that is, it's very important to this project to identify problems early, and, once identified, to get them resolved. Whether it's decisions or whether it's action, whatever it is, there have been a number of problems on this project that have drug out, drug out, and drug out, and are talked about week after week after week, and are not fixed. One of those examples is all the stonework on the east front. That has been consistently extended, in terms of the completion date. So, that's just one example.

And finally, two other points. One, it's very important to make sure all the work among the many different contractors and sub-contractors is well coordinated, going forward, and two, that the team continues diligently to work with the Congress in trying to make sure that any discretionary changes to the project that are requested are not made before the impact on the schedule is considered.

And that would be the specific steps that we would suggest that AOC consider in putting its action plan together.

Senator ALLARD. I'd have to agree with your assessment. And if I was to be asked to write a letter of recommendation today, for the contractor, I would be hard-pressed to give him a favorable recommendation, considering what's happened in the last year and what's happened here in the last 6 weeks, and the lack of progress.

SUCCESSION PLANNING

Mr. Hantman, I understand that key members of the CVC team are planning to retire this winter. I'm concerned about that. That's long before the CVC is going to be ready to be opened. Have you

developed a succession plan to ensure the project doesn't lose momentum and key institutional knowledge?

Mr. HANTMAN. Mr. Chairman, one of the people who is working directly with Bob Hixon will be retiring in December. He had been working on negotiations with contractors relative to trying to settle things and problems that might exist there. And the Gilbane people have been working very closely with him, and there will be continuity on the Gilbane side to continue these kind of negotiations and adjustments, as necessary. So, that continuity will continue.

We also have other key members on Bob's staff who are very actively involved in key areas of the project and have great experience on the GSA side to be able to pick up some of the issues there.

I think I could let Bob talk to that.

Senator ALLARD. Mr. Hixon.

Mr. HIXON. Yes, sir. As we mentioned, Gary Lee is retiring. Gary does a lot of the detail work and the quality work, and that'll be a loss to us. But we also anticipate that a lot of these items should be resolved by the time he's retiring. The claims issues are being handled heavily by the Gilbane folks now, while under sequence 1 a lot of that was handled personally by Gary. But, yes, that will be an impact to us when he's gone.

The balance of the issues, we're looking at ensuring that we have staff onboard through the completion of the construction. We're not expecting to lose anybody before the actual construction itself is completed. After that, after the February-March timeframe, we will have the pretesting completed, and we will just be in a mode where we're supporting the fire marshal as he goes through his final acceptance testing. The personnel that we'll have onboard to handle that should be, certainly, able to deal with those issues.

We're also working right now with the closeout of administrative issues, all the contracts, all the old task orders. We're doing that right now so that those issues will be—except for the current task orders that are ongoing, the closeout packages are being prepared. So, I think we'll be in reasonable shape.

Concerning Mr. Hutchison, with RTKL, he has essentially moved up a level in the organization, so he is not onsite 5 days a week, he's onsite 3 days a week. They have other personnel onboard, and they will be assigning people to start doing the inspections onsite. So, RTKL has assured us that Mr. Hutchison is available if we need him, any day, so we don't expect that to be a serious issue. It may impact being able to make a decision immediately, because he won't be there onsite, but he's available to come out to the site promptly. He would just have to coordinate that with his ongoing work. So, we don't expect that to be a significant problem.

Senator ALLARD. Mr. Ungar.

Mr. UNGAR. Mr. Chairman, if I could just add one comment there.

The work that the team has to do in the next 3 to 4 months is absolutely critical to meeting its schedule. If there are any delays whatsoever in getting issues resolved relating to the architectural situation, it could really significantly hurt the project team's efforts to meet the schedule. So, I think it's very important for AOC to very closely monitor this issue from this point forward, at least from October 1 forward, to make sure, if there is any slip in re-

sponding to questions and getting needed answers and everything that RTKL does, that that's rectified immediately.

LESSONS LEARNED REPORT

Senator ALLARD. I mentioned several hearings back that I wanted to have a lessons-learned report. I'd like to get that report before we lose key personnel. Can I get a commitment from you, Mr. Hantman, and you, Mr. Dorn or Mr. Ungar, to get us a lessons-learned report by January? Then that gives 3 months here to get that compiled while we've got key personnel that we can visit with and learn from. I think this lessons-learned report, and perhaps some suggestions on how those things can be corrected that have gone badly, I think would be very helpful to future projects around the Capitol here. I would like to have a commitment from both you, Mr. Ungar, and Mr. Hantman, if you could have that by January for us.

Mr. UNGAR. Yes, sir. Did you want separate reports or—

Senator ALLARD. I think we could have it in the same report. Let's do it that way.

Mr. UNGAR. Maybe we could work that through, then?

Senator ALLARD. Yes, if you would, please.

I would hope that you can agree on many of these things, but if there is a disagreement, footnote it or however you want to stick that in the report.

SCHEDULE FOR PRETESTING

I understand, Mr. Baker, who's vice president for Manhattan Building Company is present. Is that Mr. Baker here? Yes, would you come up to the table? I had just one question for you, Mr. Baker.

Thank you. Do you believe your schedule for completing pretesting by mid-March is realistic and achievable? And is Manhattan willing to do all it needs to meet that timeframe?

Mr. BAKER. Yes, sir, we do.

Senator ALLARD. Thank you. That's all we need.

Now I'll call on my colleague Senator Durbin.

COMPLETION DATE

Senator DURBIN. Thank you, Mr. Chairman, for this 14th hearing on the status of the Capitol Visitor Center. I think the record will show that this subcommittee, and the chairman, in particular, have dedicated more time and effort to this project than any other oversight subcommittee on the Hill, and I commend my colleague from Colorado for his work on this project.

This is beginning to remind me of the movie "Groundhog Day", where we wake up every September to be told that this project will be finished next September, and it will cost more money. And I'm beginning to wonder how long we can do this, how long we can continue along this line.

Last year, we were told by Mr. Hixon that this project was 64 percent complete. What's the percentage today?

Mr. HIXON. The percentage today is about 85 percent of the whole project, 77 percent for the current phase.

Senator DURBIN. So, we're edging ever so close to a completion date here.

Mr. HIXON. Yes, sir.

Senator DURBIN. And yet, since our last hearing, only 2 of the 17 milestones have been reached. Is that correct?

Mr. HIXON. Yes, sir, only 2 of the milestones were reached on time, 4 of the 17 milestones have been completed.

IMPROVING PROJECT MANAGEMENT

Senator DURBIN. That's not very encouraging. The GAO says if we're going to have this done in 1 year, that things are going to have to change pretty dramatically. Their words were that this could be open to the public in 1 year if, and only if, the team promptly makes significant improvements in the execution of the project and its schedule. So, business as usual won't—according to the GAO, won't result in an opening in 1 year. Do you agree with that?

Mr. HIXON. I believe that there are some—we need some increased emphasis on the schedule. There are also a number of issues that have occurred recently that have impacted the schedule, and those are the things that we are working through. But that has caused some delay in the completion of activities.

Senator DURBIN. Aside from the fact that we call you up here periodically to hammer on you to get this project done, what more do we have to do to make sure that people pay attention to meeting the schedule and completing this project?

Mr. HIXON. The schedule issue is something that continues to be a heavy point of our meetings. I think GAO has recommended that we increase the discussion of the actual schedule itself during weekly meetings. We've begun to do that. Recently we had some general discussions we've been having for some time, but they weren't very detailed, as far as evaluating, for the 2-week look ahead, which things are supposed to start and haven't started, and which things are supposed to be complete and haven't been completed. And those are the actions that I think need to be made to provide more emphasis on ensuring that the field team, together with the project management team, are aligned in making sure these activities take place on time.

COST TO COMPLETE

Senator DURBIN. Each year, when there are budget requests from the Architect of the Capitol for this project, they are characterized as, quote, "costs to complete construction of the Capitol Visitor Center." We have been appropriating that amount to complete construction now for several years. I assume, in the next year's budget request, there will be another request for an amount to "complete construction of the Capitol Visitor Center." Do you think that's what's going to happen, Mr. Hantman?

Mr. HANTMAN. Our anticipation is that further funds would be necessary in the 2008 budget to complete the construction and to settle whatever claims might be outstanding.

Senator DURBIN. Yes, Mr. Ungar?

Mr. UNGAR. Mr. Durbin, I think we would agree with that, but we would also say that we believe that AOC is likely to need more

money in fiscal year 2007 to complete construction, unless it, in effect, borrows from funds that are slated for other purposes right now.

Senator DURBIN. Mr. Ungar, do you have any reason—or can you explain to us why these estimates to complete this project have been so bad so often?

Mr. UNGAR. I can certainly partially explain that, Senator Durbin. One of the reasons is the changes, the extent and the number of changes, haven't been fully anticipated. And also the extent to which the project has been delayed hasn't been fully factored into all the estimates that have come forth so far, at least from AOC. We are a little on the higher side than AOC has been, although even as the chairman pointed out, we are now pretty much estimating the most likely cost at our previous high number, and from a risk standpoint, when you factor risks in, the cost could go even higher, but that's because of, primarily, delay-type situations and additional problems with key building systems, including the fire protection system and the heating, air-conditioning, and the ventilation system.

Senator DURBIN. Well, we haven't quite reached the end of the road here, and I hope we do in my political lifetime, but I'd like to ask you, Mr. Ungar, could you reflect on what went wrong? I mean, if we had to do this all over again, where—what—was there a key element here that we just got wrong from the start?

Mr. UNGAR. Well, let me start, Senator Durbin—and maybe Mr. Dorn and Mr. Hantman may want to add in, here, it's just not one factor. I think there are many factors that contributed to where we are today, going back to before the beginning of construction. First and foremost, I would say there was a very unrealistic expectation up front about the expected completion date, and that has continued to exist up until roughly today. Initially, this project was to be done, I think, by January 2005, for the inauguration. I think it was pretty well understood by most at that time that that was extremely optimistic and aggressive, and also probably not realistic. And the schedules that have come out so far, from that time, also have been generally unrealistic and optimistic. I think they've got one now—

Senator DURBIN. Who produces those schedules?

Mr. UNGAR. Well, initially the schedules are done primarily by the contractors. And they're, of course, reviewed by the construction manager under the contract. The timeframe—the first timeframe set was—I believe—was the expectation set, at least informally, by Congress, as I recall. But then, the subsequent schedules were set by AOC and the contractors, working together. Of course, this was split into several segments.

Senator DURBIN. Does the contractor face any penalty for blowing the schedule and seeing the cost run up? Is there anything written into the contract to give an incentive to the contractor to be honest about—

Mr. UNGAR. Well—

Senator DURBIN [continuing]. Completion?

Mr. UNGAR. There are provisions in the contracts for liquidated damages if they don't meet the dates. Now, the problem has been, Senator Durbin, that there have been so many changes that have

been taking place, for a variety of reasons. Many of those were not controllable by AOC, they were unexpected conditions, and Congress did add considerably to the scope of the project by legislation as a result of 9/11. So, there were a number of things that were not anticipated that affected that. On the other hand, there was a major problem here at the beginning of sequence 2 with the wall stone, getting the adequate wall stone. That apparently was not a government caused problem. So, there were some concurrent issues going on at the same time.

Senator DURBIN. I'm—

Mr. HANTMAN. If I may, Mr.—

Senator DURBIN [continuing]. Sorry to interrupt you, but I—go ahead, Mr. Hantman, I'm sorry.

Mr. HANTMAN. I think the basic question, Senator Durbin, really talks about, how do you want to run a project of this magnitude? And the issue is, you would normally have a complete set of construction documents. You would bid them, you'd get a price, and you'd build it that way. Part of our problem, Senator, was, in the middle of the design development, even before the bids came out, we had the situation where we had the two police officers murdered, we had 9/11. What we needed to do was split the package in half in order to try to begin to meet the schedule, basically, which Congress wanted, which was for the inaugural in 2005. We split out the foundation work, the excavation work into a single package. We bid that so that we could redesign the rest of the project for new mechanical criteria which the "men in black" and other people were telling us we had to do for major security. Also, fire and life safety-related issues had to be incorporated into the project. So, we started the project by building the half of it, and then we had to change the construction documents and then rebid the second part. We also had to get two major contractors' work to match together while under construction, as well as incorporate new changes.

Senator DURBIN. I will acknowledge all of those things, and I will acknowledge that Congress was complicit in some of these problems. But, having acknowledged that a long time ago, we're still facing the same problem. There's no end in sight. There's no ultimate cost in sight. This is apparently the long march, and I hope I'm here to see it come to an end.

I'm going to ask it, in separate questions, talk about the safety record at the work site, update me on what's being done there, as well as the asbestos exposure in the tunnels. I've talked to the chairman informally. I'm going to be meeting with some of your workers, next week, who we believe may have been—I pray to God they weren't, but may have been exposed to asbestos, to make sure that we're taking care of them, for their sake and their families.

Thank you very much.

Senator ALLARD. Thank you, Senator Durbin.

And I would just reinforce, again, as I had mentioned earlier, that come after the first of the year, we plan on having some hearings on the utility tunnel project and some of these other issues of security. Meantime, I appreciate you taking the time to work with the tunnel workers. Hopefully we can begin to get some answers when we have these hearings in January.

INCENTIVE-DRIVEN CONTRACTS

I want to follow up on Senator Durbin's question a little bit. I've been involved in a couple of major federally funded construction projects in Colorado. One was a combination mass transit/highway system, and we had incentive contracts. And we got it done on time and on budget. Another big project, the cleanup of a nuclear weapons facility, one of the most contaminated sites in the world, with incentive contracts, we got that cleaned up a year ahead of time, \$500 million savings.

Why won't an incentive-driven contract work in projects that we have around the Capitol?

Mr. HIXON. Mr. Chairman, I think the issue here that we're dealing with is things that we have done to delay the contractor that has impacted their progress. When the contractor was 2 weeks away from completing his tunnel connection work so that we could have chilled water and steam provided to the building, that was in March—on March 23. The contractor was told he could not work in the tunnels anymore until we reconciled the issues of the asbestos and the condition of the concrete. Subsequently, on July 31, we were able to receive chilled water, and on August 31 we were able to receive steam. And so, what we've had is a delay in the mechanical systems as a consequence of that.

We've also had the shop drawing submittals that were provided in May, and we were anticipating that we would have approval of the fire alarm shop drawings in June so that we could commence with the pretesting—the final installation and the pretesting of the systems in September. As we sit here today, we are near completion with the revised fire alarm shop drawings. I'm looking for the riser diagram that was due last week and has been revised for some panel work that needs to be done in some of the secure areas. That riser diagram is now planned to come in on Friday. So, here we are, at the end of September, getting the final shop drawings submitted to replace those that were submitted in May. And, of course, the contractor is proceeding where he can, but he is not able to proceed freely, out of concern that he might have to take work out.

So, I think these two items, both the tunnel issue impacting the mechanical contractors' performance and the fire alarm changes that are affecting the fire alarm system installation, have now caused those issues to become critical—the mechanical, especially, because it has the smoke-control requirement that ties into the fire alarm. That is what's pushing us out.

If we didn't have those issues to deal with, we would, in fact, be talking about architectural issues that have slid out some, but those have been overshadowed by the fire alarm and the mechanical issues. And, as a consequence of that, we now have this additional time. We have potential additional cost associated with that.

Senator ALLARD. Mr. Ungar.

Mr. UNGAR. I wouldn't disagree with anything Mr. Hixon said. The point, I think, that needs to be considered here is that, yes, there have been very significant problems that have slowed progress, not at the fault of the contractors. The question is, once those problems arise, how much time does it take to get them

fixed? And that's the point we're focusing on. I think that the team, right now, has very good control over the fire protection changes. They're working very diligently. They're on top of that. They monitor it almost daily. Well, I know Mr. Hixon does, anyway. So, they seem to be doing everything they can.

But if you look at the other problems, they came up, and it just took a long time, and has been taking a long time, to get those fixed. So, that's where I think a lot of effort needs to be applied.

And with respect to the current contract arrangement, even though the contract completion date expired a few days ago, there is a provision in there for award fee. I don't know if any of that has been expended. And I don't know whether there is any possibility, looking forward, when the contract is amended, that perhaps, something could be done to focus in on meeting the schedule and getting the project done, in terms of the award-fee funds that might be applied. Maybe that's not as effective as an incentive-type arrangement, but there's a possibility.

Senator ALLARD. Mr. Dorn.

Mr. DORN. Yes, actually, I believe Bob can confirm the amounts, but some of the award fee has been expended. But I believe they have not been given the full amount.

Senator ALLARD. I hope they haven't been rewarded prematurely.

CONTRACTOR ACCOUNTABILITY

Okay. Let me go to the next question. Mr. Hantman, how do you hold the contractor accountable for doing his work in a timely manner, when you don't have a set fixed completion date?

Mr. HIXON. Mr. Chairman, I'll answer that. We are working with milestone activities. These are not contractual milestone activities, these are essentially commitments within the team. Your point is well taken. The contract completion date of September 15 is passed. We have had communications back and forth. In order to extend the contract completion date, we require the information from the contractor to justify the time extension, which is due, but has not yet been received.

We're essentially working off of the schedule that we have. We went and reviewed that schedule last Friday with the contractor and major subcontractors to ensure that the schedule was realistic and achievable, and included in that are areas where we need to finish—food service area, orientation theaters, things of that nature, which we've been tracking for some time. But, clearly, without a contractual completion date, that gets a little awkward, but that is also not unusual for a major project, where these issues come up and the resolution of the time required for a change order to the contract takes some time to get the necessary paperwork in and resolve the issue. So, we're not in an unusual situation. It's not a desirable situation.

Senator ALLARD. Can you give us a fixed completion date, do you think?

Mr. HIXON. At this time, I would rather not project the date that—we think, contractually, it will change. I can tell you that right now we're looking at having all activities in the CVC portion completed by March 16, that that would have no negative float in the schedule. There are also some activities in the east front that

would occur after that, a few items, like the circular stairs and the expansion space. But when you look at the schedule for work areas being finished architecturally, at one point we were looking at September-October for a lot of areas to be complete. We now have those areas being completed in December and January.

LIQUIDATED DAMAGES

Senator ALLARD. AOC has been mandated to incorporate construction clauses requiring liquidated damages in all of its construction contracts. How are you going to implement that directive from Congress if you don't know if the contractors have finished the contract on time or not, Mr. Hantman?

Mr. HIXON. Mr. Chairman, I can answer that. I have written a letter to the contractor—this was the same one I referred to before—putting him on notice that we needed his request for a time extension, and noting that he's liable for liquidated damages for any days of delay beyond those that are excusable. We recognize there's some entitlement, but he needs to provide the justification. If, in the end, there was not adequate justification for all the time until he is complete, then he would be liable for the liquidated damages. They are already in the contract.

AWARD FEES

Senator ALLARD. The project's late, and it's over budget. Is the contractor still getting any bonuses or award fees in spite of these results?

Mr. HIXON. Yes, sir. The basis for those award fees is not tied exclusively to his scheduled completion, they're tied to a number of activities, per the contract. He's evaluated on those approximately quarterly. He's been getting evaluations that indicate that he has done a pretty good job. He has not gotten the entire fee for any one of the evaluation quarters. And the amount of money available that isn't provided to him on those evaluation quarters is rolled over to be available for the follow-on period as an incentive to improve performance there.

Generally, the contractor's performance has been good. The issues that he's been dealing with, for the most part, are trying to accommodate the things that we have imposed on him. Now, he is not perfect, he is not hitting all his milestones, based on his own schedule, and those are areas of concern, but I don't want to leave the impression that we think the contractor is not working very diligently to provide us a high quality facility as quickly as possible.

Senator ALLARD. Okay. I want to move to the next question here.

UNANTICIPATED PROBLEMS

I understand that the current schedule has no float for unanticipated problems that may arise. The schedule we discussed back in August had 2 months available after fire testing was to have been completed, prior to the opening. Given the project's history to date, why doesn't that schedule contain any cushion?

Mr. HIXON. Mr. Chairman, the schedule reflects the actual completion date. It reflects the difference between a May 4 fire marshal

completion date, which we had previously, and the current September 17 date. The efforts that we are going through now are trying to determine if there are ways that we can do some activities concurrently in order to not have to wait until the last item is checked before we can have the public in the building—doing operations activities. That still needs to be reconciled, but those are the things that we're looking at.

The contractor's schedule itself, we keep looking for ways to improve that. And as we get closer to the end, things are a little more succinct and easy to identify, but we need the shop drawings approved before he will ever begin to agree to do anything in any shorter period than he currently reflects in the schedule.

FIRE ALARM SYSTEM

Senator ALLARD. Let's move to the fire alarm system. I've been talking about the fire alarm system for well over 1 year now. Mr. Dorn, is it surprising that the project continues to run into problems with the fire alarm system design?

Mr. DORN. One of the things that's concerned us about the fire alarm system and other issues on the CVC is that the issues need more detail. They're doing a 2-week lookahead schedule, which is great, at a high level. Bob mentioned that the problem that's been happening is they're not looking far enough out in detail and coming up with specific steps to resolve the issues when they can. Not only is that an issue with the fire alarm system, but it's an issue with things like east front stone, where no one is going out a couple of weeks ahead of time to find problems before you're there with your workers, ready to hang stone. It's a common problem on the CVC.

Senator ALLARD. Mr. Ungar.

Mr. UNGAR. Mr. Chairman, just to add to what Mr. Dorn said, I would answer your question: we're definitely not surprised that they're having problems with the fire protection system. What is surprising is the magnitude and impact. We knew, for a while, that—the condition that was there because of the timing of all the submissions to the fire marshal and the extent to which there have been some coordination and communication issues—the project was at very high risk for these types of problems. And that was identified a long time ago. Again, I think it's just the magnitude of these problems that has been somewhat surprising.

Senator ALLARD. Well, can you be more specific on what's caused our time delays on the fire alarm critical path?

Mr. UNGAR. I'll try, Mr. Chairman. There have been several issues recently that are contributing to these delays. One is a significant change in the way that the fire alarm system is going to be programmed. That happened a couple of months ago, and that's certainly affected the timing. That is also going to affect the location of a major fire control panel in the building, and a lot of wiring that has to be changed that's associated with that. Another issue that's affected the fire protection system is the need, because of some other problems, to enhance the fire protection level of the locations where a lot of these wires are located, and that's another major change. Another one is to add additional fire control panels to the House and Senate shell space, for a variety of reasons, and

also to add additional fire control panels to some secure areas in the building for security reasons. There have also been changes made to meet the fire marshal's requirements, in terms of his views of the fire safety code and life safety code. So, there are a number of factors that are driving the process.

Senator ALLARD. So, you're not surprised that we've run into these problems with the fire alarm system.

Mr. UNGAR. Absolutely not. Again, it's something that—as you indicated—we've been talking about for a long time. There have been time periods—there were situations—in which the communication and coordination with the fire marshal haven't been as good as they needed to be. There are also some issues that aren't really directly related to that particular issue, so it's not all due to disagreements with or late submissions, if you will, to the fire marshal. For example, the need to add some special panels into the House and Senate shell spaces for security reasons, in our view, is something that should have been identified a long time ago, and that's not something that's being driven by the fire marshal. That's a security requirement. Now, when it's done, it's got to meet his requirements, but the need for those things isn't directly a fire marshal requirement.

Another major change that's affecting, at least in some degree, the schedule, has to do with linkages between the fire protection system and the security system. Those aren't being driven by the fire marshal, but the fire marshal certainly has to be, you know, in agreement with the changes so that they won't adversely affect the fire protection system. And the team and the fire marshal and the U.S. Capitol Police have been working close together to address that issue.

Senator ALLARD. Mr. Hantman, can you complete a list of reasons for changes to the fire alarm system associated costs by the next hearing?

Mr. HANTMAN. Absolutely. We can do that.

Senator ALLARD. Thank you.

Is it realistic to think that we can make up time on the fire alarm system with a double shift? Mr. Hixon.

Mr. HIXON. We do not believe, at this time, that we can do that. The contractor has already been approached about doing that—the subcontractor that'll actually be performing the acceptance testing with the fire marshal—and in discussions with the fire marshal, has said that a double shift is not desirable, because you have a select number of people who are involved in reviewing the performance of the system, and they don't want more than one person in control of the panel, so that you end up with somebody leaving off and the next person comes on shift and they're not sure what's happened in the previous shift. That issue has been discussed a few times between the fire marshal and the contractor, and I think both parties are opposed to going to a double shift.

The current schedule anticipates we would use evenings and weekends to correct any deficiencies that are found in the system, so that the testing continues on schedule. So, if something is encountered during the day, you fix it at night, and then retest it and go on.

Senator ALLARD. Mr. Ungar.

Mr. UNGAR. I hate to add a couple of more things, but I'd like to, Mr. Chairman, just add to what Mr. Hixon said. The subcontractor he referred to, who had a concern about working double shifts, has committed to, once he gets all the information he needs to determine how long this is going to take to do all the work, offering some options and alternatives to the team as to how—what steps—he might be able to take to speed up the work. He's not committing to double shifts, but he said there may be some things he could do. Of course, they may cost more to do that.

In addition to that, the fire marshal has agreed to consider some suggestions made by the team that might result in a shortening of his acceptance testing period, but he certainly hasn't agreed to those. He said he is willing to consider some suggestions, and some suggestions have been made. And I'm using the word "suggestions" lightly here. But there is a possibility that there could be some shaving of the time, although, at this point in time, we certainly wouldn't want to count on that. And, in fact, it could even, in some instances, be a little bit more time. There is the potential there for that.

HVAC SYSTEM

Senator ALLARD. I'm going to move on to the HVAC system. Mr. Hantman, what accounts for the delays in getting the air handling units operational?

Mr. HANTMAN. As far as the air handling units are concerned, I think Mr. Hixon had referred, earlier in the testimony, to the issues of delays that were caused by the "R" tunnel, the existing steam lines and chilled-water taps in existing tunnels under Second Street, and the issues that we were having relative to asbestos and concrete in those tunnels. The resolution of that "R" tunnel interface with the tunnel leading to the Capitol Visitor Center specifically held off delivery of those utilities to the air handling units.

Bob, anything further?

Mr. HIXON. That's correct. But, as a consequence of that, here in the recent few weeks, we've had a much renewed effort by the mechanical contractor now that the steam is available into the facility. Right now, we've got chilled water to 22 of the 23 air handling units that we have onsite, and, as a consequence of that, they will be doing the water testing, and then we will start working on steam getting to the individual units. So, in the next few weeks—we've talked about 3 weeks being critical here, if we can get these next 3 weeks of work done on schedule, then we should have the systems all operational the way they're supposed to operate, in December, which is the target.

Senator ALLARD. Now, according to the GAO's analyst, and I quote, "nothing he could see would have prevented the completion of the work, other than the lack of effort." Do you agree with that?

Mr. HIXON. We agree that there was a lack of emphasis by the subcontractor responsible for that work during this recent period. They were waiting for the steam—I believe they were waiting for the steam to be available. I think they just emphasized those crews on some other work. Clearly, they were not performing some work that they could have performed during this period of time.

Senator ALLARD. Do we have a date established as to when the HVAC system's going to be completed?

Mr. HIXON. I'm sure we do on the schedule; I don't have it off the top of my head, but it's in December. We need to be careful on what we're talking about completed. We're talking about ready for the final commissioning activities. We're expecting the systems to all be operational and ready to go in December. Then we will be going through the commissioning process to make sure they all function properly with our commissioning agent, and then we also have to make sure the smoke-test portion of the system functions properly.

COST TO COMPLETE

Senator ALLARD. Let me go to cost to complete. Mr. Ungar, the GAO was unable to complete a formal reassessment of the cost to complete the project, since the CVC project team is still analyzing the fire alarm system design changes. When will GAO be able to update the cost and schedule assessments?

Mr. UNGAR. Mr. Chairman, as soon as we receive from AOC its next schedule update, as well as all the costs that are estimated, a little bit more firmly at that time—hopefully, with respect to all these fire alarm system changes—we would be in a position to give you an update, if you're going to have your mid-November hearing. As long as we get the information in mid-October and see the action plan that AOC develops, we should be able to provide you something at the next hearing in mid-November.

Senator ALLARD. And we've already got a commitment on October 20. I look forward to that.

On cost increases, the GAO predicts that cost will increase by as much as \$40 million over the earlier estimate of \$556 million. When will additional funds be needed, above the \$25.6 million included in the fiscal year 2007 appropriations budget? You've mentioned that you thought there would be more money that would be needed. Can GAO respond?

Mr. UNGAR. We can respond. We don't know exactly when, Mr. Chairman. Our sense of this is that it's likely to be needed—some additional funds are likely to be needed in fiscal year 2007, unless AOC uses funds that have been slated in the budget for other purposes related to the project. So, it's a little uncertain right now.

As the project has gone on and you've asked us for these numbers, we've, almost in all cases, had about a \$5 to \$10 million difference of opinion with AOC. And once again, we have that. So, I think we're probably, at this point, thinking that the project may need around \$5 or \$10 million—closer to the \$10 million—in fiscal year 2007 for changes and those types of expenses, unless AOC uses more of its money for other purposes than it's indicated so far.

EXHIBITS

Senator ALLARD. Last question. This has to do with the exhibit area. The current project assumes that you'll be able to bring exhibits into the CVC before a certificate of occupancy has been issued. On what basis have you made this assumption? Has this been cleared with those institutions who will be lending the exhibit items?

Mr. HIXON. Mr. Chairman, I can answer that question. Marty Sewall, our exhibits director, has been having conversations with the various personnel who are providing the documents and artifacts. She has received paperwork from those folks and is going through the evaluation. At this time, it appears that a certificate of occupancy, per se, is not required by any of these individuals. What they do need is assurance that we have operable fire systems in the building. And so, we're proceeding along that line, at this time. But she continues to research the issue, working with people like the Smithsonian, to see how they handle this issue, as well.

Senator ALLARD. We keep coming back to fire alarm system and the fire system, don't we?

SUBCOMMITTEE RECESS

The subcommittee stands in recess until November 15.

[Whereupon, at 11:40 a.m., Thursday, September 21, the subcommittee was recessed, to reconvene at 10:30 a.m., Wednesday, November 15.]

PROGRESS OF CONSTRUCTION OF THE CAPITOL VISITOR CENTER

WEDNESDAY, NOVEMBER 15, 2006

U.S. SENATE,
SUBCOMMITTEE ON THE LEGISLATIVE BRANCH,
COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 2:32 p.m., in room SD-138, Dirksen Senate Office Building, Hon. Wayne Allard (chairman) presiding.
Present: Senator Allard.

OPENING STATEMENT OF SENATOR WAYNE ALLARD

Senator ALLARD. The meeting will come to order. We meet today to take testimony on the progress of the Capitol Visitor Center (CVC). This is our 15th hearing on the Capitol Visitor Center. We welcome the Architect of the Capitol, Alan Hantman; CVC Project Executive, Bob Hixon; and GAO representatives, Bernie Ungar and Bradley James, a new face. Welcome.

This is likely my last hearing on the CVC as chairman of the Legislative Branch Subcommittee. While there have been many, many challenges with this project, I do believe the hearings have served to improve project oversight and management. There is still a long road ahead but the project is now 88 percent complete. It is my hope that the next chairman continues the practice of regular hearings until the project's completion.

Oversight of this project is a critical function of the subcommittee at this juncture. GAO has been a great partner in this oversight function, specifically Bernie Ungar, Terry Dorn, Bradley James and a team of others and I'd like to offer my deep appreciation for their efforts.

It is my expectation that they will continue to closely monitor the project's progress. It would be helpful, whenever there is not a monthly hearing scheduled, to receive a briefing document from GAO on the project status.

Mr. Hantman, since our hearing in September, some progress has been made in the area of the fire protection system, one of the most critical elements of the project at this point, but unfortunately the project has slipped again, owing to the fire protection system and other issues.

I understand the project completion date, including installation of the exhibits, would be the end of November and a realistic opening may be in the year 2008. While we were hopeful that most, if not all, milestones would be met since our last hearing, it appears that only 4 of the 18 milestones were completed on time. In addi-

tion to the fire protection system, problems continue with the heating, ventilation and cooling systems despite AOC's testimony last month that the issues were resolved.

Moreover, with the additional slippage in the schedule, GAO is projecting a price tag in excess of \$600 million. While AOC recently submitted an action plan for getting the project on track, which I requested in the September hearing, it's not clear whether it is sufficient to complete the project by the end of 2007 and without breaching \$600 million in total cost.

Before concluding, let me reiterate my hope that the next chairman of the subcommittee will continue the practice of regular hearings, requiring a full reporting of progress, an assessment of milestones and accountability for project results by the Architect and his contractors.

Let me also say, as it is likely your last appearance, Mr. Hantman, before this subcommittee, that we greatly appreciate your service to the Congress and your stewardship of the Capitol complex these last 10 years. We wish you all the best.

Mr. Hantman, please proceed with your testimony and then we will turn to GAO for their statement.

STATEMENT OF ALAN M. HANTMAN, FAIA, ARCHITECT OF THE CAPITOL

ACCOMPANIED BY BOB HIXON, PROJECT DIRECTOR, CAPITOL VISITOR CENTER, ARCHITECT OF THE CAPITOL

Mr. HANTMAN. Thank you, Mr. Chairman. I appreciate this opportunity to report on the status of the Capitol Visitor Center project and as you mentioned, since this may be the last time I testify before the subcommittee, I'd like to thank you, Mr. Chairman, Senator Durbin, and the entire subcommittee for your support and direction since we began these hearings. I'd also like to specifically thank Carrie Apostolou and Nancy Olkewicz for their exceptional support, not only on the Capitol Visitor Center project but also for their support throughout the AOC budget process.

In addition, I'd like to acknowledge the Capitol Preservation Commission for its leadership and guidance during the project's design and construction process. The Commission has worked closely with our team to keep the project moving forward. Perhaps most important to this process has been the open dialogue the Commission and this subcommittee have maintained with the project team to ensure that all parties work together to identify and resolve issues as expeditiously and effectively as possible to deliver a world class Capitol Visitor Center to Congress and the American people.

Mr. Chairman, this is an exciting time for the project as many areas are now taking on a much more finished appearance. As you mentioned, we are 88 percent finished. Since our September hearing, the contractor has made significant progress throughout the project site, which I will discuss in greater detail later in my testimony.

As described in our action plan, we have modified several of our existing procedures and initiated several others to help minimize the possibility of any further construction delays, to expedite the fire and life safety acceptance testing process and to facilitate occupancy of the CVC.

With regard to the programming and testing of the CVC's fire and life safety system, I am pleased to report that the fire alarm contractor's most recent shop drawings meet basic requirements. While some fine-tuning is still necessary, the contractor can continue installing the system components. We've received the fire alarm contractor's installation schedule and it indicates that the pretesting process will begin in early 2007 and be completed by mid-May. Based upon this date, final acceptance testing will commence in mid-May and should be completed by October 2007 with, as you mentioned, the installation of historic documents, artifacts, gift shop materials, and other items in November.

We continue to pursue opportunities for an earlier completion of pretesting and final acceptance testing. As I've testified previously, construction codes for the integration of this complex fire and life safety system with necessary security systems do not exist. This team has basically designed a system that may well become a model for this type of facility.

The final resolution of the riser diagram, the receipt of the installation schedule, has answered many system installation and programming questions but the need to finalize these details has resulted in the October 2007 facility construction completion date. We are reviewing possible cost implications of the construction completion date at this time.

Regarding the operation of the CVC's mechanical system and the required testing, balancing, and commissioning of its many components, here too, I'm pleased to report progress. Chilled water balancing has been completed for all 23 air handling units and steam is now being delivered to all units as well. By next week, the contractor expects to deliver fully conditioned air into the great hall from two units, with more units coming online in the weeks ahead. The contractor has sequenced the commissioning of the units to ensure that the most critical areas, like the orientation theaters, food service area, and the exhibition hall, where finish materials are already being installed under temporary humidification efforts, receive conditioned air first. Since the final commissioning of the HVAC system is critical to the success of the fire system pretesting efforts, we've taken additional steps, as outlined in the action plan, to look ahead; to identify the mechanical commissioning process as the next major milestone that could potentially delay the pretesting. We have this at the top of our list of critical milestones to monitor closely, and we are proactively working to ensure the commissioning is completed on schedule.

With perhaps some of our greatest challenges behind us, as we near the final stages of construction, it becomes critical that any potential new issues are promptly identified and addressed immediately. In our action plan, we detailed our efforts to proactively address schedule slippages, to accelerate appropriate construction opportunities and increase manpower and to further strengthen our management controls.

The plan also discusses the methods by which we are intensifying the communication and coordination within the project team, increasing contractor performance by modifying the award fee structure and continuing to explore acceptable ways to reduce

the duration of the fire, and life safety pretesting and final testing processes.

These strategies have already begun to bear fruit. Now that the fire alarm subcontractor and the fire marshal have increased communication with each other to several times each week, or daily when necessary, this latest round of drawings remained consistent with the agreed-upon design approach and ultimately, resulted in a more favorable submission of the fire alarm system shop drawings than previous submittals. As a result, the contractor has resumed installation of the system components.

Mr. Chairman, we've also begun to see immediate improvement since the action plan was put into place. As of this morning, I was ready to state that 8 of 18 milestones had been completed since our September hearing, 4 completed on time and the balance within 2 weeks of the proposed schedule, which is an improvement compared to prior schedules. I have since found out that the air handling units numbers 3 and 16 were close to being mechanically ready but need a bit more time.

In addition, the contractor indicated a ninth milestone relating to the kitchen exhaust duct will be completed by Friday, November 17, 2006. A 10th milestone related to elevator number 17 has been re-sequenced with the overall sequence of completion expected to be on time.

Of the eight remaining milestones, we are projecting that four will be completed by the end of this month and the remaining four are being re-sequenced since they related to the east front construction issues, which I will address momentarily.

We're not there yet, Mr. Chairman, but the action plan has begun to help us identify and resolve potential problems in advance and meet schedule dates more effectively.

Since our last meeting, Mr. Chairman, construction continues to move forward and the progress is quite notable in many areas. Nowhere is this more evident than in the great hall, where all the scaffolding was removed in late October so that stone masons could complete the installation of stone on the monumental stairs. All the floor stone and the wall stone is complete within the hall and mason teams are now setting the final stones at the east end of the hall and along the water fountains at the base of the stairs.

The view from the entrance level mezzanine into the great hall is now unobstructed and as you can see, you can get a real sense of the proportions of that dignified space. It's flooded by light from the large skylights above. It's kind of easy to picture it furnished with the 19-foot high plaster cast of the Statute of Freedom with other statutes from the Capitol's collection and the information desks and benches, which will serve the many thousands of daily visitors to the Capitol.

In the upper left hand corner, Mr. Chairman, is the artist's rendering, which indicates that we are very true in terms of the construction to what the intent, the design intent was, and that shows the Statute of Freedom in place.

By the end of the month, the only remaining architectural elements to be installed in the great hall will be the decorative light fixtures, which are currently being fabricated.

In the orientation theaters, the scaffolding has been dismantled, clearing the way for the completion of floor stonework. Meanwhile, a millwork contractor has begun installing the finish wall panels and by mid-December, we expect carpet installation to begin. The film contractor continues to refine the orientation film that will play in both theaters. Based on the first cut that we reviewed a few months ago, the film will provide visitors an informative and uplifting experience just before they begin their tour of the Capitol.

In the exhibition hall, the contractor continues to assemble the steel support structure for the centerpiece of the hall, a marble wall of aspirations that will house between 40 and 50 historic documents. The contractor resumed the wall construction earlier this month after resolution of engineering issues and began to set marble at the wall earlier this week. By the end of the year, another contractor will begin installing the square glass floor panels that surround the wall of aspirations. A ceiling contractor also has crews assembling the ceiling grid along the length of the hall at the same time. So despite the multiple trades working in this same area, the work plan for the exhibition hall has helped keep contractors on track and avoid trade stacking.

I'd also like to note that all of the floor and wall stone is complete in the exhibition hall, so from an architectural standpoint, the space will really come together in just a few short weeks.

In the food service area, acoustic fabric ceiling panels continue to be installed and in a few weeks, the wall panels will be added. Banquets, now in fabrication, will then be installed to define the seating areas. Movable tables and chairs will provide flexibility for various sized groups of diners. The installation of the kitchen equipment is continuing and will be completed by early next year.

Work continues inside the east front of the Capitol. Mr. Chairman, this area continues to be our most challenging because of unforeseen site conditions, security requirements, and the complexity and confined nature of this space itself. While the contractor continues to resolve issues, crews have made progress installing the steel framework that will support stone along the walls at the Rotunda and the gallery levels. Although this work is scheduled for completion in mid-spring, it can be done in parallel with the final fire alarm acceptance testing and will not impact its schedule.

In the transition zone between the east front and the CVC, masons have finished installing stone on a redesigned archway and have begun dismantling the scaffold above the central staircase and the escalator path end zone. The ceiling contractors assembling the scaffold needed to install the metal framework that will support the plaster ceiling. The escalators will be installed in January, upon ceiling completion.

Mr. Chairman, this will be a wonderful transition experience for visitors as they walk up the stairs or ride the escalators into the Capitol with the new carriageway windows providing exterior light and views of the House and the Senate wings as they enter.

In the Senate expansion space, the ceiling panels are being installed in many areas of the Senate recording studio. In several meeting rooms, masons are setting stones for the pilasters that accentuate the corridors and final ceiling close-in inspections are ongoing.

In the Senate atrium, crews are assembling the steel support system for the handsome spiral staircase that connects all three levels of the Senate expansion space.

Outside, masons continue setting stone at the façade and piers along the CVC entrance walls and along the monumental stairs connecting the plaza to the entrance below. Earlier this year, historic preservation crews reassembled the original stonework for many of the historic elements, including the Olmsted-designed fountains, lanterns, and seat walls that you can see in this photograph. On the Senate plaza, masons and paving crews have restored the area around the Senate triangle, itself a fully restored, landscaped area just beyond the north entrance gate.

When complete, the east front plaza will welcome people respectfully and will revive the pedestrian-friendly environment envisioned by Frederick Law Olmsted in 1874.

As you can see, the CVC project is moving forward on many fronts and as spaces near completion, many people outside the project team are beginning to focus on its historic significance and positive impact to the Capitol complex. This year alone, members of my staff and I have escorted nearly 300 groups through the site, mostly Members of Congress and their staff. Those who have gone on a tour have told us afterward that they have a much better understanding of the magnitude and the complexity of the project and a greater appreciation of the many benefits it will provide for the occupants of the Capitol and its visitors.

Just 2 weeks ago, I had the honor of escorting the CEOs of 45 of the largest and most respected architectural firms in the country through the CVC. These professionals were deeply impressed by the importance of the project and the high level of quality of the materials and the craftsmanship.

In closing, Mr. Chairman, I'd like to say that it has been a privilege to be a steward of a project of such importance. As you know, at roughly three-quarters the size of the Capitol Building itself, the visitor center is the largest and most significant addition to the Capitol in its 213 year history. Upon its completion, for the first time in the Capitol's history, the millions of visitors who come here each year will have the amenities and educational opportunities expected in our Capitol Building set within a secure environment that is open and welcoming. Both the House and Senate will also be able to effectively utilize their much-needed, new meeting, recording, and support spaces to facilitate their effective operations going forward.

I want to thank the Congress for this rare opportunity to be part of such a historic endeavor. I'd also like to thank not just the CVC team but also my entire AOC team, who often work behind the scenes to maintain and care for the Capitol complex. With more than 15 million square feet of building space and over 300 acres to maintain, my staff quietly and effectively works on several hundred projects each and every day. Their tireless efforts, their skills, and their commitment to public service are a credit to each of them, the Office of the Architect of the Capitol, and the United States Congress. It has been an honor to lead this dedicated team of professionals and to have served Congress for 10 years, as the 10th Architect of the Capitol.

Thank you, Mr. Chairman. This concludes my statement. I'd be happy to answer any questions you may have.

Senator ALLARD. Thank you.

[The statement follows:]

PREPARED STATEMENT OF ALAN M. HANTMAN, FAIA

Good afternoon, Mr. Chairman. I appreciate this opportunity to report on the status of the Capitol Visitor Center project. Since this may be the last time I testify before the Subcommittee, I would like to thank you Mr. Chairman, Senator Durbin, and the entire Subcommittee for your support and direction since we began these hearings. I would also like to specifically thank Carrie Apostolou and Nancy Olkewicz for their exceptional support, not only on the Capitol Visitor Center, but also for their support throughout the AOC budget process. In addition, I would like to acknowledge the Capitol Preservation Commission for its leadership and guidance during the project's design and construction process. The Commission has worked closely with our team to keep the project moving forward. Perhaps most important to this process has been the open dialogue the Commission and this Subcommittee have maintained with my project team to ensure that all parties work together to identify and resolve issues as expeditiously and effectively as possible to deliver a world-class Capitol Visitor Center to Congress and the American people.

Mr. Chairman, this is an exciting time for the project as many areas are now taking on a much more finished appearance. Since our September hearing, the contractor has made significant progress throughout the project site which I will discuss in greater detail later in my testimony. As described in the Action Plan, which we recently submitted, we have modified several of our existing procedures and initiated several others to help minimize the possibility of any further construction delays, to expedite the fire and life-safety acceptance testing process, and to facilitate occupancy of the CVC.

With regard to the programming and testing of the CVC's fire and life-safety system, I am pleased to report that the fire alarm contractor's most recent shop drawings meet basic requirements. While some fine-tuning is still necessary, the contractor can continue installing the system components. We have received the fire alarm contractor's installation schedule and it indicates that the pre-testing process will begin in early 2007 and be completed by mid-May. Based upon this date, final acceptance testing will commence in mid-May and should be completed by October 2007. The installation of historic documents, artifacts, gift shop materials and other items can begin in November 2007.

We continue to pursue opportunities for an earlier completion of pre-testing and final acceptance testing. As I have testified previously, construction codes for the integration of this complex fire and life-safety system with necessary security systems do not exist, so this team has basically designed a system that may well become a model for this type of facility. The final resolution of the riser design and the receipt of the installation schedule have answered many system installation and programming questions, and the need to finalize these details has resulted in the October 2007 facility construction completion date. We are reviewing possible cost implications of the construction completion date at this time.

Regarding the operation of the CVC's HVAC system and the required testing, balancing, and commissioning of its many components, here too, I am pleased to report progress. Chilled water balancing has been completed for all 23 air handling units and steam is now being delivered to all units as well. By next week, the contractor expects to deliver fully-conditioned air into the Great Hall from two units, with more units coming on-line in the weeks ahead. The contractor has sequenced the commissioning of the units to ensure that the most critical areas like the Orientation Theaters, the Food Service Area, and the Exhibition Hall, where finish materials are already being installed under temporary dehumidification efforts, receive conditioned air first. Since the final commissioning of the HVAC system is critical to the success of the fire system pre-testing efforts, we have taken additional steps, as outlined in our Action Plan, to look ahead to identify the HVAC commissioning process as the next major milestone that could potentially delay the pre-testing. We have this at the top of our list of critical milestones to monitor closely and we are proactively working to ensure the commissioning is completed on schedule.

With perhaps some of our greatest challenges behind us as we near the final stages of construction, it becomes critical that any potential new issues are promptly identified and addressed immediately. In our Action Plan, we have detailed our efforts to proactively address schedule slippages, to accelerate appropriate construction opportunities and increase manpower; and to further strengthen our manage-

ment controls. The Plan also discusses the methods by which we are intensifying the communication and coordination within the project team; increasing contractor performance by modifying the award fee structure, and continuing to explore acceptable ways to reduce the duration of the fire and life-safety pre-testing and final acceptance testing process.

These strategies have already begun to bear fruit. Now that the fire alarm subcontractor and the Fire Marshal have increased communication with each other to several times each week, or daily when necessary, this latest round of drawings remained consistent with the agreed-upon design approach and ultimately, resulted in a more favorable submission of fire alarm system shop drawings than previous submittals. As a result, the contractor has resumed installation of the system components. We have seen immediate improvement since the Action Plan was put into place. Ten of 18 milestones have been completed since our September hearing; five were completed on time and the balance was completed within two weeks of the proposed scheduled date, which is an improvement compared to prior schedules. Of the eight uncompleted milestones, we are projecting that four will be completed by the end of this month. The remaining four are being re-sequenced since they are related to East Front construction issues which I will address momentarily.

Project Update

Mr. Chairman, since our last hearing, construction continues to move forward and the progress is quite notable in many areas. Nowhere is this more evident than in the Great Hall, where all the scaffolding was removed in late October so that stone masons can complete the installation of stone on the monumental stairs. All the floor and wall stone is complete within the Hall and mason teams are now setting the final stones at the east end of the Hall and along the water fountains at the base of the stairs.

The view from the entrance level mezzanine into the Great Hall is now unobstructed and you can get a real sense of the proportions of that dignified space, flooded with light from the large skylights above. It is easy to picture it furnished with the nineteen-foot-high plaster cast of the Statue of Freedom, with other statues from the Capitol's collection, and the information desks and benches which will serve the many thousands of daily visitors to the Capitol. By the end of this month, the only remaining architectural element to be installed in the Great Hall will be the decorative light fixtures, which are currently being fabricated.

In the Orientation Theaters, the scaffolding has been dismantled, clearing the way for the completion of floor stone work. Meanwhile, a millwork contractor has begun installing the finish wall panels and by mid-December, we expect carpet installation to begin. The film contractor continues to refine the orientation film that will play in both theaters. Based on the first cut we reviewed a few months ago, the film will provide visitors an informative and uplifting experience just before they begin their tour of the Capitol.

In the Exhibition Hall, the contractor continues to assemble the steel support structure for the centerpiece of the Hall, a marble "Wall of Aspirations" that will house between 40 and 50 historic documents. The contractor resumed the wall construction earlier this month after resolution of engineering issues and began to set marble at the wall earlier this week. By the end of the year, another contractor will begin installing the square glass floor panels that surround the Wall of Aspirations. A ceiling contractor also has crews assembling the ceiling grid along the length of the hall at the same time, so despite the multiple trades working in this same area, the work plan for the Exhibition Hall has helped keep contractors on track and avoid trade stacking. I would also like to note that all of the floor and wall stone is complete in the Exhibition Hall so from an architectural standpoint, the space will really come together in just a few short weeks.

In the Food Service Area, acoustic fabric ceiling panels continue to be installed and, in a few weeks, the wall panels will be added. Banquettes, now in fabrication, will then be installed to define the seating areas. Moveable tables and chairs will provide flexibility for various size groups of diners. The installation of the kitchen equipment is continuing and will be completed by early next year.

Work continues inside the East Front of the Capitol. This area continues to be our most challenging because of unforeseen site conditions, security requirements, and the complexity and confined nature of the space itself. While the contractor continues to resolve issues, crews have made progress installing the steel framework that will support stone along the walls at the Rotunda and Gallery levels. Although this work is scheduled for completion in mid-spring, it can be done in parallel with the final fire alarm acceptance testing and will not impact its schedule.

In the transition zone between the East Front and the CVC, masons have finished installing stone on a redesigned archway and have begun dismantling the scaffold

above the central staircase and escalator paths in this zone. The ceiling contractor is assembling the scaffold needed to install the metal framework that will support the plaster ceiling. The escalators will be installed in January upon ceiling completion. This will be a wonderful transition experience for visitors as they walk up the stairs or ride the escalators into the Capitol, with the new carriageway windows providing exterior light and views of the House and Senate wings as they enter.

In the Senate Expansion space, the ceiling panels are being installed in many areas of the Senate Recording Studio. In several meeting rooms, masons are setting stones for the pilasters that accentuate the corridors, and final ceiling close-in inspections are ongoing. In the Senate Atrium, crews are assembling the steel support system for the handsome spiral staircase that connects all three levels of the Senate Expansion space.

Outside, masons continue setting stone at the façade and piers along the CVC entrance walls and along the monumental stairs connecting the Plaza to the entrance level below. Earlier this year, historic preservation crews reassembled the original stonework for many of the historic elements, including the Olmsted-designed fountains, lanterns, and seat walls. On the Senate Plaza, masons and paving crews have restored the area around the Senate Triangle, itself a fully-restored landscaped area just beyond the north entrance gate. When complete, the East Front Plaza will welcome people respectfully and will revive the pedestrian-friendly environment envisioned by Frederick Law Olmsted in 1874.

As you can see, the CVC project is moving forward on many fronts and as spaces near completion, many people outside the project team are beginning to focus on its historic significance and positive impact to the Capitol complex. This year alone members of my staff and I have escorted nearly 300 groups through the site—mostly Members of Congress and their staffs. Those who have gone on a tour have told us afterward that they had a much better understanding of the magnitude and complexity of the project, and a greater appreciation of the many benefits it will provide for the occupants of the Capitol and its visitors. Just two weeks ago, I had the honor of escorting the CEOs of 45 of the largest and most respected architectural firms in the country through the CVC. These professionals were deeply impressed by the importance of the project and the high level of quality of the materials and craftsmanship.

In closing, Mr. Chairman, I would like to say that it has been a privilege to be the steward of a project of such importance. As you know, at roughly three-quarters the size of the Capitol itself, the Capitol Visitor Center is the largest and most significant addition to the Capitol in its 213-year history. Upon its completion, for the first time in the Capitol's history, the millions of visitors who come here each year will have the amenities and educational opportunities expected in our Capitol Building, set within a secure environment that is open and welcoming. Both the Senate and House will also be able to effectively utilize their much-needed new meeting, recording, and support spaces to facilitate their effective operations going forward. I want to thank the Congress for this rare opportunity to be part of such an historic endeavor.

I would also like to thank not just the CVC team, but my entire AOC team, who often work behind the scenes to maintain and care for the Capitol complex. With more than 15 million square feet of building space and over 300 acres to maintain, my staff quietly and effectively works on several hundred projects each and every day. Their tireless efforts, their skills, and their commitment to public service are a credit to each of them, the Office of the Architect of the Capitol, and the United States Congress. It has been an honor to lead this dedicated team of professionals and to have served Congress for ten years as the 10th Architect of the Capitol.

Thank you, Mr. Chairman. This concludes my statement and I will be happy to address any questions you may have.

Senator ALLARD. Now I'll call on Mr. Ungar.

STATEMENT OF BERNARD L. UNGAR, DIRECTOR, PHYSICAL INFRASTRUCTURE, GOVERNMENT ACCOUNTABILITY OFFICE

ACCOMPANIED BY BRADLEY JAMES, ASSISTANT DIRECTOR, PHYSICAL INFRASTRUCTURE, GOVERNMENT ACCOUNTABILITY OFFICE

Mr. UNGAR. Thank you, Mr. Chairman. We too, are pleased to be here, not only at this hearing but to have been at the previous 14 hearings to help support the subcommittee. It certainly keeps us on our toes, that's for sure.

I'd also like to thank Alan and the AOC and the CVC team for their help. I know that it has been—they would use more colorful language—a pain for them and certain locations for us to be watching over their shoulder just about every day but they have been very helpful and they have provided the information that we've asked for and that has been very positive.

I'd also like to thank the other GAO members who have helped Mr. Dorn and me get ready for these hearings but today in particular, I'd like to thank Mr. James, who has been with us only for a short time but he has been with the Government for 33 years and he is retiring at the end of the year. He will hopefully come back a little bit later to help us part time, but his help has been invaluable. He has been very aggressively trying to help sort out the issues with the CVC and I'm sure that after he does leave finally, he'll be very much missed and we really appreciate his help.

With respect to the CVC, as Mr. Hantman indicated and as usual, there has certainly been progress since the last hearing. It's quite evident when you visit the site. A lot of work has been done in many areas, no question about that.

The main problem that we've identified historically has been the fire protection system and fortunately, considerable progress has been made with respect to that system. The team has worked with the fire marshal to get the critical elements of the system either approved or close to approval to the point where they can continue installation of the equipment. That's a very significant event and it's a long time in coming but it's been very helpful and it did occur between these two hearings. So that's very positive.

The other positive aspect besides progress on the project is what Mr. Hantman mentioned, the action plan. It was issued just recently to the subcommittee. It does contain a lot of actions that are pointed in the right direction. Hopefully they will be effectively implemented and have a significant effect. It's too early to tell but hopefully that will happen.

On the other hand, as we have consistently and persistently said, the pace of the work, although moving forward and advancing, has not been sufficient to overcome the impact of changes, problems, and delays. This has been a continuous problem and as Mr. Hantman indicated again, since the last hearing, the extra time it has taken to get the design of the fire protection system elements through the review process added another 6 weeks to the schedule, so the schedule did slip from September 17—this is the completion schedule—from September 17, 2007, to late October 2007, in between the two hearings.

In addition to slippages with the fire protection system, there are many other critical areas and activities with respect to the project that have slipped this time and they have slipped previously. These are very important. They are not on the critical path but they are close to being on a critical path and many of them, if they have relatively small slippages in the future, could adversely effect the completion date of the project. So it is very important to monitor those.

The one concern that we are adding this time to the fire protection system is a major area of concern, is one that Mr. Hantman had mentioned and that is the heating/air-conditioning/ventilation

system. That has become a major issue in our minds. There have been a number of problems with it. It actually slipped almost 4 weeks between the two hearings. It's been slipping continuously throughout the project for a variety of reasons. Progress has been made on some of the individual units but not on others. There are coordination issues among all the parties that have to deal with this system. There are coordination and linkages issues between the readiness of the units and the readiness of the spaces that they are to serve and there is a high risk, in our view, of major further delay.

And I'd just like to divert for a minute here because this directly relates to the situation with the milestones. It has been particularly troublesome this time, to pull this information together for the subcommittee.

What we reported in our statement was that there were four milestones met—that was as of yesterday, based on the team's report that the air handling units numbers 3 and 16 would be mechanically ready today. This was despite evidence that existed that they would not be ready today but that was their report. So we had to wait until today to go down and actually verify this. So, we did ask the CVC team to basically flip the switch this morning and the switch was flipped but it didn't work like it was supposed to work. Actually, one of the units didn't even turn on. The other unit had problems in that it couldn't perform the functions that it was supposed to perform and some of the problems, at least one of the major problems was known for a long time. It's one of these problems that has lingered in this project, without being resolved and it should have been resolved.

The bottom line then, with the milestones, as we stand right now, would be that there were 3 met, 4 finished late and 11 not done at all and even though it is believed that the ones that aren't done will be done rather soon, the problem is, they will be late. Whether they will be as timely as estimated right now, we don't know.

The slippages that have occurred since the last hearing, the slippages that have consistently occurred over the course of the project, and the four major indicators that we have been tracking for the subcommittee all indicate that the schedule is not going to be met.

We feel at this point in time that it is very unlikely that the October 2007 timeframe for completion of the project will be met unless the action plan or other actions identified in the action plan or additional actions can effectively be applied to meet the schedule. At this point in time, it's too early to tell but unless something is done to control and curtail these slippages, we're not going to get the project done this year. There is no question about that in our mind.

There are a couple of things that are really important here to think about and one is that in order for this action plan to be effective and fortunately, it's got off on a very positive start through Bob Hixon's efforts. There has to be a sense of responsibility and urgency among all the team members to get the project done on the schedule. And we just have not seen that as a pervasive situation. Some of the members are very aggressive and very concerned and very targeted toward getting done on time. Others are not.

I believe one of those individuals is here right now. I think the work on the expansion space, for the most part, has been going very well. The project director, Mr. Six, for that piece of work, is certainly attune to the schedule and he is certainly attuned and trying very hard to get done.

I'd also like to point out that one of the other subcontractors, the electrical subcontractor, is very much committed to this project. So it's not a situation where we have some people who are not. There are a lot of people who are but in order for this project to finish on schedule, everybody has to pull together and everybody has to be focused on meeting the schedule and that hasn't been the case so far.

Other things have to happen as well but that's the major issue. I think they have to get the schedule focused on, they have to talk about it weekly, at a minimum. They have to pinpoint the areas that need to be addressed, like the HVAC area—pinpoint responsibilities and hold people accountable for meeting the timeframes.

In terms of the estimated cost of the project, largely because of the delay that occurred between the hearings, we have increased our estimate to \$592 million—that's an increase of \$8 million since the last hearing, without risk and uncertainties. That is largely due to the delay that occurred, the 6-week delay, and to changes that came up during the period. I'd just like to point out one in general, to give you an idea of why these costs are going up so much.

During the course of the period between hearings, even though extensive coordination has taken place between the team, the fire marshal and the Capital Police, unfortunately the Capital Police identified an additional issue that needed to be changed, an additional security measure that needed to be corrected. While this may not affect the overall completion date, this one measure alone is into hundreds of thousands of dollars in terms of estimated cost. So it just gives you an idea of why the costs keep changing and it's very difficult for us, or for anybody, to really predict where the cost number is going to end up because at this point in a project, you would expect not to have these kinds of major changes. But it keeps happening and the delays keep happening, so with those two situations, it's very difficult to try to pinpoint where it's going to end up.

We've given our best guess. We think that with the risks and uncertainties, it's likely to be well over \$600 million as we mentioned. But it's just a very difficult thing to do.

When we started, before the hearing or at least before today, we had two recommendations. I'd like to add a recommendation though, to help facilitate getting the project done.

One recommendation is to have the Architect focus on the heating/air-conditioning and ventilation system as much, as aggressively as possible, to get problems identified, get them resolved and get the work and the people coordinated as quickly as possible. This is very important because this system is critical to the pre-testing—well, first of all, it's critical to finishing the facility in those areas where they need conditioned air. It's critical to the pre-testing and it's critical to the acceptance testing. So if this continues to slip, it's going to affect the whole project. It really does

need to have a significant amount of focus and attention and I think Mr. Hixon is probably getting tired of me badgering him about it but he has agreed that he will get to it.

Second, another problem that exists or at least another issue that exists is that as has been discussed in the hearings, many of them, is that the September 15, 2006, contract completion date has passed, obviously and the situation exists that the resolve of some of the team members to act as expeditiously or as aggressively as possible to meet the schedule, may not be at the level it needs to be. So to address that issue and AOC has been discussing this internally and working on it with the sequence 2 contractor, we think that AOC needs to carefully consider the remedies available to it under the contract, to help achieve a timely completion of the project from this point forward. It's a very complex issue but it does need to be addressed.

I'd like to add a recommendation due to all the difficulties that have been associated with tracking the milestones this time and that is, that the Architect of the Capitol work closely with the team to one, make sure that the milestones are met and second, that they are accurately reported. That ends my summary, Mr. Chairman. We'd be happy to answer any questions you might have.

[The statement follows:]

PREPARED STATEMENT OF BERNARD L. UNGAR

Mr. Chairman and Members of the Subcommittee: We are pleased to be here today to assist the Subcommittee in monitoring progress on the Capitol Visitor Center (CVC) project. Our remarks will focus on (1) the Architect of the Capitol's (AOC) construction progress and problems since the Subcommittee's September 21, 2006, hearing and their impact on the project's schedule; and (2) the project's expected cost at completion and funding situation.¹ As part of this discussion, we will address a number of key challenges and risks that continue to face the project as well as actions AOC has recently taken, and plans or needs to take, to meet its currently scheduled completion date.

Our remarks 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 the CVC team (AOC and its major CVC contractors), AOC's Chief Fire Marshal, and representatives from the U.S. Capitol Police. We also reviewed AOC's construction management contractor's periodic schedule assessments, potential change order log, and daily reports on the progress of interior wall and floor stonework. We retained a mechanical engineering consulting firm (Kincaid/Bryant) to help us assess the CVC team's progress in completing the project's heating, ventilation, and air-conditioning (HVAC) system. In addition, we reviewed the contract modifications made to date and the estimates of cost increases provided by AOC and its construction management contractor, including their estimates of the costs related to delays,² and their preliminary cost estimates for recent changes to the CVC's fire protection and security systems.

At the Subcommittee's September 21 CVC hearing, we reported that our assessment of the project's schedule and expected cost at completion was somewhat constrained because the CVC team was still analyzing the impact on the project's schedule and cost of the recently identified changes required for certain components of the fire protection and security systems. We also noted that the team expected to have firmer schedule and cost information around mid-October. However, the CVC team did not receive firmer information on the impact of the recent fire alarm system changes on the schedule until late last week, noted some remaining uncertainty about how long the pretesting of the fire alarm system would take, and re-

¹ GAO, *Capitol Visitor Center: Update on Status of Project's Schedule and Cost As of September 21, 2006*, GAO-06-1058T (Washington, D.C.: Sept. 21, 2006).

² The estimates for most of the delay-related costs were provided by AOC and its construction management contractor for budgetary purposes only and do not reflect any judgments by GAO of the validity of any potential contractor claims.

cently learned of significant changes that would be needed in the security system and in the sequence for bringing the CVC's air handling units online. In addition, the impact of these changes on the project's cost is not yet fully known. Therefore, we could not thoroughly assess the project's schedule or estimated cost at completion and are basing our views on the information available as of November 9, 2006, recognizing that our views could change as more information on the impact of these changes becomes available.

In summary:

Since the Subcommittee's September 21 CVC hearing, the CVC team has continued to move the project's construction forward, but the project's scheduled completion date has slipped by 6 weeks, to October 26, 2007,³ and further delays are possible. The 6-week delay was attributable to problems with the project's most critical activity—the fire protection system. Under the current schedule, the construction of the House and Senate expansion spaces will be completed before the CVC's construction, but both the CVC and the expansion spaces will be available for occupancy at the same time because final acceptance testing of both is slated to be done concurrently.

—During the past month, the CVC team has made progress on the project's heating, ventilation, and air-conditioning (HVAC) system, interior floor stone and ceiling installation, and other interior and exterior construction work. In addition, AOC sent Congress an action plan for improving its execution of the project and the project's schedule, as the Subcommittee requested and we had recommended, and this plan is responsive to our recommendations. AOC is also considering other action not discussed in this plan.

—Despite this progress, problems have occurred in many important activities besides the CVC's fire protection system, according to AOC's construction management contractor. Although these delays did not add time to the project's schedule this month, additional delays could do so in the future. For example, the completion date for wall stone installation in the East Front basement slipped by 38 workdays since the Subcommittee's last CVC hearing, and an additional 17-workday slippage could delay the CVC project's scheduled completion date. Similarly, work on the HVAC system slipped 19 workdays, and an additional slippage of 46 workdays could delay the project's scheduled completion date. Recently identified issues associated with the CVC's HVAC system, fire protection system, and security system—including issues associated with their coordination and testing—also pose risks to the project's scheduled completion date. In addition, concerns have arisen about AOC's ability to achieve a high-quality, complete, and usable facility within the current estimated time frame and cost now that the contractual date for completing sequence 2 construction work—September 15, 2006—has passed. In particular, there is a risk that, without negative consequences, the resolve of some major stakeholders to complete the project in a timely and efficient manner could be adversely affected. Finally, all the indicators of progress that we have been tracking for the Subcommittee, together with other risks and uncertainties, suggest that the project is likely to finish later than October 2007.

As we said at the Subcommittee's September 21 CVC hearing, AOC will be able to meet or come close to meeting its scheduled project completion date only if the CVC team promptly makes significant improvements in its execution of the project and the project's schedule. It is too early to tell whether the actions identified in AOC's November 2006 action plan will be effective in curtailing additional schedule slippages. Furthermore, the concerns identified since the Subcommittee's last CVC hearing, particularly those related to the CVC's HVAC system, if not quickly addressed, could adversely affect the project's schedule. Thus, until it is clear that AOC's actions are effective in curtailing additional schedule slippages, we believe that the facility is more likely to be completed in early 2008 than in the fall of 2007. To improve AOC's ability to meet its schedule and to reduce the risks to the project's schedule and cost facing AOC now that the contract completion date is past, we are recommending that AOC (1) promptly work with the CVC team to address the concerns associated with the CVC's HVAC system and (2) carefully consider the existing contractual remedies available to achieve completion of all necessary work within the current estimated time frame and cost without otherwise compromising any of the government's contractual rights or remedies.

³This date does not allow time for installing artifacts in the exhibit gallery, preparing for operations, or addressing risks and uncertainties. AOC has allowed another 5 weeks, until November 30, 2007, for installing the artifacts and has not estimated a time frame for operations preparations.

Since the Subcommittee's September 21 CVC hearing, we have increased our estimate of the total cost to complete the entire CVC project by about \$8 million to account for the delays and changes identified during this period,⁴ but our estimate is rough because we have not had the information or the time needed to fully assess the impact of these delays and changes on the projects' cost. With this \$8 million increase, we now estimate that the total cost of the entire CVC project at completion is likely to be about \$592 million without an allowance for risks and uncertainties, recognizing, however, that the extent of AOC's responsibility for the delay-related costs is uncertain. To date, about \$531 million has been provided for CVC construction. For fiscal year 2007, AOC has requested \$26 million in CVC construction appropriations, plus \$950,000 in AOC general administration appropriations for contractual support to complete acceptance testing of the CVC's fire protection system on schedule. During fiscal year 2007, AOC is also likely to need, but has not yet requested, additional funds to pay for changes. At the Subcommittee's last CVC hearing, we roughly estimated that AOC would need an additional \$5 million to \$10 million in fiscal year 2007 over and above what it had already requested for changes unless it decided to use funds slated for other purposes, after obtaining the necessary congressional approvals. AOC agrees with this rough estimate at this time and notes that it will likely need additional money in fiscal year 2008 to replenish these funds and to cover other costs if they materialize.

Construction Progress Has Not Been Sufficient to Offset Impact of Changes and Delays on the Project's Schedule and Completion

Work on the CVC project has progressed in many areas, but the project completion date has slipped to October 26, 2007, about 6 weeks beyond the September 17, 2007, completion date discussed at the Subcommittee's last CVC hearing. This 6-week slippage is due to continuing problems associated with the CVC's fire protection system, but many other important activities, including those associated with the HVAC system, East Front, and security system, have been delayed as well. Last week, at the request of the Subcommittee and as we had recommended, AOC completed and sent to Congress an action plan for improving management execution of the project and its schedule. The action plan was responsive to our recommendation. However, it is too early to tell whether implementing the plan will curtail the types of schedule slippages that have occurred since the Subcommittee's last CVC hearing and throughout the project. Moreover, although the CVC team and AOC's Fire Marshal Division have agreed on a number of important elements of the CVC's fire protection system, they have not yet agreed on all important elements. Additionally, as noted, concerns have emerged regarding the CVC's HVAC system, as well as the impact of the passage of the sequence 2 September 15, 2006, contract completion date. Accordingly, priority should be given to accomplishing all of the identified critical tasks so that pretesting of the facility's fire protection system can begin in the spring of 2007. Additionally, to ensure that AOC gets a high-quality, fully functional facility, it is essential that AOC effectively implement the actions it has identified and give careful consideration to existing contractual remedies available to it to achieve completion of all necessary work within the current estimated time frame at a reasonable cost without otherwise compromising any of the government's contractual rights or remedies.

Progress: CVC Team Has Advanced Interior CVC and Other Construction Work and Has Begun to Implement an Action Plan for Strengthening Its Project Management

According to information provided by AOC and its construction management contractor and our observations, work on the project has advanced, in terms of both the dollar value of the work in place and individual project elements. In dollar terms, AOC's construction management contractor reported that, as of October 31, the overall CVC project was about 88 percent complete and the sequence 2 work was about 84 percent complete—up from about 86 percent and 77 percent, respectively, as of the Subcommittee's last CVC hearing. Progress on individual project elements includes the following:

- Interior CVC work has moved forward, according to AOC's construction management and sequence 2 contractors. For example, the CVC team and AOC's Fire Marshal Division have reached or nearly reached agreement on the design for several critical elements of the facility's fire protection system. Agreement on these elements is necessary for the system's installation to proceed. In addi-

⁴Our estimate includes delay-related costs that AOC and its construction management contractor estimated for budgetary purposes only. Our inclusion of these costs in our estimate does not reflect any judgments by GAO of the validity of any potential contractor claims.

tion, the mechanical subcontractor has completed certain preparations for operating the CVC's air handling units,⁵ all but two of which passed a required test for leaks as of Monday, and the CVC team expects conditioned air to begin flowing to certain parts of the facility later this month. The sequence 2 contractor has also installed about 65 percent of the CVC's floor stone, up from about 43 percent at the time of the Subcommittee's last CVC hearing, and ceiling installation is complete or essentially complete in the great hall, south side corridor (lower level), both orientation theaters, and the food service area. (AOC notes that blistered ceiling tile in the orientation theaters will have to be repaired or replaced.)

- Surface work continued, including paving and brick gutter work on the Senate plaza. Work on the House connector tunnel and on linking the Library of Congress tunnel with the Jefferson Building has also continued.
- East Front work continued, including completion of stone installation on the redesigned archway above the main central staircase from the CVC to the East Front and installation of ductwork and metal stud framework to support wall stone at the rotunda and gallery levels.
- In the House and Senate expansion spaces, ceiling close-in inspections, ceiling panel installation, and stone work have continued, and installation of the circular staircase that will connect all three levels of the Senate expansion space has begun.

On November 7, 2006, AOC sent Congress an action plan setting forth a number of steps it has taken, plans to take, or is considering to ensure that the CVC is ready for occupancy in the fall of 2007. AOC developed this plan at the Subcommittee's request in response to recommendations we made to AOC at the Subcommittee's September 21 CVC hearing. These recommendations were aimed at enhancing AOC's execution of the schedule and project and at facilitating the Subcommittee's efforts to (1) hold AOC accountable for managing the project and (2) work with AOC to ensure that the schedule implications of proposed scope or design changes are quickly determined and considered by all appropriate stakeholders before final decisions on the proposed changes are made. AOC's actions included

- meeting weekly with the CVC team to deal exclusively with schedule issues;
- having its construction management contractor identify areas needed to meet the project's schedule that the contractor believes are understaffed or face obstacles to progress;
- identifying sequence 2 and construction management personnel who are responsible for meeting key schedule dates and resolving identified problems;
- basing the sequence 2 contractor's future award fee on meeting schedule milestones;
- reassessing the scope, depth, and time frames associated with the pretesting and final testing of the facility's fire and life-safety protection systems;
- increasing communication among the CVC team, AOC's Fire Marshal Division, and the U.S. Capitol Police; and
- discussing proposed significant scope or design changes with Capitol Preservation Commission representatives before such proposed changes are adopted and getting the congressional leadership's approval for discretionary changes requested by the Senate or House.

The actions AOC has identified are generally responsive to our recommendations and, if implemented effectively and quickly, should help AOC improve its project and schedule management as well as help ensure that the schedule and cost implications of proposed discretionary design or scope changes are appropriately considered before final decisions on them are made. However, we have concerns about the usefulness of one step AOC is considering—the possible establishment of a CVC peer review panel to assess the approaches planned for the fire protection system's pretesting and final testing. We have expressed our concerns to AOC, and it has agreed to consider them.

Besides the actions it identified in its November 2006 action plan, AOC has been considering how to deal with the impact of passing the sequence 2 contract completion date, September 15, 2006. This is a complex issue, in part because its resolution potentially involves preliminary determinations about the causes of, and responsibility for, project delays during sequence 2 up to September 15. AOC has also been considering other factors, such as the need to instill a sense of urgency and responsibility to meet the contractor's currently established fall 2007 completion time frame; the possibility of setting a specific date as the new contract completion date and the implications associated with alternative dates; the constructive manner in which the sequence 2 contractor has worked with AOC and the rest of the CVC

⁵ Chilled water balancing.

team to accomplish work and resolve problems; and the need to ensure that the work necessary to get the facility completed is done expeditiously at a reasonable cost. We have discussed these issues with AOC and pointed out that it needs to decide how it intends to proceed as quickly as possible and also consider the risks that various options pose. In view of additional schedule slippages that have occurred and issues that have arisen since the Subcommittee's last CVC hearing, we are making additional recommendations to AOC, which we will discuss later in this testimony.

In addition to the actions identified by AOC, the sequence 2 contractor has reported adding five superintendents to its CVC staff in the last several months to help achieve the schedule. Given the number and magnitude of the changes that have occurred to the sequence 2 contract since it was initially awarded and the extent to which problems have constrained progress, we believe that this additional supervision should put the team in a better position to meet schedule dates and address problems quickly.

Problems: Required Changes to Fire Protection System and Continued Slippages in Other Important Activities Have Extended the Project's Schedule and Completion Date

The additional time needed to make design changes to the CVC's fire protection system has extended the project's completion date by about 6 weeks since the Subcommittee's September 21 CVC hearing—from September 17, 2007, according to the schedule in effect at that time, to October 26, 2007, according to the October 2006 schedule issued last week. In addition, AOC's construction management contractor reported slippages in construction work for all of the 20 near-critical activity paths it identified in its schedule report for October 2006. For many of these activity paths, the schedule slipped at least 4 weeks. For example, the contractor reported a 65-workday delay for two East Front elevators due to late completion of necessary preceding work, a 66-workday delay for fabrication and installation of bronze doors because of fabrication problems experienced by the supplier, a 38-workday delay in ceiling close-ins in the upper level security lobby needed to resolve unexpected ceiling problems, and a 38-workday delay in completing wall stone work in the East Front basement area attributable to unanticipated design issues. The contractor also reported a 130-workday delay in the delivery of custom light fixtures, apparently the result of contractual issues between the sequence 2 contractor and its supplier. According to the construction management contractor, there are now five near-critical activity paths—including the HVAC system, East Front work, and work in the upper level security lobby and assembly rooms, for which additional slippages of 17 to 53 workdays could further delay the CVC's completion date.

Neither the September 17, 2007, nor the October 26, 2007, project completion dates included any time for (1) installing artifacts in the exhibit gallery after a certificate of occupancy has been issued, (2) preparing for operations, or (3) dealing with risks and uncertainties. AOC's October 2006 schedule shows the artifacts installed in the exhibit gallery by November 30, 2007, but does not allow any time for dealing with risks or uncertainties associated with completing the work necessary for a certificate of occupancy, and it is not clear whether the additional time provided for installing the artifacts will be sufficient to prepare for operations.

Problems with the HVAC System

In work on the CVC's HVAC system, AOC's construction management contractor reported a 19-workday slippage, which the contractor attributed to a steam pipe support problem and a problem at the Capitol Power Plant. As we indicated at the Subcommittee's last CVC hearing, we asked our mechanical engineering consultant to reassess the status of the CVC's air-handling units in early November 2006 because the CVC's HVAC system affects many activities, has had a number of problems, and poses significant risks to the project's successful completion. We asked the consultant to compare the units' mechanical readiness to provide conditioned air to the CVC as of November 1 with their readiness as of his previous assessment, on September 6, 2006. On November 1, he found that the installation of controls for the air handling units was nearing completion, substantial work had been done to insulate 7 of the units, and all of the units could be ready on schedule with committed effort by the sequence 2 mechanical subcontractor. He noted, however, that except for pressure and leak testing and controls installation, little visible work had been done on 12 of the units to address the issues he had identified during his September visit. He said he did not see a large number of workers in the air handling unit areas and the work that was being done appeared to be on pipe insulation. Moreover, he saw little coordination between work on completing the air handling units and on the spaces they are to serve, and he noted a number of concerns about

the operational readiness of both, indicating that delays in providing conditioned air to the facility and in balancing of the air handling units could potentially delay the project's schedule.

Even though the HVAC system's installation and associated work are progressing, a number of issues besides those observed by our mechanical engineering consultant have arisen since the Subcommittee's last CVC hearing, heightening our concerns about the CVC team's ability to meet its schedule for completing and commissioning the system. Because some of the spaces to be served by the air handling units were not yet ready, the sequence 2 contractor recently decided to change the sequence in which some of the air handling units would be placed in service. However, as of last week, the technical implications of this change had not been fully determined. The commissioning contractor has questioned whether enough people will be available to support the commissioning process within the scheduled time frames, and, as noted, our mechanical engineering consultant has raised operational readiness concerns. AOC's construction management contractor has also expressed concerns about these issues, and we have raised the issues in a number of CVC team meetings, but the responses have not given us confidence that (1) all the work associated with bringing the air handling units on line and commissioning them has been sufficiently coordinated among the team members; (2) all technical issues and risks associated with fully operating the units have been adequately addressed; and (3) that sufficient staff will be available to meet the scheduled dates.

According to sequence 2 contractor personnel, these types of problems and ongoing schedule adjustments to address day-to-day events are not uncommon in large, complex construction projects. Not all the problems with the air handling units have to be resolved fully before commissioning work can proceed, they said, and air handling units are typically turned on before other work is completed to provide conditioned air for materials that need it. The sequence 2 contractor said it would work with the mechanical subcontractor and other parties to ensure that the HVAC system issues are resolved in a timely manner. Furthermore, according to the contractor personnel, contractual provisions are in place to address providing conditioned air to the CVC while construction work is underway. We understand these points and recognize the progress that has been made. However, in light of the recurring slippages in the HVAC system's schedule, the system's importance to the pretesting and final testing of the facility's fire protection system, and the concerns expressed by AOC's construction management contractor and the commissioning contractor, we believe prompt action is needed to resolve the concerns and ensure that the schedule for completing the HVAC system work is realistic and will be met.

Delays in Completing the Expansion Spaces and the Library of Congress Tunnel

The schedule for essentially completing the construction of the House and Senate expansion spaces (currently scheduled for April 23, 2007) has slipped about 6 weeks since the Subcommittee's last CVC hearing, and several activities important to completing these spaces have also been delayed. For example, AOC's construction management contractor reported another 14-workday delay in completing the circular stairs in the atrium areas. Delays have also occurred in, for example, the installation of the stone arch in the House lower level, because the work is taking longer than expected, and in the installation of millwork in the House lower level, because of fabrication delays. In addition, a special fire suppression system was not installed because it had not been approved. Furthermore, the sequence 2 subcontractor doing the expansion space work identified a number of concerns that could affect the project's completion. For example, the subcontractor reported that its schedule could be adversely affected if significant scope or design changes continue. Assuming that scope and design changes are controlled, the sequence 2 subcontractor responsible for the expansion space work hopes to recover some of the lost time and essentially complete its construction work in March 2007. In addition, the project's schedule shows that the construction activity (excluding testing) remaining after the April 2007 essential completion date is primarily related to work necessary to complete the circular stair in the House atrium. AOC anticipates that a design change will enable the circular stairs in both the House and the Senate atriums to be completed sooner than currently scheduled.

Finally, although not critical to the CVC's opening, work being done to connect the Library of Congress's Jefferson building to the tunnel linking it with the CVC has fallen more than 3 weeks behind since the Subcommittee's last CVC hearing, according to the construction management contractor, at least in part, because certain stone work has taken longer to install than anticipated. The subcontractor responsible for this work, which is currently scheduled for completion on April 24, 2007, expects to recover lost time and complete the work in March 2007. Further-

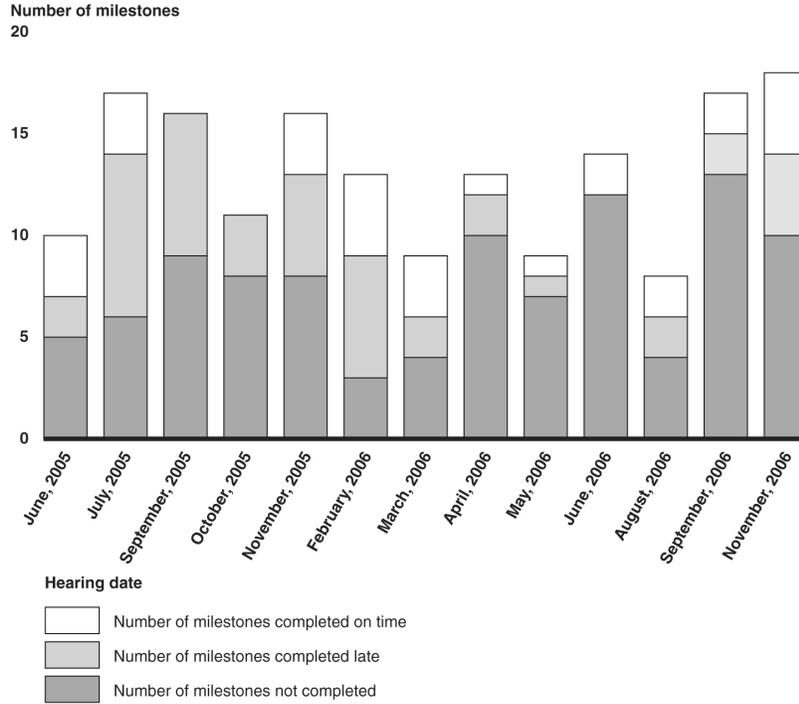
more, the construction management and sequence 2 contractors report that, for a number of reasons, the work on the tunnel itself has slipped about 9½ weeks beyond the completion date in effect at the Subcommittee's last CVC hearing.

Indicators of Construction Progress Point to Further Delays Unless AOC's Project Execution Significantly Improves

The four indicators of construction progress that we have been tracking for the Subcommittee, together with the risks and uncertainties that continue to face the project—which we will discuss shortly—demonstrate to us that AOC will be unlikely to meet its fall 2007 project completion date unless it significantly improves its project execution. An update on these indicators follows:

Sequence 2 contractor has continued to miss most milestones.—Starting with the Subcommittee's June 2005 CVC hearing, at the Subcommittee's request, we and AOC have been selecting and tracking sequence 2 milestones to help the Subcommittee monitor construction progress. These milestones include activities that were either on the project's critical path or that we and AOC believe are critical to the project's timely completion. As figure 1 shows, the sequence 2 contractor has generally missed these milestones. For today's hearing, the contractor met or was expected to meet 4 of the 18 milestones that were due to be completed, according to the project's September 2006 schedule, and for 1 of these 4, the work was completed ahead of schedule.⁶ However, the contractor was late in completing work for 4 other milestones and had not completed or was not expected to complete the work for the remaining 10 milestones by November 15, 2006. (See app. I.) The sequence 2 contractor attributed the slippages to a number of factors, including design issues and a need to relocate ductwork, add steel support for wall stone, and resequence work.

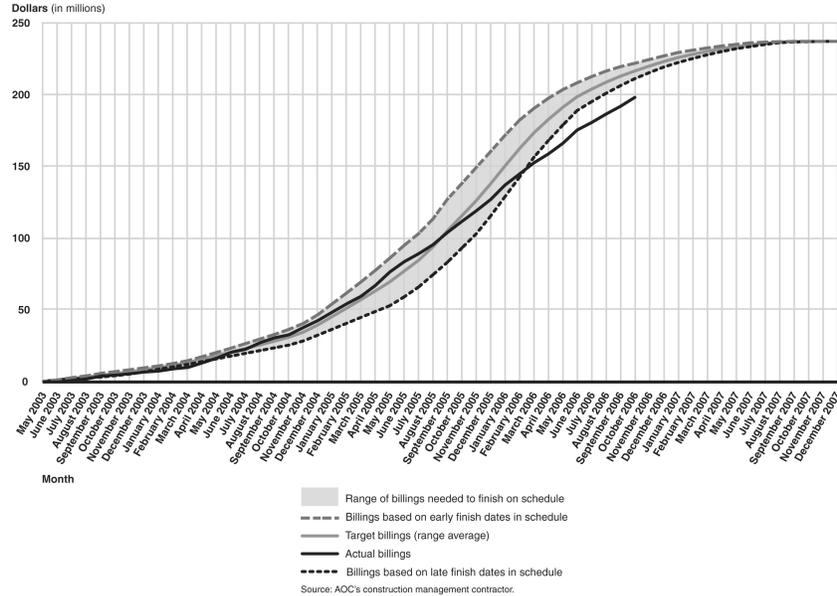
⁶As of November 14, AOC's sequence 2 and construction management contractors expected that work associated with three tracked milestones would be completed today. We therefore counted them as completed today. We did not have the opportunity to verify the completion of these activities before we submitted our prepared statement to the Subcommittee for today's hearing. We did not count as completed activities that the sequence 2 contractor believed were completed that were not confirmed as such by the construction management contractor.



Source: Sequence 2 contractor, AOC and its construction management contractor, and GAO.

FIGURE 1.—Sequence 2 Contractor’s Progress in Meeting Selected Milestones as of CVC Hearing Dates

Value of completed work has increased since the last hearing, but trend reflects the sequence 2 contractor’s difficulties in meeting scheduled completion dates.—Another indicator of construction progress that we and AOC’s construction management contractor have been tracking is the value of the completed construction work billed to the government each month. Overall, the sequence 2 contractor’s monthly billings, including the bills for March through October 2006, indicate that construction work is about 2 months behind the late finish curve, which indicates completion around November 2007. While this indicator has some limitations (for example, billings lag behind construction), it is generally regarded in the construction industry as a useful measure of how likely a project is to be completed on time. Figure 2 compares the sequence 2 contractor’s billings since May 2003 with the billings needed to complete construction work on schedule and suggests that AOC faces challenges in meeting its fall 2007 completion date and is more likely to complete the facility later than its current schedule shows.



Notes:

The early and late lines on this figure reflect the cumulative billings that would be required to complete the project through contract modification number 144 (\$237.5 million total contact value) by the early and late finish dates shown in the sequence 2 contractor's schedule, which is based on the September 2006 contractual completion date.

The actual line reflects the sequence 2 contractor's actual monthly billings.

Although bills are typically submitted for payment after work is completed, it is often likely that construction work will be completed on schedule when the actual billing line falls between the early and the late lines in the figure. For the CVC, the actual billing line has been trending below, and in March 2006 went below, the late finish line, where it remained through October 2006. Even with the lag in billings, this trend indicates that the amount of work being completed and billed each month is not sufficient to keep the project on schedule.

FIGURE 2.—Total Billings by the Sequence 2 Contractor for the Entire CVC Project Compared with the Billings Needed to Finish Construction Work on Schedule

Installation of interior wall and floor stone is taking longer than expected.—Overall, about 86 percent of the CVC's interior wall stone has been installed (in the CVC, East Front, atrium areas, and tunnels), according to AOC's construction management contractor, and the sequence 2 contractor installed nearly 85,000 of the 129,780 square feet of interior floor stone required as of November 9. Although the sequence 2 contractor has installed almost all of the wall stone in the CVC itself and all of the wall stone in the atrium areas, wall stone installation in the East Front is significantly behind schedule. According to the sequence 2 contractor's January 2006 wall stone installation schedule, the East Front wall stone was to be completely installed by July 10, 2006. As of November 10, about 4,700 pieces of wall stone remained to be installed in the East Front—the same quantity as we reported at the Subcommittee's last CVC hearing. During the 8 weeks since that hearing, the sequence 2 contractor installed about 34,900 square feet of interior floor stone, or about 65 percent of the 52,060 square feet specified in the floor stone installation plan that the contractor had previously provided to AOC. According to the construction management contractor, the sequence 2 contractor's installation of interior floor stone has been impeded by a lack of available space and by some work taking longer than expected.

Figure 3 shows the sequence 2 contractor's progress in installing interior floor stone since February 13, 2006.⁷

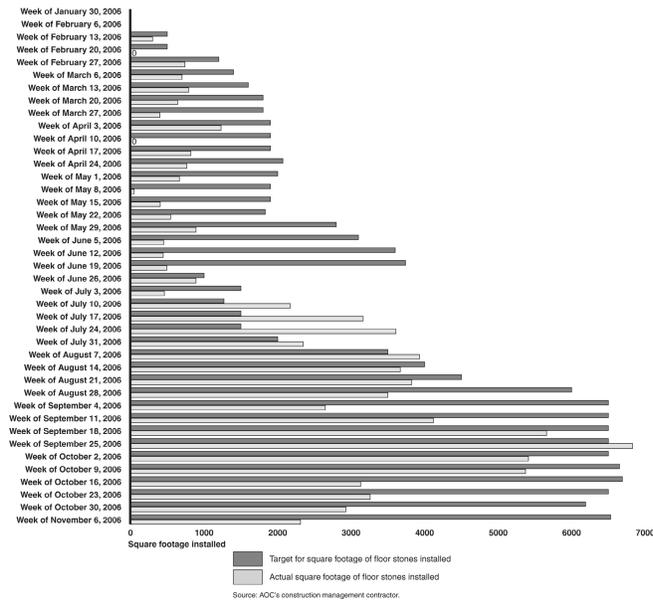


FIGURE 3.—Progress of CVC Interior Floor Stone Installation Compared with Preliminary Targets Set by the Sequence 2 Contractor

Project's Schedule Remains Vulnerable to Challenges, Risks, and Uncertainties

As we have indicated during the Subcommittee's previous CVC hearings, we believe that the CVC team continues to face challenges, risks, and uncertainties in quickly completing the project. Given the project's history of delays, the difficulties the CVC team has encountered in quickly resolving problems that arise, and the large number of near-critical activities that can affect the project's overall completion, the CVC team's efforts to identify potential problems early and resolve issues quickly will be even more important from this point forward, because AOC has left no "slack" in the schedule for contingencies. In our view, the remaining work associated with the fire protection and HVAC systems poses the greatest risks to meeting AOC's fall 2007 project completion date. The steps AOC has taken to mitigate these risks have been helpful, but much work remains to be done on these systems and on their linkages with other building systems. In addition, the project continues to face risks and uncertainties associated with other work important to its completion, such as the East Front, and additional design or scope changes. The project's current schedule does not provide the 2 to 3 months that a previous schedule allowed for addressing ongoing challenges, risks, and uncertainties. Accordingly, we plan to continue to monitor the CVC team's efforts to meet its schedule for the fire protection, HVAC, security, and other building systems and other key near-critical activities as well as the timeliness of the actions taken by the CVC team to address problems, concerns, and questions that arise. A brief update follows on the challenges, risks, and uncertainties the CVC team continues to face and the team's plans for addressing them:

—*Complex building systems remain a significant risk.*—The CVC will house complex building systems, including HVAC, fire protection, and security systems. These systems not only have to perform well individually, but their operation also has to be integrated. If the CVC team encounters any significant problems with them, either separately or together, during the resolution of design issues, installation, commissioning, or testing, the project could be seriously delayed.

⁷Our statement no longer includes a figure comparing actual to targeted wall stone installation because all targeted quantities were to have been installed by August 7, 2006, according to the sequence 2 contractor's January 2006 installation plan.

The unanticipated problems that emerged in reviewing the design of the fire alarm system and in programming it illustrate the impact such problems can have on the project's schedule. AOC's Fire Marshal Division and the CVC team have recently made considerable progress in reaching agreement on the design of a number of important elements of the CVC's fire protection system that are important to the purchasing and installation of wiring and equipment. As of November 13, the Fire Marshal Division had approved or essentially agreed to the designs of the sprinkler, smoke control, and emergency public address systems as well as most aspects of the CVC's and East Front's fire alarm systems that are related to the ordering and installation of wiring and equipment. According to the Fire Marshal Division, any outstanding comments on these system elements are minor. On the other hand, agreement has not yet been reached on a number of other system elements, including the sequence of operations for the CVC fire alarm system, the design for the special fire protection system in the exhibit gallery, and the plan for final acceptance testing of the facility's fire protection system. A sequence 2 subcontractor has identified dates by which certain elements must be approved to avoid further delays. Thus, additional delays could occur if the team takes longer than expected to get necessary remaining approvals or if the fire protection system does not work effectively individually or in concert with the security or other building systems.⁸ It is because of constraints such as these that we believe it is so important to address open issues associated with the HVAC system and to continue coordination with the U.S. Capitol Police on the security system. Since the Subcommittee's last CVC hearing, the Capitol Police have identified another security problem that will require additional work. The impact of this work, if any, had not been determined as of November 9.

—*Building design and work scope continue to evolve.*—The CVC has undergone a number of design and work scope changes. Since September 15, 2006, AOC's architectural contractor has issued five design changes or clarifications. As of November 8, 2006, this contractor reported, another four were in process. In addition, since the project began, AOC has executed over 100 sequence 2 contract modifications for work that was not anticipated.⁹ Some of these changes, such as changes in the exhibit gallery and in the East Front, have resulted in delays. Furthermore, although shop drawings have been approved for almost all project elements, according to AOC, further design or scope changes in various project elements are likely, given the project's experience to date. Project design and scope changes are typically reflected in the development of potential change orders (PCO), many of which result in contract modifications. Figure 4 shows the PCOs submitted for consideration for sequences 1 and 2 since September 2003. Although PCOs are not always approved, they are often regarded as a reasonably good indicator of likely future design or scope changes that can affect a project's cost and schedule. Even more important, the adverse impact of scope and design changes on a project's schedule is likely to increase as the project moves toward completion.

⁸According to the sequence 2 subcontractor that is fitting out the House and Senate expansion spaces, the delays in getting approved shop drawings for the fire protection system have already postponed ceiling close-ins in the expansion spaces, and AOC believes that further such delays, along with possible requests for design changes, pose the greatest risks to the schedule for completing the expansion spaces.

⁹These data exclude sequence 2 contract modifications for work that was planned but not included in the sequence 2 base contract. Examples include the fit-out of the House and Senate expansion spaces, the construction of the utility tunnel, and the purchase and installation of food service equipment.

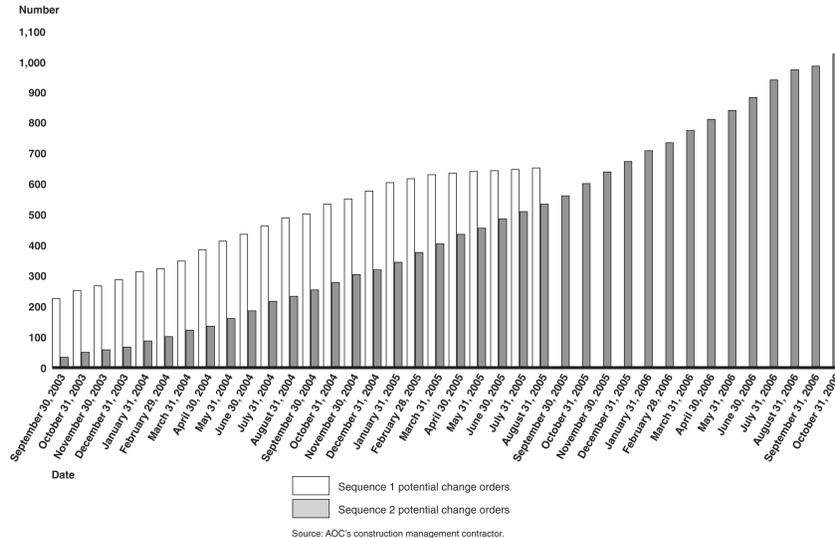


FIGURE 4.—Cumulative Number of Potential Change Orders Submitted for CVC Sequences 1 and 2 between September 2003 and November 2006

As the figure indicates, new PCOs for sequence 1 were submitted until shortly before, and even for several months after, November 2004, when AOC determined that the sequence 1 contract work was substantially complete. Similarly, PCOs for sequence 2 are still being submitted, and we have seen no indication that their submission is likely to stop soon. It therefore appears likely to us that some of the design or scope changes indicated in PCOs could lead to contract modifications that will affect the project's schedule. AOC agrees that it is important to minimize the impact of proposed design and scope changes.

—*Trade stacking could delay completion*¹⁰.—As we discussed during the Subcommittee's previous CVC hearings, trade stacking could hold up finish work, such as drywall or ceiling installation, electrical and plumbing work, plastering, or floor stone installation. This work could be stacked because of delays in wall stone installation. Trade stacking could also increase the risk of accidents and injuries. Hence, it remains important, as we said at previous CVC hearings, for the CVC team to closely monitor construction to identify potential trade stacking and promptly take steps to address it. The CVC team has also identified trade stacking as a high risk. The sequence 2 contractor has developed plans that show when various subcontractors will be working in various areas of the CVC. According to the sequence 2 contractor, it has been continuing to meet regularly with its subcontractors to identify and resolve potential issues. The CVC team identified instances of trade stacking that occurred in an effort to expedite certain East Front work and in doing millwork and stone work in the orientation theaters. AOC's construction management contractor has noted trade stacking as a potential issue associated with the compressed time frame for bringing all of the air-handling units on line.

—*Additional delays associated with the CVC's new utility tunnel have resulted, or could result, in additional work or slippages.*—The delay in starting up the utility tunnel's operations has necessitated the use of temporary humidity control equipment for several areas to avoid damage to finish work and ceiling tile. Such delays may subject certain work to the risk of damage or may delay finish or ceiling work in areas not suitable for the use of temporary humidity and temperature control equipment. For example, the CVC team installed ceiling tile in portions of the great hall to take advantage of the scaffolding in place, even

¹⁰Trade stacking can occur when workers from different trades, such as stone masons, electricians, plumbers, or plasterers, have to work in the same area at the same time to meet a schedule, sometimes making it difficult to ensure sufficient space and resources for concurrent work.

though neither the temperature nor the humidity was controlled in that area. According to the CVC team, the installed tile could be damaged if the temperature or humidity is not within specified levels, and certain exhibit gallery woodwork has been delayed because conditioned air has not been available. Although the CVC team expected in early August to be providing dehumidified air to the exhibit gallery by mid-August, the sequence 2 contractor now expects to begin providing conditioned air to the CVC later this month. However, as noted, the contractor has resequenced the order for bringing some air handling units on line because some spaces—including the exhibit gallery, which was slated to receive conditioned air first—were not clean enough for the units to operate. The air handling unit serving the exhibit gallery is now expected to come on line early in December. Remaining risks include having sufficient manpower to meet the scheduled dates for getting the HVAC system fully operational, having sufficiently clean spaces, and being able to quickly overcome any problems that may arise in getting the system properly balanced, controlled, and commissioned, including providing enough manpower without causing trade stacking.

—*Late identification or slow resolution of problems or issues could delay completion.*—Historically, the project has experienced or been at risk of experiencing some delays resulting from slow decision-making. In addition, some CVC team members believe that some of the problems that have resulted in delays, such as certain problems associated with the East Front or with problematic sequence 1 concrete work could have been identified and addressed earlier than they were. In responding to these comments, the sequence 2 contractor said that although earlier identification of these types of problems is conceptually possible, it is difficult in practice. Looking forward, we do not believe that the team will be able to meet its scheduled completion date if it does not quickly decide on issues; respond to concerns, questions, and submittals; or resolve problems. In September 2006, AOC told the CVC team that starting October 1, the architectural contractor would be decreasing its staff support to the project. In our opinion, this change increased the risk of slow responses to design questions or requests for design instructions at a very critical time, particularly because we have not seen evidence of a decrease in potential change orders. AOC believes that it will be able to provide its CVC construction contractors with sufficient architectural support to respond to appropriate questions or requests in time to avoid delays. We believe that this situation needs close monitoring as well as corrective action if problems arise. AOC has not reported any problems in this area since the last CVC hearing, and has identified steps in its November 2006 action plan aimed at identifying and resolving design problems quickly.

Finally, as we noted earlier in our testimony today, AOC's delay analysis is even more critical given the passage of the sequence 2 September 15, 2006, contract completion date and the need to obtain a complete facility without further delays and unreasonable costs, including delay-related costs. On April 11, 2006, AOC executed a contract modification authorizing its construction management contractor to have one of its managers who has not been involved in the CVC project assess the adequacy of this type of information. The manager submitted his report to AOC in early June. He reported generally positive findings but also identified desired improvements. He made several recommendations to AOC, which AOC has generally agreed with and plans to implement consistent with the availability of resources.

Project's New Schedule Appears Achievable Only under Certain Conditions

The October project schedule shows that almost all physical construction work on the CVC, the East Front, and the expansion spaces will be completed by spring 2007 and that the pretesting and final testing of all fire protection, life safety, and related systems for these areas will be carried out between then and late October 2007. This schedule reflects the amount of time that AOC's Chief Fire Marshal said he would need to perform his acceptance testing, although the CVC team is working to see if certain aspects of the testing can be done differently to save some time. The October 2006 schedule also calls for completing the installation of artifacts in the exhibit gallery by November 30, 2007. However, this schedule does not allow any time for addressing problems, risks, or uncertainties associated with obtaining a certificate of occupancy or for preparing for operations.

Given the uncertainty about how much time will be needed to pretest the fire protection system, the concerns associated with the HVAC system, the unknown effectiveness of AOC's recently identified actions to curtail future schedule slippages, and the limited amount of time we had to assess the October project schedule, we do not feel that we are in position to suggest a definitive project completion date. However, in light of the work we have done, we do not believe AOC will be able to com-

plete the project by fall 2007 if the actions it has identified are not effective in curtailing future schedule slippages. Thus, until we see that AOC has satisfactorily addressed our schedule-related concerns, we believe that the project is more likely to be completed in early 2008 rather than in the fall of 2007.

Recommendations

To minimize the risks associated with the CVC's HVAC system and the government's ability to get the CVC completed within the current schedule and cost estimates and to give Congress and us greater confidence in the CVC team's project schedules from this point forward, we recommend that the Architect of the Capitol promptly take the following two actions:

- Work with the rest of the CVC team to ensure that the schedule for completing and commissioning the HVAC system is realistic, that all the work necessary for the proper and safe functioning of the HVAC system—including work in the spaces the air handling units are to serve—is completed in a timely, well-coordinated manner, and that sufficient resources will be available to meet the schedule without creating a trade-stacking problem.
- Carefully consider the contractual remedies available to AOC to complete all tasks that must precede the start and completion of final acceptance testing of the CVC's fire protection and life safety systems within the time necessary to meet the estimated fall 2007 project completion time frame.

AOC generally agreed with our recommendations.

Project's Estimated Cost and Funding

Since the Subcommittee's September 21 CVC hearing, we have added about \$8 million to our estimate of the total cost of the CVC project at completion.¹¹ This increase reflects a rough estimate of the impact on the project's cost of the 6-week delay associated with the fire protection system and other scope and design changes identified during the past 8 weeks; however, the actual costs for changes are not yet known, and we have not had sufficient time to fully assess the CVC team's cost estimates incorporated in our estimate.¹² With this approximately \$8 million increase, we now estimate, on the basis of our limited review, that the total cost of the entire CVC project at completion is likely to be about \$592 million without an allowance for risks and uncertainties. We nevertheless recognize that the project continues to face a number of uncertainties, including uncertainty over the extent of AOC's responsibility for the delay-related costs. (We have not updated our estimate of the project's cost at completion with an allowance for risks and uncertainties.)

To date, about \$531 million has been provided for CVC construction. This amount includes about \$3.9 million that was made available for either CVC construction or operations¹³ and has been approved for CVC construction by the House and Senate Committees on Appropriations. An earlier cost-to-complete estimate, prepared for the Subcommittee's March 2006 CVC hearing, showed that another \$26 million in construction funds would be necessary to reach the previous cost estimate of \$556 million, which did not include an allowance for risks and uncertainties. AOC has requested this additional \$26 million in its fiscal year 2007 budget for CVC construction. AOC has also requested \$950,000 in fiscal year 2007 general administration appropriation funds to provide contractual support for the Chief Fire Marshal's final acceptance testing of the CVC. During fiscal year 2007, AOC is also likely to need, but has not yet requested, additional funds to pay for changes. At the Subcommittee's last CVC hearing, we roughly estimated that AOC would need an additional \$5 million to \$10 million in fiscal year 2007 for changes unless it decides to use funds slated for other purposes, after obtaining the necessary congressional approvals. AOC agrees with this rough estimate at this time and notes that it would

¹¹At the Subcommittee's September 21 CVC hearing, we estimated that the total cost of the entire CVC project at completion was likely to be about \$584 million without an allowance for risks and uncertainties and about \$596 million with such an allowance—increases of \$28 million and \$12 million, respectively, over our previous estimates. We also pointed out that a number of uncertainties, such as the possibility of further delays associated with the CVC's fire alarm system, could affect our estimates.

¹²AOC estimated the additional delay-related costs for budgetary purposes only and did not provide for possible concurrent delays.

¹³Public Law 108-447, enacted on December 8, 2004, provided that up to \$10.6 million (reduced to \$10.5 million by a subsequent budget rescission of \$84,000) could be transferred from AOC's Capitol Building appropriation account for the use of the CVC project. The use of the amount transferred is subject to the approval of the House and Senate Committees on Appropriations. AOC has now received approval to obligate the entire \$10.5 million.

likely need additional funding in fiscal year 2008 to replenish these funds and to cover certain additional costs if they materialize.

Mr. Chairman, this completes our prepared statement. We would be pleased to answer any questions that you or Members of the Subcommittee may have.

APPENDIX I. CAPITOL VISITOR CENTER CRITICAL CONSTRUCTION MILESTONES, SEPTEMBER-NOVEMBER 2006

Activity	Location	Scheduled completion	Actual completion
Install wood ceiling panels	Orientation Theater	10/13/2006	¹ 10/24/2006
CONOP matrix	Fire alarm system	10/30/2006	(²)
Flush steam piping	HVAC Steam	10/23/2006	10/31/2006
Relocate kitchen exhaust duct	Food Service	10/23/2006	(³)
Set cab shell/control panel	Elevator VC #17 East Front	10/25/2006	(⁴)
Dismantle scaffold	Orientation Theater	10/27/2006	⁵ 10/24/2006
Finish paint	Food Service	10/30/2006	⁶ 11/6/2006
Ceiling fabric	Congressional Auditorium	10/30/2006	⁷ 11/15/2006
Plaster Ceilings	West Lobby & Assembly	10/31/2006	(⁸)
Install marble wall stone 1st Third	Exhibit Gallery	11/7/2006	(⁹)
Resubmit Riser Diagram	Fire alarm system	11/9/2006	11/9/2006
Wall stone Area #1	East Front Principal	11/10/2006	(¹⁰)
Interior cab finishes	Elevator VC #12 Orientation Theater	11/10/2006	(⁴)
Fabric Ceiling Panels	West Lobby & Assembly	11/14/2006	(¹¹)
Hang Drywall Bulkheads	Orientation Lobby	11/14/2006	(¹²)
Mechanically Ready	Great Hall AHU # 3 & 16	11/15/2006	¹³ 11/15/2006
Floor stone	Orientation Lobby	11/15/2006	¹⁴ 11/15/2006
Wood wall panels	Congressional Auditorium	11/15/2006	(¹⁵)

¹ While the ceiling has been completed, the blistered panels will need to be repaired or replaced.

² Continuing efforts are being made to understand and develop the sequence of operations (CONOP) matrix requirements. The matrix must be approved by December 8, 2006, to avoid an impact on the critical path.

³ Enough of the ductwork has been relocated to allow hood installation to begin. Currently three of the six hoods have been installed. The balance of hood installation is scheduled to be complete by November 24, 2006.

⁴ Control panels are set and operational. This activity included setting cab shells without finishes. The cab vendor decided to prefinish the cabs rather than to finish the shells on site. Finished cabs are on site and preparations are being made for installation this week.

⁵ While the scaffold for ceiling installation has been removed, scaffolding has been erected along the walls in the south theater to install wood panels. This scaffolding will affect installation of the stone stair steps.

⁶ This work is essentially completed.

⁷ Ceiling panel installation began on November 9, 2006.

⁸ Plaster ceilings have been completed in the main lobby area and south assembly room. Hanging of the north assembly room ceiling began on November 7, 2006.

⁹ Installation of the unistrut framing was delayed because of structural design concerns. Additional cross bracing was added to stiffen the assembly. Wall stone installation is to begin this week.

¹⁰ The work has been delayed because structural steel was added to support the metal stud wall at the east side of stair #37. Upon the completion of metal stud wall, the stone work is scheduled to begin. The revised start date for wall stone on the principal level is November 30, 2006.

¹¹ Fabric ceiling panel installation has been delayed because of delays in necessary preceding East Front work—completion of the East Front archway stone, ceilings, and escalator installation. Installation of the fabric panel currently cannot be completed until the escalator trusses are set to clear the floor area. Setting of the trusses is currently projected to be completed by the end of January 2007.

¹² Because of above-ceiling conflicts, the work was resequenced to allow the floor stone installation to proceed ahead of the ceiling work. Hanging of bulkheads started in the south screening area on November 2, 2006 and is expected to be completed in November 2006.

¹³ Mechanically ready priorities have been resequenced. AHU #1 has been switched with AHUs #3 and 16, which are now scheduled for November 15, 2006. AOC's construction management contractor believes that this activity is essentially complete. AHU #1 is now scheduled for December 6, 2006.

¹⁴ The sequence 2 and construction management contractors expect this work to be essentially completed by close of business today.

¹⁵ The start of wood panel installation is pending humidity control within the space.

Source: AOC's September 2006 CVC sequence 2 construction schedule for the scheduled completion dates and AOC and its construction management contractor for the actual completion dates.

Senator ALLARD. Thank you both for your testimony.

COMPLETION DATE

What is the current scheduled completion date, Mr. Ungar?

Mr. UNGAR. It's—October 2007 is the scheduled completion date for the project.

Senator ALLARD. October 1?

Mr. UNGAR. No, sir, October 26, I believe. And that does not include, by the way, time to install the artifacts in the exhibit gallery because they have to wait for a certificate of occupancy.

Senator ALLARD. So visitors may very well not be able to visit until the year 2008?

Mr. UNGAR. That's correct. If the team is not able to—well, let's put it this way. If the team is not able to meet the schedule, if they can't control the slippages, it's unlikely that they will be in before 2008, early 2008.

Senator ALLARD. What's the length of time from the original scheduled completion date?

Mr. UNGAR. Well, it was September 17, 2006. It would be almost 2 years behind.

Senator ALLARD. I think 2005.

Mr. UNGAR. If you go back to the original, if you have to—back then, actually it was supposed to be ready for the inauguration of 2005, I believe. That was the original date but I think everybody acknowledged that was a little unrealistic and then they've had successive, if that's correct, dates since then.

HVAC SYSTEM

Senator ALLARD. You talked about this one persistent problem with the heating and air-conditioning system but you weren't specific as to the problem. Could you elaborate on what that is?

Mr. UNGAR. Yes, sir. I'll turn it over to Mr. James. I just want to mention, one of the issues has been an alignment issue with one of the units and they had to do some remedial work. Maybe Mr. James, if you'd like to just briefly explain what that is? We'll make him earn his keep today.

Senator ALLARD. Mr. James.

Mr. JAMES. Unit number 3 did not have the louver from the plenum aligned with the unit and when we went down there this morning, they had knocked the louver out of the wall and had to move it over 2 feet. Apparently, that issue, they knew about it for quite a while.

Senator ALLARD. We have 23 HVAC units?

Mr. UNGAR. In the building, yes, sir.

Mr. JAMES. And this is one there that we've known about for some time but they just haven't bothered to make the adjustment until just recently. Was there an explanation given as to why that wasn't addressed earlier on?

Mr. HANTMAN. I'm not aware of why we didn't do it.

Mr. UNGAR. Mr. Hixon may be able to—

Senator ALLARD. Mr. Hixon, do you have a response to that?

Mr. HIXON. No, sir. I don't know why they didn't choose to make the correction required for that particular unit. It is something that we have known that needs to be done. It's just something they had not felt necessary to correct until this time.

CONTRACT COMPLETION DATE

Senator ALLARD. There doesn't seem to be any accountability and all of a sudden, they're not paying attention to deadlines. Are you trying to address that, Mr. Hixon? Or Mr. Hantman? It's a serious problem.

Mr. HANTMAN. The issue is to try and achieve a commitment from the contractor. Contractually, the problem for us is the contractor has a contract completion date of September 15, 2006, currently and that is based on the 10-month extension because of the delay in starting the work, so the duration of the contract, of 22

months, remains the same. They started November 2004 instead of January 2004 and went to September 15.

The next issue is, there have been changes, a lot of changes to the contract, and the contractor is entitled to some time on some of those changes. He is required, under the contract, to provide a request for time extension and provide the justification for it. There have been so many changes that he has not completed the development of the schedule data required in order to support those time extensions. He is working on it but he has not completed it yet. This is something we've been pressing on but we have not yet received the data in order to analyze it and determine for each change order, how much time he is entitled to.

Once we receive that and complete the analysis, we will be able to document exactly how much time is added to the contract and what the new completion date would be. It's not unusual on a major project to have the resolution of the time lag the construction. So you end up focusing more on what date you should be finished on and that's been the effort we've been going through recently, which is looking at a January completion of the CVC, trying to get things done in January for CVC; February in the expansion space, and because of the delays in the east front, March with the east front work.

Thereafter, we have the fire alarm acceptance testing, which starts in May, when the pretesting is finished, based on the current schedule of activities. That would allow the fire marshal to do their completion.

All of these activities, while they are delayed and we don't want them delayed, are not yet pushing out the completion as much as the fire alarm system has pushed out the completion. We still don't want the delays on this work. We're still targeting to try and be done, as I said, with the CVC and the expansion space and the east front so that work is all completed.

Senator ALLARD. Let me ask Mr. Ungar and you Mr. Hixon, this question. Could they be moving faster?

Mr. HIXON. The real issue on that is the contractor is moving as quickly as he feels is necessary, based on his contract. We have also accelerated—

Senator ALLARD. But based on the needs of the project—just based on his control?

Mr. HIXON. Well, under the terms of the contract, he is to work an 8-hour day, a 40-hour week, and plan his work to take place during the duration of the contract. When we add work, you recall, that we've added about 80 percent of work to the contractors' scope of work. So we've not quite doubled the contract and we were trying to get it done within almost the same 22-month duration. If he finished three months after—if he finished in December instead of September, we will be having him complete in 25 months instead of 22 months, a 3-month extension, another 80 percent of the work, which would be pretty phenomenal. So what we've been all struggling to do is try and get him to complete a whole lot of additional work and do it as close to the original timeframe as possible. So there is clearly time entitled—the contractor is entitled to some time. There are clearly some delays on his part. There were some delays caused by the Government and we need to reconcile those.

If we want him to work double shifts, for example, in order to complete quicker, we would have to pay him to do that. We are paying selective overtime in areas where we think it will be beneficial to the project but, as GAO has stated in previous testimony, you need to be prudent about paying for overtime so that you're not spending a lot of money and not gaining much from it.

The key issue is there's an awful lot of added work to the project that this contractor is supposed to accomplish. We're all pressing to try and get him done as quickly as possible. If he finishes in March, which would be 6 months added to his 22-month contract and we've added 80 percent in scope to his contract, that's a lot of added work to only have a 6-month time extension. I think that's where he is. He feels that he is entitled to that time and we really are sympathetic that he is entitled to some additional time to his contract.

Senator ALLARD. Mr. Ungar, would you agree?

Mr. UNGAR. Parts of that, yes. Most of it—I think we have a slightly different perspective although I'm not saying Bob is not correct, we just have a slightly different angle to look at that. One thing to say is that we have been talking for some time about the issue of having a realistic schedule and we have raised this over and over again. In fact, we've asked the sequence 2 contractor more than once, is this a realistic schedule? Can you do this schedule? And he keeps saying, yes, he can. Despite the nearly \$100 million in additional work, he's been consistently saying he can. We've been consistently saying it's not realistic, it's not doable—you're not doing it—you know, as a matter of fact. So one question, let's get a realistic schedule. Now, we were thinking we were close to that at this point and it wasn't too long ago that I think you called Mr. Baker up to the table and he said he would make it.

And one of the problems there has been, in our view, even though a lot of meetings and discussions take place, up until recently, the team has not focused on the schedule. It just has not come up as a major focus during the meetings that take place, at least that we attend. And so without the team focusing on that, it's not going to be met.

Now, the other issue I mentioned was effort and it's certainly the case. There are a lot of people working at the site. So there is effort being applied. One dilemma is, is it enough to meet the schedule? And there are some areas where that hasn't been the case. One is the air handling units, where there just clearly has not been, with respect to the units themselves, sufficient effort applied to get them finished. There has been some progress but that's just a people power issue that's under the control of the subcontractor.

Now, there are other problems that come in here that would impede the operational readiness of these units and that's not necessarily all that subcontractor's issue. It's up to the sequence 2 contractor to coordinate all this work and that's the area that we're saying really needs to be focused on right now.

But there are other areas where effort is an issue. For example, the bronze doors that go into the facility. They are way behind schedule. Now that's an offsite issue where it has taken much longer to fabricate those doors than required. So there is a combination of factors.

The last thing is, I think, a factor that's really affected the schedule significantly in many different areas, and that is how much time it takes to resolve problems. I think there have been many, many problems that have come up and just lingered. Just like the one we talked about and we've talked about others here before, the kitchen hoods that they are having difficulty getting installed. There are many, many of these problems and a problem is identified and every week there is discussion about it but there is no fruition. They don't come to fruition. It seems to be due to a lack of focus on getting the problem corrected, a lack of assignment of responsibility and a lack of tracking. It's not that the problems aren't solvable but there are a lot of people that have to be involved and it's just not moving quickly.

The east front is a good example. There has been little progress in the east front because of some problems and this issue has lingered and lingered and lingered. So a few weeks ago or maybe 1 month ago now, we were assured all the problems were resolved and the installation of wall stone will begin. It hasn't begun yet on the upper two levels, at least as of last week.

So again, if the team cannot get these problems taken care of, they are going to be in a real world of hurt when it comes to meeting the schedule. A longer answer than you wanted but—

Mr. UNGAR. Yeah. I'll give our opinion. Maybe Mr. Hantman and Mr. Hixon have a different one but I think it's just a lack of focus.

SUPERVISORY TEAM

Now, one issue related to that that we have been nervous about for some time is as Mr. Hixon said, the value of the sequence 2 contract has grown significantly since it was originally awarded, almost \$100 million. But what we hadn't seen until recently was a significant increase in the supervisory team, with the sequence 2 contractor.

Now recently, they've added five additional superintendents with responsibilities for specific areas. We felt that the superintendent that they have, their overall superintendent, is a very conscientious individual; he works very hard. But the scope of this work has just increased significantly and hopefully, with the addition of these folks—that will help. But again, it gets to focus. You know, let's get some resolve and get the people together and get the problems resolved. But Mr. Hixon may have another—

Senator ALLARD. Mr. Hixon.

Mr. HIXON. The addition of the superintendents by the sequence 2 contractor, I think, is a big help to us. I think it is really an issue of having enough people that you can deal with all the issues that are going on. If you're trying to put out fires down in the security lobby and you've also got fires in the east front, as far as issues that need to be resolved, then you can't be in both places at the same time.

The addition of these superintendents—there is a separate superintendent for the east front now, focused exclusively on that work. A great deal of his effort has been up on the fourth floor, where we're doing that work in the east front, as well as what goes on at the principal levels. There were issues that were resolved primarily with ductwork routing and then it went on to stone work

and the mounting of the stone on the principal level and the gallery level.

There also have been some schedule sequence issues, where the gallery stone has to wait on the principal stone because you run it up the full height of the wall. These schedule meetings that we're having on Thursdays are bringing these issues out and even though it is late in the game, at least they are being brought out now so they can be resolved. But that's—there are those coordination issues and I think it's—I don't think it's a matter of lack of effort, I think it's a matter of resources being available to devote to doing this.

This is a very complicated project. Some areas are being finished up. Some areas are lingering because the resources weren't being applied to that particular area while they were being used to solve more critical areas. The CVC—we keep pushing hard on that one so I think some of the resources that needed to be applied to the east front were focused in the areas we were pushing on.

I think we've got more people involved now. There is a much more conscientious effort about the schedule. We're trying to complete the development of a schedule for each area, the critical elements in each area so we can review those on Thursday and just keep running through those and say, okay, this is what is supposed to have happened, if it hasn't happened, why not? What's in the way of making this happen? We've got the superintendents involved in the meetings, not just the management for the team, so we're getting some good input from those folks on what's not happening and why it isn't happening.

COMPLETION DATE

Senator ALLARD. In light of the testimony from Mr. Ungar, do you believe that the Capitol Visitor Center is going to be ready by early 2008?

Mr. UNGAR. As we discussed, Mr. Chairman, with the riser diagram situation in hand now and the electrical contractor beginning his work in earnest in terms of the installation of all its major conduits and cabling. We just got a schedule from him, which is built into this new schedule that we're talking about right now. That schedule talks about him doing his installation work for all of his cables, and devices for fire, life safety, and security systems and pretesting that and having that finished, I believe it's in May 2007, which would then allow the fire marshal to continue his work. We just got that schedule from them. Was it a week and a half ago, Bob?

Mr. HIXON. That's correct.

Senator ALLARD. So he'll have his work done in May. When would be the opening date, do you think, for the Capitol Visitor Center, in light of that?

Mr. HIXON. I think the perspective is that we've got a lot of work to be done, mechanical work that Mr. Ungar was talking about, that is committed to be wrapped up by the end of next month. That's 6 weeks from now. They've got to be ready for commissioning to start. They are committed to being done, from the top management of that firm. We've got the CVC areas, the food service, the orientation theaters and those that should be done by the

end of January. We have had slippages but we're getting to the end of the work that needs to be done in these areas. The big driver is going to be the fire alarm system. It has been now since it was revised in May and so, as a consequence of that, we expect that the pretesting will start in January. They will be finished and ready for the contractor—the AOC to begin life safety acceptance testing in May. That's the key element for us, is getting the fire alarm system components here, getting them installed, and going through the pretesting and the acceptance testing.

We've had discussions with the fire marshal about being involved in the pretesting so that they can see how the contractor is doing this, to try and avoid problems during the acceptance testing process. The duration of the expected life safety acceptance testing is reflected in that schedule that has the completion done in October. Of course, we have not—we won't know for sure if there are any issues until we actually start the testing of the system.

Senator ALLARD. You're talking about October 2007?

Mr. HIXON. That's correct—2007, yes, sir.

ACTION PLAN

Senator ALLARD. Okay. On the action plan, as we directed from the last hearing, you submitted that action plan and I appreciate that. What actions in this plan really represent a change in project management?

Mr. HIXON. There are three primary items that have changed. There are a number of other issues that we're doing as well but the three primary items are the Thursday schedule meeting reviews, which start around 1 p.m. and typically go to about 3:30 p.m. We're running through each area with the contractor, looking at what are the critical items in food service, what are the critical items in the orientation theater, and running through that with the sequence 2 contractor, the construction manager, and the superintendents from both of these groups so that we're all sitting around the table, looking at the schedule to see if the schedule is realistic, if there is something that can be done to improve it, to try and make sure we achieve these dates we talked about for January, February, and March.

There are site tours that are taking place on Wednesday and Friday with the Architect, where he is walking through in the field with the contractor's personnel and their subcontractors, resolving field issues on the spot. They are being documented and the contractors now have direction rather than waiting on the formal paperwork to flow through, to ask a question and then, ultimately, get an answer. So those are being managed every week they generate the questions. They walk through, resolve those and then document what the answers are.

The third item is the tie-in of the sequence 2 award fee to meeting the milestones. We have submitted that out to the contractor for signature. He has not signed it yet but we're looking to lock in those dates for the completion of the CVC areas by the end of January in order to receive the award fee.

Those are the three primary elements. There are a number of others but those are the three primary ones.

Senator ALLARD. Mr. Ungar, you've had a chance to review that action plan, I assume?

Mr. UNGAR. Yes, sir.

Senator ALLARD. Are there any actions you believe the AOC needs to take that are not identified in the action plan?

Mr. UNGAR. Mr. Chairman, the one action that comes to mind is to deal with this question of the contract completion date and I can understand why AOC didn't put that in the plan but it is very important for AOC to carefully consider this issue and take appropriate action that would facilitate getting the project done on schedule without incurring any unnecessary risk to the Government that could take place there. So that would be the action that isn't in the plan and other specific action—I know you sense some frustration here on my part—is to make these milestones meaningful and important. The air handling unit one this time was specifically selected because of the importance of these air handling units to the rest of the project. If they don't improve the situation and have this same situation reoccur with the rest of the air handling units, they're going to have big problems.

FIRE ALARM SYSTEM

Senator ALLARD. The fire alarm system continues to be problematic. An agreement has not yet been reached on a number of system elements. Mr. Hantman, do you believe the significant delays in the fire alarm system are behind you? Why hasn't the design for the CVC fire alarm system been settled a long time ago?

Mr. HANTMAN. As Mr. Hixon indicated before, the changes that resulted from the CON OP plan in May of this year really threw a big loop in everything that had been planned prior to May of this year. The incorporation of all of these changes, the security issues laid on top of the fire and life safety issues, those necessitated the total redesign of the riser diagram. In fact, there are more central controllers. There are six controllers now, as opposed to two or three as we originally had because of the changes and the integration of security in it. That was the major stumbling block that has caused this project to slip in this last year.

With that now resolved, the fire alarm riser diagram has basically been approved—there still needs to be a couple of fine tweakings made on that. That allows the contractor to go ahead and start installing his thousands of items and devices in the ceilings, the walls, and the doors.

With that under our belts, the matrix, which indicates what happens if this alarm goes off or that door closes and what happens at each—in terms of reaction from a fire perspective, from a safety perspective. That's the next thing that's under review right now. In fact, there was a meeting on that this morning. A lot of progress was made and we're expecting that to move ahead, which will allow the fire controls person to do the programming for all these thousands of devices.

So a lot of progress has been made. Those were the two major issues. Bob, any more thoughts?

Mr. HIXON. No, I think that summarizes it.

COST ESTIMATE

Senator ALLARD. On the additional costs, 2 months ago, the minimum estimate was \$584 million. Now we're up to a minimum of \$592 million and most likely over \$600 million. How could the cost grow so much in just 2 months?

Mr. UNGAR. Do you want me to?

Senator ALLARD. Yes, why don't you, Mr. Ungar. Or Mr. Hixon.

Mr. UNGAR. It is somewhat unbelievable, Mr. Chairman. What drives this are really two things. One is, the 6-week delay due to the fire alarm system and that is an AOC estimate. Now that makes the assumption that the Government is responsible for that entire amount but for a budgetary purpose, that's the assumption that's been made.

So when you have a 6-week delay of the project at a very high cost per day, given the number of people who are working, that's a lot of money.

Senator ALLARD. How does the Government get blamed for that delay? Was there a committee that had oversight that wouldn't make a decision? Or was there a Government employee that didn't move when they should? Do you want to explain that?

Mr. UNGAR. I'll try. We're not saying the Government is definitely responsible. That's the assumption we're making for budgetary purposes. That determination has to be made down the road but when you have this kind of a delay and you're trying to figure out how much money we are going to need, for this purpose, we're assuming that the Government would be the responsible party.

Now, one thing that could happen here is that there could be concurrent delays during this period, which would mean that maybe the Government wouldn't be responsible for the whole amount and that has to be sorted out. That's what Bob Hixon was referring to, about working with the contractor to align these things and that's what Mr. James has been saying almost since the day he came here. It's very important for AOC and the construction management contractor to have good information on the delays and their causes. That has to be determined. But that's the major reason for part of the increase.

The second part has to do with changes and there have been some significant changes that were identified during this period and one of them alone that I mentioned was estimated into the hundreds of thousands. So when you put them all together, it adds up. But it's very expensive for the number of cases, to do some of this work.

So when you put all those things together, it would be changes since the last hearing and these additional delays. It's very costly, potentially.

Senator ALLARD. Could you summarize the reasons for the recent delays?

Mr. UNGAR. It took longer to get the fire alarm design approved than was initially anticipated. It was initially anticipated that it would be approved earlier and it just took longer than was expected. There were a number of reasons for that. The subcontractor dealing with that did make a submission. It was found not to be, in the view of the fire marshal, consistent with code. Then they had

a little bit of a problem, apparently a miscommunication that took place. That consumed some time. So by the time all this was done, you lost 6 weeks and we are where we are.

PEER REVIEW PANEL

Senator ALLARD. Mr. Hantman, you're suggesting, if I understand it, a peer review panel assess the plans for testing the fire and life safety and air-conditioning and heating units. I understand that GAO has some concerns about it. Mr. Hantman, can you explain why you believe establishing such a panel might be helpful and then Bernie, maybe you could explain your concerns.

Mr. HANTMAN. In discussing this with GAO, the concept is going to the main industry source that has control over fire codes, which is the NFPA, and asking them a series of questions that relates to code interpretation.

One of the issues here, as I indicated in my statement, Mr. Chairman, is that there is no clear code that really addresses the issue of security, integrated with the fire and life safety issues here. We are kind of blazing new ground. So there are a variety of interpretations of what needs to be done and what the code requires from the fire marshal, from the electrical contractor, the controls contractor and other folks.

So this series of questions, that we are preparing to send to the staff of the NFPA Committee, that is responsible for the fire code, hopefully will give us a sense of what they think is an interpretation of the code. This would give us further information to at least understand what we are owed, essentially, by the contract because it is a code-related situation. If there are differences of opinion with the contractors in terms of what is an extra or what is required to be redone as opposed to what they owe us according to code, this would help us refine that and better understand that.

The issue of going to a peer review panel will be decided once we get the answers to these questions back and we see what the answers are basically telling us and what might need further refinement.

Senator ALLARD. Mr. Ungar.

Mr. UNGAR. Yes, Mr. Chairman. We have two concerns about this that we have discussed with Mr. Hantman. In fact, he—I think in consideration of our concerns, I think he did agree to go to the association first. But the first one is, we are concerned about the necessity, if there is such a panel, to make sure that the individuals are very highly qualified and knowledgeable and experienced about this situation here that we're dealing with people at least as qualified as the current fire marshal.

That's very important as well as that they are going to be objective. If they are all fire marshals, that's one thing. If they are consultants, that's another. Do they have any thoughts, perhaps, of working for AOC or have they worked for AOC in the past? So we're concerned about the qualifications and the objectivity of these folks.

But second, the other issue is what happens if there is a disagreement between this panel and the fire marshal? It puts AOC and the Congress and our review in a very difficult situation down the road, in terms of the issuance of a certificate of occupancy and

other issues that might come up. So while a panel may be an appropriate measure, conceptually, it probably would have been much better a year or two ago than now.

Then also, another consideration is to work with the fire marshal and this has already started, to see what can be done to facilitate getting the testing done quicker. I know he is very careful and he is very concerned about making sure it's done right because of the complexities of the system and the nature of this facility and so forth, but he has agreed to have his team and his contract help work more than the typical 8-hour day, 5 day a week workday. So there may be some opportunities to expedite the testing. I know he wants to be very thorough but that might be a safer course of action than trying to set up a controversy between parties.

Senator ALLARD. Thank you for your response. Mr. James, this is your first testimony before this subcommittee but you've been involved in the oversight of the project for some time, I understand.

Mr. JAMES. Yes sir, about 3 years.

Senator ALLARD. You've had a pretty long career in managing large construction projects. What do you see as the major causes of the ongoing construction delay and if you were in charge, what would you do first to get us back on track and to assure completion on schedule?

Mr. JAMES. Yes, sir. I believe we probably already addressed some of the issues but as far as delays, for recent delays, I believe there are three primary ones and that would be slippage in the fire alarm submittal activities, such as the riser diagram and the CON OP matrix. Activities are slipping because the CVC team is unable to resolve the problems quickly, as we have talked about. And as Bob talked about, the continued issuance of changes to the contract.

As far as steps to curtail that, I believe that you would have to, again, create a sense of urgency and I personally believe they need to establish some sort of firm and realistic contract completion date and work that process out.

Second, they need to focus on the critical activities, such as fire alarm, the HVAC system, and also the east front. All three of those are very critical.

Then the third step is to just really pursue resolving the issues quickly and they really need to concentrate on that.

LESSONS LEARNED REPORT

Senator ALLARD. Thank you. Mr. Hantman, several months back, we discussed a lessons learned report and I'm hoping that you can get that to us before your retirement. What has gone well as far as the project is concerned, what have been problems, because you're the one that has had overall responsibility for this?

I hope you have time between now and your scheduled retirement date to get some kind of report to us. I'd like to have it available so that if we deal with future construction projects of a large magnitude like this, that these lessons don't get lost. Perhaps we could learn something from what we've experienced here. Do you think you can have that ready for us?

Mr. HANTMAN. We're beginning to work on that. There was a meeting with GAO, trying to look at the table of contents, and the

issues to be discussed. I think there is agreement that there will be a joint interview of people on the project so that GAO and the AOC can hear what their opinions are, what the issues are, much as you just asked for Mr. James his opinion. I think we'll look forward to doing that jointly and then we'll see whether or not we come up with matching opinions in some instances, and perhaps some supporting opinions and divergences as well.

Senator ALLARD. That would be helpful if you could do that.

Mr. HANTMAN. Yes, sir.

CONCLUSION OF HEARINGS

Senator ALLARD. Thank you. This concludes today's hearing. The subcommittee stands in recess subject to the call of the Chair.

[Whereupon, at 3:38 p.m., Wednesday, November 15, the hearings were concluded, and the subcommittee was recessed, to reconvene subject to the call of the Chair.]

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