

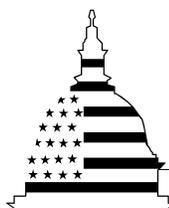
GAO

Correspondence to the Ranking Member,  
Committee on Foreign Relations, U.S.  
Senate

July 2009

# UNITED NATIONS

## Renovation Still Scheduled for Completion in 2013, but Risks to Its Schedule and Cost Remain



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# Highlights

Highlights of [GAO-09-870R](#), a report to Ranking Member, Richard G. Lugar

## Why GAO Did This Study

In 2008, the United Nations (UN) began construction associated with its Capital Master Plan (CMP) to renovate its headquarters complex in New York City. As the UN's host country and largest contributor, the United States has a substantial interest in the success of the CMP. In this requested update, GAO reviewed the following key areas: schedule, cost, funding, risk management, procurement, and oversight.

To perform this work, GAO reviewed UN documents and met with officials from the CMP office and other UN departments. GAO also reviewed select CMP schedules to assess the extent to which they met best practices for scheduling contained in GAO's *Cost Estimating and Assessment Guide*.<sup>1</sup> To assess oversight and monitoring, GAO reviewed UN documents and oversight reports and interviewed officials from the UN's Office of Internal Oversight Services and officials from the U.S. Department of State (State).

<sup>1</sup>GAO, *GAO Cost Estimating and Assessment Guide: Best Practices for Developing and Managing Capital Program Costs*, [GAO-09-3SP](#) (Washington, D.C.: March 2009).

## What GAO Recommends

The Secretary of State and the U.S. Permanent Representative to the UN should work with other member states to direct the CMP office to implement the best practices for scheduling contained in GAO's *Cost Estimating and Assessment Guide*, to the extent practical for the CMP. State and the UN generally agreed with GAO's findings and recommendation.

View [GAO-09-870R](#) or key components.

For more information, contact Terrell Dorn at (202) 512-6923 or [dorn@gao.gov](mailto:dorn@gao.gov) or Thomas Melito at (202) 512-9601 or [melitot@gao.gov](mailto:melitot@gao.gov).

## UNITED NATIONS

### Renovation Still Scheduled for Completion in 2013, but Risks to Its Schedule and Cost Remain

#### What GAO Found

**Schedule:** Despite delays in starting construction, UN officials still expect to complete the project in 2013. The likelihood of meeting this date will be clearer once detailed schedules for the renovation work are finalized as part of the contracting process. Contracts have been awarded for the Temporary North Lawn Building and one of the six buildings to be renovated and contracts for two more buildings are expected to be signed later this year. The CMP's integrated master schedule and the subschedule GAO reviewed met, to some extent, most of nine scheduling best practices. The UN has not formally analyzed the risks to either schedule to quantify their potential impact on meeting the project's completion date.

**Cost:** The CMP's estimated cost is \$97.5 million over its \$1.88 billion budget, down from \$190 million over budget in April 2008. CMP officials are optimistic about further reducing the cost, in part because of the recent downturn in the economy. However, member states are considering whether to add up to \$206.6 million in related costs to the CMP. This would include \$186 million in associated costs, such as furniture and equipment, and \$20.6 million for a secondary data center. Some of these related costs are currently being paid from the CMP budget.

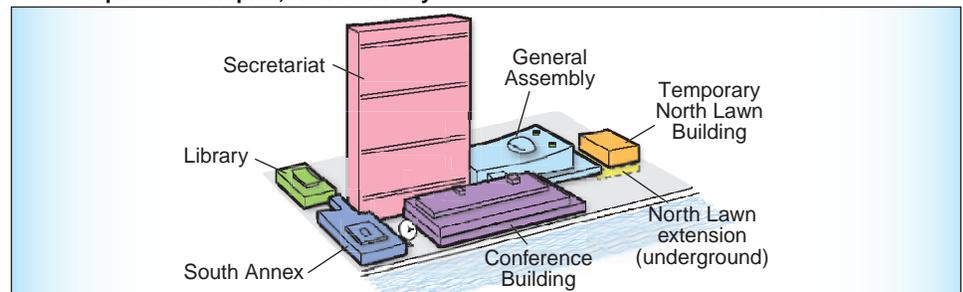
**Funding:** Member state payments are on track and CMP officials expect the payments to cover renovation expenditures through 2011. However, CMP officials project funding shortfalls in 2012 and 2013 if the current budget overrun is not resolved and the General Assembly decides that the \$206.6 million for related costs will be absorbed into the existing CMP budget.

**Risk management:** The CMP office and its management consultant continue to assess risks to the project, resulting in an annual risk register, which identifies risks and mitigating strategies. The ability of the CMP office to complete the project within the original budget of \$1.88 billion and the timeliness of the contracting process remain high-risk areas.

**Procurement:** The UN has awarded contracts for 8 of an expected 22 contracts to the construction manager. It also reviews the construction manager's subcontracting process. The CMP office expects U.S. workers to provide most of the on-site labor for the renovation.

**Oversight:** OIOS continues to monitor the CMP, has issued reports, and plans annual reviews of security-related issues. According to OIOS, it has enough staff to perform the work. State also monitors the CMP.

UN Headquarters Complex, New York City



Source: GAO and United Nations.



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United States Government Accountability Office  
Washington, DC 20548

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July 30, 2009

The Honorable Richard G. Lugar  
Ranking Member  
Committee on Foreign Relations  
United States Senate

Dear Senator Lugar:

In 2008, the United Nations (UN) began construction associated with its Capital Master Plan (CMP) to renovate its headquarters complex in New York City. Built in the early 1950s, the UN headquarters complex does not conform to current safety, fire, and building codes or meet UN technology or security requirements. In December 2006, the UN General Assembly adopted a resolution for the CMP, a comprehensive renovation of the entire complex, and approved a \$1.88 billion budget and a schedule with a completion date of 2014 for the project.<sup>1</sup> The scope of the project includes the renovation of the buildings within the UN complex, constructing a temporary building on the UN headquarters grounds to house General Assembly meetings and conferences, and the cost of off-site leased office space that staff will occupy during the renovation. As the UN's host country and largest contributor, the United States has a substantial interest in the success of the CMP.

Since 2001, we have periodically reviewed UN efforts to develop and implement the CMP, prepare schedules and cost estimates, and provide oversight. In June 2001 and May 2003, we reported that the UN's renovation planning efforts had been reasonable and conformed to leading industry practices.<sup>2</sup> In November 2006, we reported that UN officials continued to use leading industry practices to develop the UN headquarters renovation project, but that the renovation could become vulnerable to UN procurement weaknesses that we had previously identified. In addition, we reported that the UN Office of Internal Oversight Services (OIOS) relied on funds from the CMP budget and must negotiate for those funds with the UN budget office, a fact that may impair its independence.<sup>3</sup> In February 2007, we

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<sup>1</sup>United Nations General Assembly, *Resolution Adopted by the General Assembly, A/RES/61/251* (New York, N.Y.: Dec. 22, 2006).

<sup>2</sup>GAO, *United Nations: Planning for Headquarters Renovation Is Reasonable; United States Needs to Decide whether to Support Work*, [GAO-01-788](#) (Washington, D.C.: June 15, 2001), and *United Nations: Early Renovation Planning Reasonable, but Additional Management Controls and Oversight Will Be Needed*, [GAO-03-566](#) (Washington, D.C.: May 30, 2003).

<sup>3</sup>GAO, *United Nations: Weaknesses in Internal Oversight and Procurement Could Affect the Effective Implementation of the Planned Renovation*, [GAO-06-877T](#) (Washington, D.C.: June 20, 2006), and *United Nations: Renovation Planning Follows Industry Practices, but Procurement and Oversight Could Present Challenges*, [GAO-07-31](#) (Washington, D.C.: Nov. 16, 2006).

provided information about the latest cost estimate.<sup>4</sup> In April 2008, we reported that by planning to renovate buildings in single phases, rather than in multiple phases as previously planned, the UN had accelerated its schedule and planned to complete the project by mid-2013.<sup>5</sup> We also reported that the project's total cost was \$190 million over budget.

You asked us to update our most recent report and provide information on the current status of the CMP. Accordingly, we reviewed the following key areas relating to the CMP: schedule, cost, funding, risk management, procurement, and oversight. The results of our work are contained in enclosure I. To perform our work, we reviewed relevant CMP documentation, including the schedule, cost estimates, information on payments made by member states, risk assessments, and contracts. We also interviewed UN officials in the CMP office and the procurement office. We also reviewed select CMP schedules to assess the extent to which they met best practices for scheduling contained in GAO's *Cost Estimating and Assessment Guide*.<sup>6</sup> To assess oversight and monitoring activities, we reviewed reports on the CMP prepared by OIOS and interviewed OIOS officials. We also interviewed officials from the U.S. Department of State (State) on its CMP monitoring efforts. We conducted this work from February 2009 through July 2009 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. Additional information about our scope and methodology is provided on the scope and methodology page of enclosure I.

### Agency Comments and Our Evaluation

We provided a draft of this correspondence to State, the UN Department of Management, and OIOS for their review and comment. State and the UN Department of Management provided written comments, which are reproduced in enclosures III and IV, and generally concurred with our findings and recommendation. They also provided us with technical suggestions and clarifications that we have addressed in this correspondence, as appropriate. OIOS stated that our correspondence was accurate and provided us with a technical suggestion, which we have incorporated.

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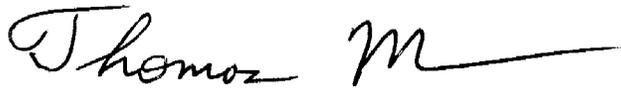
<sup>4</sup>GAO, *Update on the United Nations' Capital Master Plan*, [GAO-07-414R](#) (Washington, D.C.: Feb. 15, 2007).

<sup>5</sup>GAO, *United Nations: Renovation Schedule Accelerated after Delays, but Risks Remain in Key Areas*, [GAO-08-513R](#) (Washington, D.C.: April 9, 2008).

<sup>6</sup>GAO, *GAO Cost Estimating and Assessment Guide: Best Practices for Developing and Managing Capital Program Costs*, [GAO-09-3SP](#) (Washington, D.C.: March 2009).

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We are sending copies of this correspondence to interested Members of Congress, the Secretary of State, and the U.S. Permanent Representative to the United Nations. In addition, the correspondence will be available at no charge on the GAO Web site at <http://www.gao.gov>. If you or your staff have any questions about this correspondence, please contact Thomas Melito at (202) 512-9601 or [melitot@gao.gov](mailto:melitot@gao.gov) or Terrell Dorn at (202) 512-6923 or [dornt@gao.gov](mailto:dornt@gao.gov). Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this correspondence. Key contributors are listed on the scope and methodology page of enclosure I.



Thomas Melito  
Director, International Affairs and Trade



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Director, Physical Infrastructure Issues

Enclosures

# Schedule

## Renovation Approach

In December 2006, the United Nations (UN) General Assembly approved the renovation project's scope and set its budget at \$1.88 billion. As part of the Capital Master Plan (CMP), the UN will renovate the six buildings within its headquarters complex, including the underground extension that connects the buildings. In addition, the UN is constructing a temporary building on the North Lawn to house the Secretary-General and the functions normally housed in the Conference Building and the General Assembly during the renovation. To renovate the largest of its buildings, the Secretariat, the UN will move the approximately 2,600 staff who work in this building into leased swing space in three nearby buildings. Swing space refers to the space where UN staff and functions will be temporarily located during the renovation. The UN plans to dismantle the Temporary North Lawn Building as the last step of the CMP.

The CMP schedule has two tracks for completion: (1) renovating the Secretariat building and (2) renovating the Conference and General Assembly and other buildings. These two tracks will proceed concurrently but independently of each other; both are scheduled to be completed in 2013. Timely completion of the Secretariat's renovation is key to minimizing the amount the UN must pay to rent office space during the renovation. The lease for the swing space where most of the U.N. employees will be located during the renovation expires in January 2014.

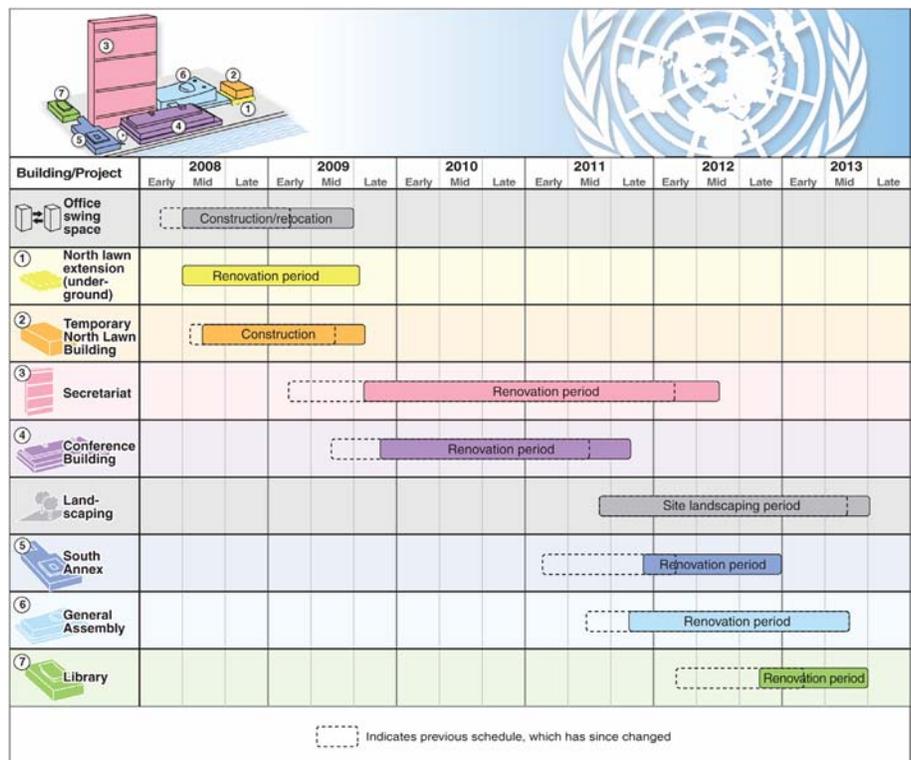
# Likelihood of Completing the CMP in 2013 Will Be Clearer once Detailed Schedules Are Finalized; Schedules, to Some Extent, Meet Most Best Practices

## UN Still Expects to Complete CMP in 2013, but Detailed Schedules Still to Be Completed for Much of the Work

Since our last report, in April 2008, the UN has begun constructing the Temporary North Lawn Building and made progress in preparing the office swing space. Although construction of the Temporary North Lawn Building started later than expected and the renovation of the Secretariat building is expected to start in late 2009—about 6 months later than originally scheduled—the UN still expects to complete the CMP in 2013.

The delays mean that UN staff started moving into office swing space during the summer of 2009, instead of late 2008, as originally planned. UN officials said the delays occurred because it took longer than expected to procure construction services. In addition, the UN changed the design of the Temporary North Lawn Building when, for security and traffic purposes, it was decided that the Office of the Secretary-General would be moved into this building during the renovation and to account for existing site conditions, such as the renovation of a sewage overflow pipe. The officials said they expected the renovation of the Secretariat to start in late 2009 and take less time than originally planned, thus making up for the delays. However, the construction contracts, which contain detailed schedules agreed upon by the UN and construction manager, have been awarded for two of the seven buildings shown in figure 1. The likelihood of completing the project in 2013 will be clearer once the schedules for the other five buildings have been finalized. Figure 1 shows the UN renovation schedule by building and year and compares it with the previous schedule.

**Figure 1: Schedule of UN Headquarters Renovation by Building and Year**



Sources: GAO and United Nations.

# Schedule

(cont.)

## Schedule Background

The CMP management consultant, Gardiner & Theobald, prepares and maintains the integrated master schedule. This schedule encompasses the entire project and shows the relationships between the various project components, such as the construction of the Temporary North Lawn Building and the renovation of the Secretariat. Gardiner & Theobald updates the master schedule using information from the more detailed subschedules for the project components. The construction manager, Skanska, prepares the project subschedules, which it develops as part of the contracting process for the project components.

## Guaranteed Maximum Price Contracts

To prepare the temporary space for staff and accomplish the renovation work, the UN is negotiating multiple construction contracts with Skanska. Each contract, referred to as a guaranteed maximum price contract (GMP), will encompass a specific body of work, generally associated with the renovation of different buildings, and includes a detailed schedule for the work. The CMP office expects to award a total of approximately 22 GMPs. A CMP official explained that once the UN and Skanska sign a GMP, Skanska subcontracts for the materials and services required to complete the work. Another CMP official stated that the GMP specifies a maximum price that the UN will pay for the work defined in the GMP. If the actual cost of this work is higher, Skanska absorbs the difference; if it is lower, the UN is charged the lower price. The UN is responsible for the cost of any work it requests that was not defined in the GMP.

## CMP Schedules Met, to Some Extent, Most Best Practices

In comparing the CMP integrated master schedule and a subschedule with the nine best practices for scheduling contained in our *Cost Estimating and Assessment Guide*, we determined that the two schedules met, to some extent, most of the best practices. (Encl. II provides detailed information about our best practices and analysis of the extent to which the CMP integrated master schedule and the subschedule we reviewed met them.) A schedule establishes a time sequence for a project and helps identify both major milestones and the activities that drive the schedule. The schedule provides not only a road map for systematically executing a project but also the means by which to gauge progress, identify and address potential problems, and promote accountability. As changes occur on a project, the schedule is updated and used to analyze the impact of the changes.

Both the integrated master schedule and the swing space schedule we selected for review appeared to capture the key activities that need to be completed. They also generally included information about the duration of the activities and identified the critical path, which represents the chain of dependent activities with the longest total duration. The critical path is particularly important to identify because any delay in activities on this path could delay the completion of the project. While the integrated master schedule identifies the key activities of the CMP, many of the time frames for the renovation work are not yet based on detailed construction information. As Skanska and the UN develop and approve additional GMPs, this detailed information will increase, providing more confidence that the project can achieve the scheduled time frames. The UN expects to award GMPs for the Secretariat and Conference buildings, two of the largest buildings being renovated, by the end of this year.

Although the schedules we reviewed captured the key activities and their duration, neither the CMP integrated master schedule nor the subschedule we reviewed included resource requirements for key activities. Identifying the required resources in the schedule can help ensure that these resources will be available when needed. In addition, the UN has not performed a formal schedule risk analysis, which would quantify the potential impact of the identified risks and predict the level of confidence in meeting the project's completion date. A schedule risk assessment recognizes the risk that schedule durations for individual activities may vary because of, among other things, limited data, optimistic estimating, technical challenges, lack of qualified personnel, and external factors (such as weather and funding). The assessment helps management focus on important risk mitigation efforts.

# Cost

## Cost Estimate Is \$97.5 Million over Budget, but \$92.5 Million Less than Last Year; up to \$206.6 Million in New Costs Could Be Added

### Reported Cost Estimate Is Still over Budget, but Some GMPs Have Yielded Initial Cost Savings

In its 2008 annual report, the UN reported that the CMP was \$97.5 million over its \$1.88 billion budget, down from the \$190 million over budget that we reported in April 2008. CMP officials are optimistic about being able to further reduce costs, in part because of the recent downturn in the economy, which has resulted in lower prices for some of the labor and materials. The eight GMPs that have been signed as of June 2009 were about 3 percent (\$13.6 million) under budget. Additional savings are possible, since the UN would receive the benefit if the actual costs of the subcontractors' work are lower than expected in the GMP. However, minimizing changes and cost increases to the project will be critical to realizing these savings for the overall project. Table 1 compares the 2007 and 2008 CMP cost estimates.

**Table 1: Comparison of 2007 and 2008 CMP Cost Estimates by Cost Category**

(Dollars in millions)

Cost category	2007 estimate	Changes	2008 estimate
Construction	\$964.6	\$68.3 2007 escalation 72.3 Other (4.1)	\$1,032.9
Professional fees and management	234.5	45.8 Value engineering 7.0 Redesign 16.0 Design changes 6.0 Project administration 6.0 Construction manager's fee 5.0 Other 5.8	280.3
Contingency/escalation	477.8	(242.60)	235.2
Temporary space	389.9	35.8 Increase in size of the Temporary North Lawn Building and security upgrades	425.7
<b>Total</b>	<b>\$2,066.8</b>	<b>(\$92.7)</b>	<b>\$1,974.2</b>

Source: United Nations.

The UN has changed its budget reporting by combining its cost estimates for contingency and escalation. Contingency is a reserve to account for unforeseen conditions and other changes that might arise during the renovation, and escalation is a reserve to account for the effect of inflation. While both categories are to account for uncertainties, combining them can reduce the transparency of how these funds—over 10 percent of the estimated project costs—are being used. According to the CMP Executive Director, these accounts were combined because there is now less uncertainty about the timing of the project and because risks have been reduced by having awarded contracts totaling about \$1 billion, about half of the estimated cost of the renovation.

# Cost

(cont.)

## Associated Costs Background

“Associated costs” refers to costs related to but not initially directly attributed to the CMP. Various UN program offices (Department for General Assembly and Conference Management, Department of Management, Department for Public Information, and Department of Safety and Security) developed the costs, which are for items such as furniture and equipment, information technology and communications services, archives storage, and temporary security staff. The largest portions of these costs are for furniture and equipment (about \$99 million) to be used in the renovated facilities, and security services at the swing space and the UN during construction (about \$39 million). Many of these items, such as the furniture and equipment, needed to be replaced or refurbished, regardless of the CMP. The UN originally intended to have these costs borne by the program offices through the regular budget process. In our June 2001 and November 2006 reports we noted that these costs were not included in the UN’s estimate.<sup>1</sup> These costs were not included in the CMP budget approved by the General Assembly in December 2006.

<sup>1</sup>GAO, *United Nations: Planning for Headquarters Renovation Is Reasonable; United States Needs to Decide Whether to Support Work*, GAO-01-788 (Washington, D.C.: June 15, 2001), and *United Nations: Renovation Planning Follows Industry Practices, but Procurement and Oversight Could Present Challenges*, GAO-07-31 (Washington, D.C.: Nov. 16, 2006).

## UN Has Not Conducted a Cost Risk Analysis

As mentioned in the schedule section, the UN has not conducted a formal schedule risk analysis, which would predict the level of confidence in meeting the project’s completion date. The UN also has not conducted a cost risk analysis to predict the level of confidence in meeting the project’s current budget. An integrated cost-schedule risk analysis, which recognizes the interrelationship between schedule and cost, would predict the likelihood of the project being completed on schedule and within budget.

## UN Has Not Resolved How to Fund up to an Additional \$206.6 Million in Related CMP Costs

The UN is considering whether to add up to \$206.6 million in costs—\$186 million in associated costs and \$20.6 million for a secondary data center—to the CMP. In April 2009, the General Assembly decided that the associated costs would be financed from within the approved CMP budget unless the General Assembly specified otherwise. The General Assembly believes that further cost reductions in the CMP can be realized in the current economic environment, enabling the CMP budget to absorb the associated costs. The CMP Executive Director said the CMP is carrying the associated costs for now, but he has informed the General Assembly that he is unsure whether the CMP budget can absorb these costs.

Questions have arisen about the appropriateness of including some of the associated costs in the CMP budget. The General Assembly’s Fifth Committee, which reviews administrative and budgetary issues, indicated in March 2009 that a number of the associated costs do not relate directly to the CMP, but rather are investment costs and long-term commitments. The UN’s Office of Internal Oversight Services (OIOS) has also raised concerns about the associated costs. In an August 2008 report, OIOS said it is necessary to determine which associated costs should be attributed to the CMP and which should be funded from regular departmental budgets. OIOS also indicated that associated costs should be funded by departmental budgets because they will be managed by departments that are independent of the CMP.

According to a CMP official, various UN program offices developed the estimated costs. In April 2009, the General Assembly requested that about \$30 million in associated costs for the 2008-2009 biennium be absorbed by the approved \$1.88 billion CMP budget. The CMP Executive Director said that some associated costs are currently being paid from the CMP budget. He also said that the 2009 CMP annual report will include a complete accounting of the commitment and expenditure of all associated costs.

In addition to considering the associated costs, the UN is considering adding most of the cost of establishing a secondary data center to the CMP (\$20.6 million of the \$25.7 million total). According to UN officials, the secondary data center is needed while the primary data center is moved from the Secretariat to the Temporary North Lawn Building and will serve as a backup system after the CMP is completed. In April 2009, the General Assembly adopted a resolution requesting that an initial \$5.1 million in funding for the secondary data center be absorbed by the approved CMP budget.

## Funding

### Funding Background

The General Assembly approved a strategy to assess member states for the cost of the CMP, under which they could choose to pay their assessment in a single lump sum or in equal payments over 5 years from 2007 through 2011. The General Assembly also approved a \$45 million working capital reserve to cover any temporary cash flow deficits. The 2006 CMP annual report stated that this reserve would be credited back to member states at the end of construction. Member states were assessed for the CMP in proportion to their regular UN budget assessment rate for 2007.

The United States chose to pay its assessment for the CMP in five equal payments of \$75.5 million per year starting in 2007.

## Member State Payments on Track; UN Expects the Payments Will Cover Costs through 2011

Member state payments are on track and CMP officials expect the payments to cover renovation expenditures through 2011, the last year contributions are scheduled to be paid. If the General Assembly decides that the CMP budget must absorb the related costs and CMP officials cannot reduce the currently projected cost overrun of \$97.5 million, CMP officials project a funding shortfall of \$101.5 million in 2012, growing to \$304.1 million in 2013. (See cost section above for more information on these costs and cost overruns.) If the CMP office cannot reduce the costs in its budget and absorb the related costs, it will have to request additional funding.

For 2002 through 2009, the UN assessed member states \$1.2 billion for the CMP. As of June 30, 2009, the UN had received \$1.1 billion, or 92 percent, of these assessments. Member states had an \$89.6 million outstanding balance through 2009, of which the U.S. share was \$75.5 million, owed for its 2009 assessment. The President's fiscal year 2010 budget request includes \$75.5 million for the CMP, which would fully fund the 2009 assessment.

# Risk Management

## The CMP Office Continues to Identify Risks and Strategies to Mitigate Them

### Annual Risk Assessment Identified Two High-Risk Items

The CMP office, working with its management consultant, continues to conduct yearly risk assessments of the project as a whole. The assessments culminate in an updated risk register, which identifies risks to the project's schedule and costs, and strategies to mitigate the risks. This risk register does not specifically quantify the potential impact of the identified risks. As part of the risk assessment completed in January 2009, individual CMP staff were assigned responsibility for monitoring specific identified risks, updating information related to these risks throughout the year, and providing guidance to the appropriate parties. This assignment of individual responsibility provides more assurance that specific risks are being monitored and increases accountability for risk mitigation.

We reviewed the risk register to identify those risks that were rated as high in 2009 and certain other risks that CMP officials had highlighted during our discussions. The 2009 risk assessment process identified two high-risk items, compared with eight high-risk items in 2007. One of the high-risk items identified in 2007 remained high, while the severity of the other seven was reduced. Project risks and their rankings can continually change. As work progresses and decisions are made, a risk may be eliminated or modified and other risks may be identified. The assessment report noted that the newly identified risks were generally related to construction activities. The two high-risk items were

- *Budget constraints.* The CMP budget is set at \$1.88 billion. The current project cost estimate is about \$97.5 million over this budget, and the costs of any delays must be funded from the approved budget. The UN plans to mitigate this risk by reviewing market conditions for possible cost savings, conducting an additional round of value engineering, and taking other actions.<sup>2</sup>
- *GMP approval time frames.* According to the UN, the schedule assumed that it would take 20 days to reach agreement on GMPs, but the first GMPs took up to 5 months to approve and some subsequent ones have taken as little as 30 to 60 days. In March 2009, the goal for signing GMPs was revised to 30 days. Given the number of GMPs yet to be signed, about 14, the overall project schedule is at risk if the contract approval process continues to take more than 30 days.

Another key risk, which the risk register identified as having a low probability of occurring but a significant impact if it does occur, relates to security upgrades in the CMP. CMP and UN security officials have spoken with city officials about security features to be incorporated in the renovation. In July 2008, the CMP office contracted with a structural engineering firm to assess the vulnerability of the buildings in the UN headquarters compound. The firm submitted a draft of its assessment to the UN in May 2009.

<sup>2</sup>Value engineering is the process of reviewing a project's objectives and design, and finding ways of achieving the same objectives at a lower cost.

# Risk Management

(cont.)

## **CMP Rates Risks of Extending Swing Space Leases as Medium**

Other risks, which the UN mostly rated as medium, involve the UN's rental of swing space and the cost that would be incurred to extend the swing space leases if construction is not completed on schedule. The estimated cost of renting swing space during the CMP is \$263 million, and this estimate is included in the CMP budget. CMP officials said that if the renovation were to fall behind schedule, they would expect paying to accelerate the construction through the use of overtime would be more cost-effective for the CMP than extending the leases.

## **CMP Reduced Risk Rating of Fraud and Ability to Meet Building Codes**

The CMP recategorized the risk of fraud and corruption, changing it from high in the 2007 risk assessment to low in the 2009 risk assessment. UN officials said the CMP lowered this risk rating because it planned to contract with a firm for integrity monitoring services as a means of detecting possible corruption involving subcontractors.<sup>3</sup> This may reduce the risk of fraud not being detected but may not reduce the risk of the fraud occurring. The CMP office has not identified any major problems involving Skanska related to this project, actual subcontractor fraud or failure, or problems with the subcontractor bidding process. One CMP official expressed confidence in Skanska's ability to select reputable subcontractors.

In its 2007 risk assessment, the UN rated its ability to meet New York City's building codes in the renovation as a medium risk, but reduced it to a low risk in 2008. UN officials said that although the UN compound is sovereign territory and therefore not subject to requirements for complying with local building codes, the UN will voluntarily comply with these codes in the renovation project. The CMP office has been submitting renovation project design plans to the city for its review, and city officials said that they have designated staff to work with the UN and expedite reviews of the plans. Both CMP and city officials said this process has been working well. UN officials said they also have voluntarily agreed to invite city inspectors into the facility during the renovation and after it is complete, but city officials said they would like the agreement to be formalized.

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<sup>3</sup>The UN in July 2008 issued a request for proposal for an "integrity monitor" to detect possible corruption involving subcontractors and help prevent fraud, waste, and abuse in the bidding process and other construction-related activities. The UN awarded this contract in April 2009.

# Procurement

## Procurement Background

A fair and efficient procurement process is vital to any large construction project. A lack of fairness can lead to corruption and potentially substandard work, and inefficiency can cause potentially costly delays. The UN Department of Management, through the UN Procurement Division, is ultimately responsible for developing UN procurement policies. The UN Headquarters Committee on Contracts (HCC) reviews the procurement process and advises the Department of Management as to whether the procurement process used is in accordance with the UN procurement manual and UN financial rules and regulations.

## Procurement Proceeding with UN Review of Subcontracting Process; CMP Office Expects U.S. Workers to Provide Most of the Labor

### Procurement of GMPs Proceeding

As of June 2009, the UN and the construction manager had signed 8 of the expected 22 GMPs. Most of the signed GMPs relate to the spaces that UN staff will occupy during the renovation, such as construction of the Temporary North Lawn Building and preparing the leased office space. The UN has also signed the GMP for the façades of the Secretariat and other buildings, which will be replaced with new, more energy-efficient materials.

Initially the UN took up to 5 months to approve a GMP after it had been submitted by Skanska to the UN. The current goal is for the UN to approve and sign GMPs within 30 days of Skanska submitting them. Some more recent GMP approvals have taken between 30 and 60 days. A UN procurement official said the UN's Procurement Division, which now has more staff, facilitated this reduction in GMP approval times. He said the Procurement Division also briefed the HCC in November 2008 on the GMP development process and provided the HCC with templates for CMP-related procurement processes. These processes include reviewing Skanska's GMP submissions to make sure they are within budget and explaining if they vary from the budget. According to CMP and Skanska officials, the GMPs are duration contracts—that is, contracts for completing work within a specified time frame. If the signing of the GMP is delayed, the start of work is delayed, potentially delaying the overall project.

Skanska officials said they can quickly move forward by starting to bid for subcontractors as they negotiate each GMP with the UN. The officials clarified that while Skanska cannot award any contracts until after the UN signs the GMP, this approach allows Skanska to sign the subcontracts soon after the GMP is signed. As discussed below, the subcontractor selection process takes about 8 weeks.

As the CMP progresses, timely approval of any changes to the GMPs will be important in maintaining the schedule and controlling costs. To expedite these approvals while maintaining accountability and adhering to the principles outlined in the procurement manual, the UN increased the value of individual contract amendments that Procurement Division officials may approve without prior review by the HCC to \$2.5 million.<sup>3</sup> The UN has now raised this threshold to \$5 million for the duration of the CMP. In addition, the UN in January 2009 delegated to the CMP's Executive Director the authority to approve change orders of up to \$5 million in value and not to exceed 10 percent of the value of each approved GMP. As a result, according to a UN procurement official, a request for a change order can be processed in 3 to 4 days, rather than the 3 weeks it would typically take.

<sup>3</sup>See GAO, *United Nations: Renovation Schedule Accelerated after Delays, but Risks Remain in Key Areas*, [GAO-08-513R](#) (Washington, D.C.: Apr. 9, 2008), 16.

# Procurement

(cont.)

## UN Reviews Construction Manager's Subcontracting Process

The UN provides oversight and review of Skanska's process for selecting subcontractors (see fig. 2). The UN reviews Skanska's actions during multiple stages in the process. Officials with Skanska, the construction manager, stated that this process takes about 8 weeks and is stricter than the process Skanska typically uses. While Skanska is responsible for hiring and managing the subcontractors, the UN has a vested interest in ensuring that the hiring process is fair, competitive, and transparent.

To protect itself against possible defaults by subcontractors, Skanska not only prequalifies subcontractors as part of the bidding process but also has insurance to help cover the cost of any default. The Procurement Division also reviews Skanska's process for comparing subcontractor bids. A procurement official said that Skanska ruled out a few very low bids because it did not think those bidders could stay in business to complete the job at those prices. This official said that he and his colleagues check subcontractors' financial statements and "keep their ears to the ground" to stay abreast of any developments concerning subcontractors. Regarding our April 2008 recommendation that the CMP establish a process requiring the construction manager to inform the CMP of any subcontractor issues that could increase the project's cost or delay its schedule,<sup>4</sup> the CMP construction director said there are weekly meetings, which include Skanska officials, to discuss subcontractors, change orders, and project performance.

The UN has no independent system to capture bid protests, although we have recommended several times that it set up such a system because of procurement scandals unrelated to the CMP.<sup>5</sup> A UN Procurement Division official and a Skanska official said bidders have opportunities to express concerns they might have over the contracting process. The Skanska official said bidders could always protest to the UN if they believed they were not treated fairly. In addition, he said that OIOS would identify improprieties through its audits if Skanska did not award contracts in accordance with UN procedures. Also, the UN procurement official said that a bidder could e-mail the Procurement Director if wrongdoing is suspected. However, this would not constitute an independent system because the Procurement Director is not independent of the procurement process. According to the official, with whom we met in March 2009, no major complaints had been received to date. The Skanska official said that most complaints come from bidders who do not respond within the specified time frame and want more time to prepare their bids. However, without an independent bid protest system, the extent of concern that may exist about the bidding process is unknown.

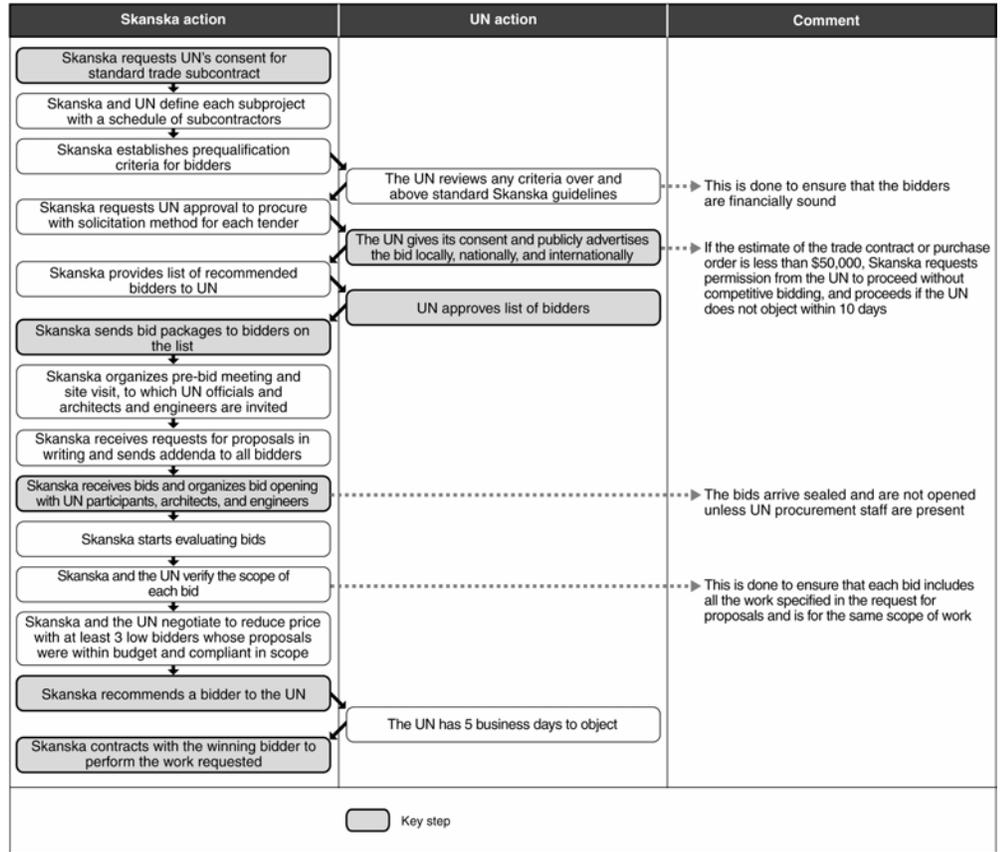
<sup>4</sup>See [GAO-08-513R](#), 20.

<sup>5</sup>See GAO, *United Nations: Procurement Internal Controls Are Weak*, [GAO-06-577](#) (Washington, D.C.: Apr. 25, 2006), 22-23 and 35. See also GAO, *United Nations: Weaknesses in Internal Oversight and Procurement Could Affect the Effective Implementation of the Planned Renovation*, [GAO-06-877T](#) (Washington, D.C.: June 20, 2006), 13 and 16, and *United Nations: Internal Oversight and Procurement Controls and Processes Need Strengthening*, [GAO-06-701T](#) (Washington, D.C.: Apr. 27, 2006), 15 and 18.

# Procurement

(cont.)

**Figure 2: Skanska’s Bidding Process for Subcontractors**



Source: GAO analysis of Skanska information.

# Procurement

(cont.)

## **CMP Office Expects U.S. Workers to Provide Most of the On-site Labor for the Renovation**

In a March 2009 briefing for U.S. government officials, the CMP Executive Director stated that almost all contracts so far have gone to U.S. firms. He said that the renovation project is marketed worldwide and the UN is trying to procure materials from all over the world, including developing countries and economies in transition. However, U.S. companies are better positioned to submit low-cost bids for contracts that include work performed on-site. Another factor, according to the UN's project manager, is that the construction market in New York City is unionized and few, if any, nonlocal firms would have union members. According to the CMP Executive Director and a UN Procurement Department official, the CMP office is developing a system to track the origin of materials used in the renovation. These officials said that while the UN encourages firms from developing economies to participate in the bidding process, no work is reserved for firms from these countries, the United States, or any other country, and no preference is to be shown in awarding contracts.

## Oversight

### UN Oversight Bodies

The UN's **Office of Internal Oversight Services (OIOS)** oversees UN activities that are under the authority of the Secretary General through monitoring, inspection, and evaluation. In a 2003 resolution, the General Assembly stressed the importance of oversight in implementing the CMP and requested that all relevant oversight bodies, including OIOS, initiate immediate oversight activities.<sup>6</sup>

The **UN Board of Auditors (BOA)** is appointed by the General Assembly to audit accounts of UN organizations and programs and to report findings and recommendations to the General Assembly through the Advisory Committee on Administrative and Budgetary Questions. According to a senior OIOS official, OIOS coordinates closely with BOA and there is no overlap between the two entities' audits of the CMP.

<sup>6</sup>United Nations *Resolution Adopted by the General Assembly, A/RES/57/292* (New York, N.Y.: Feb. 13, 2003).

## OIOS and State Department Continue to Monitor CMP

### OIOS Continues to Monitor CMP and Says It Has Sufficient Staff to Accomplish This

OIOS continues to monitor the CMP and issued several reports in 2008 and the first half of 2009, covering such topics as value engineering; provision of swing space, storage, and other facilities; and budgetary and financial control. OIOS concluded that the CMP is applying effective financial controls, which for example is evidenced by withholding payment of invoices when work has not been completed. OIOS officials said other reports were under way as of June 2009, including forthcoming reports on subcontractors and the roles of the CMP office and Skanska, and Skanska's procurement process. In April 2008, we reported that OIOS was unable to quickly fill staff vacancies and, because of insufficient staff, provided minimal oversight of the CMP during 2007. In March 2009, a senior OIOS official told us that OIOS currently has two full-time staff auditing the CMP and that he does not anticipate needing additional staff to audit the CMP. If it becomes evident that more staff will be needed, they can be brought on board within a month through a temporary vacancy announcement.

In December 2008, OIOS also completed an audit of security provisions applied to staff, site, and assets during the execution of the CMP. Given the security sensitivity of this report, it has not been made public. According to an OIOS official, the CMP office has been responsive to the recommendations made in the report. He said that OIOS is planning annual audits of security provisions applied to staff, site, and assets during the execution of the CMP, and that the next such audit will begin in the fall of 2009. He also said that he met with CMP staff to discuss a study by a structural engineering firm that assessed the vulnerability of the buildings in the UN headquarters compound. He said he does not expect any changes to the renovation design as a result of this study.

### State Department Monitoring Efforts

As the UN's host country and largest contributor, the United States has a substantial interest in the success of the CMP. The State Department's Bureau of International Organization Affairs, which develops and implements U.S. policy on the UN, the UN's specialized agencies, and other international organizations, continues to monitor the CMP through quarterly visits to the UN and meetings with CMP officials. Officials from State's Office of Overseas Building Operations have also participated in these visits and meetings. In addition, State's Bureau of Diplomatic Security has discussed security issues with a private security consultant hired by the CMP Office, and this discussion confirmed that the UN's plan approximates what would be incorporated into a comparable U.S. federal facility.

## Conclusion and Recommendation

### Conclusion

As the CMP moves further into the construction phase, the schedule will serve as a key tool for managing the progress of the project. Since costs generally increase the longer a project takes, maintaining the schedule is important to controlling costs. Having schedules that align with best practices can help ensure that they are as useful and informative as possible. The CMP is multifaceted, with many construction contracts yet to be signed, multiple buildings expected to be under renovation concurrently, and numerous stakeholders. Making more information available earlier to CMP officials about potential risks to the project could make it easier to mitigate these risks. If, for example, the CMP office were to conduct a formal schedule risk assessment, the potential impact of schedule delays—due to contract approval issues and possible scope changes, such as the addition of the backup data center—would be clearer. Such an assessment would build on the CMP office’s current annual risk assessment and quantify the potential impact of the identified risks. In addition, a cost risk analysis would predict the level of confidence in meeting the project’s current budget and alert CMP officials to the need for potential action to ensure that the project is completed within the limits of the funds available.

### Recommendation for Executive Action

We recommend that the Secretary of State and the U.S. Permanent Representative to the United Nations work with other member states to direct the CMP office to implement the best practices for scheduling contained in our *Cost Estimating and Assessment Guide*, to the extent practical for the CMP.

## Scope and Methodology

### GAO Contacts

Thomas Melito, (202) 512-9601, or [melitot@gao.gov](mailto:melitot@gao.gov)

Terrell Dorn, (202) 512-6923, or [dornt@gao.gov](mailto:dornt@gao.gov)

### Staff Acknowledgments

In addition to the contacts named above, individuals making key contributions to this report include Maria Edelstein, Assistant Director; Debbie J. Chung; Bess Eisenstadt; Kay Halpern; Bob Homan; Josh Ormond; and Karen Richey. Mark Dowling and Brandon Haller provided technical assistance.

### Scope and Methodology

To describe changes in the CMP schedule since our last report, we reviewed the schedules contained in the 2007 and 2008 CMP annual reports and in a March 2009 CMP briefing. We also interviewed CMP officials about schedule changes, the reasons for the changes, and the changes' effect on project completion. With the assistance of a project management consultant, we reviewed the CMP integrated master schedule and a swing space subschedule provided by the CMP office. We reviewed these schedules to determine the extent to which they reflect best practices for scheduling contained in our *Cost Estimating and Assessment Guide*. As part of the assessment, CMP officials provided a walk-through of the scheduling process to explain how the schedules were constructed and maintained.

We described CMP cost changes by reviewing cost information contained in the 2007 and 2008 CMP annual reports and in relevant UN resolutions and reports, including information on costs that the UN is considering adding to the CMP budget, and by interviewing CMP officials.

To report on the status of the project's funding, including the collection and use of member states' CMP assessment payments, we reviewed projected assessments and UN data on payments received and outstanding from member states.

To describe the CMP's risk management efforts, we reviewed CMP risk assessment reports from 2007 and 2009 to identify changes in the risk ratings and interviewed CMP officials about their risk management efforts. In addition, we interviewed New York City officials to obtain their perspective on CMP risks involving the city.

We described the CMP procurement status by reviewing the GMPs that had been awarded, and by interviewing UN procurement and CMP officials.

To describe the UN's oversight efforts regarding the CMP, we reviewed OIOS reports on the CMP and interviewed OIOS officials. We also interviewed officials from State's Bureau of International Organizations and other State bureaus to describe State's monitoring of the project.

Furthermore, we toured the UN headquarters buildings to observe their condition and one of the swing space office buildings to view the progress that was being made to prepare the space for use by UN employees.

We conducted this work from February 2009 through July 2009 in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

**Enclosure II**

**Table 2: Extent to Which the CMP Integrated Master Schedule Met Best Practices**

Best practice	Explanation	Met?	GAO analysis
Capturing key activities	The schedule should reflect all key activities as defined in the project’s work breakdown structure, which defines in detail the work necessary to accomplish a project’s objectives, including activities to be performed by both the owner and contractors.	Yes	The CMP integrated master schedule reflected both owner and contractor activities, such as construction at UN buildings like the General Assembly and the Secretariat, UN activities for testing temporary swing space and moving staff to and from it, and key milestones for measuring progress in vacating and moving back into various floors. The schedule was sufficiently detailed (identifying 307 work activities) to suggest that all key activities were properly identified and included key milestones. According to project officials, the schedule was checked against structural and design drawings and was reviewed by representatives of all of the building trades (e.g., mechanical, electrical, plumbing, and carpentry) to ensure its completeness.
Sequencing key activities	The schedule should be planned so that critical project dates can be met. To meet this objective, key activities need to be logically sequenced—that is, listed in the order in which they are to be carried out. In particular, activities that must be completed before other activities can begin (predecessor activities), as well as activities that cannot begin until other activities are completed (successor activities), should be identified. This helps ensure that interdependencies among activities that collectively lead to the accomplishment of events or milestones can be established and used as a basis for guiding work and measuring progress.	Partially	Of the 221 activities and milestones not yet completed, 79 (36 percent) had missing logic—that is, lacked a successor or a predecessor activity. This missing logic caused us to question the validity of the critical path, which represents the chain of dependent activities with the longest total duration, and the reasonableness of the project completion date. The majority of these 79 tasks lacked successors, making it unclear how any delay in these tasks would affect the progress of other tasks that depend on them. This logic error must be remedied for the schedule to be properly sequenced. Project officials said that many of the activities were missing successors because detailed schedules for future construction efforts had not yet been developed.
Assigning resources to key activities	The schedule should reflect what resources (e.g., labor, materials, and overhead) are needed to do the work, whether all required resources will be available when needed, and whether any funding or time constraints exist.	No	The schedule did not allocate resources, such as labor hours and materials, to key activities. Project officials said that resources were not a problem, since they could hire more workers on a short-term basis and were confident that they could get whatever equipment and materials they needed.
Establishing the duration of key activities	The schedule should realistically reflect how long each activity will take to execute. In determining the duration of each activity, the same rationale, historical data, and assumptions used for cost estimating should be used. Durations should be as short as possible and have specific start and end dates. The schedule should be continually monitored to determine when	Partially	The schedule benchmarked the durations against other completed projects using the number of square feet and the site/complexity of each floor to scale the effort. However, the schedule contained many activities with unusually long durations. For example, several construction activities had durations ranging from 500 to 785 days long. According to project officials, these activities represent high-level planning

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Best practice	Explanation	Met?	GAO analysis
	forecasted completion dates differ from planned dates; this information can be used to determine whether schedule variances will affect subsequent work.		packages that will be fleshed out once more detailed schedules are available.
Integrating key activities horizontally and vertically	The schedule should be horizontally integrated, meaning that it should link products and outcomes associated with other sequenced activities. These links are commonly referred to as “handoffs” and serve to verify that activities are arranged in the right order to achieve aggregated products or outcomes. The schedule should also be vertically integrated, meaning that the dates for starting and completing activities in the integrated master schedule should be aligned with the dates for supporting tasks and subtasks. Such mapping or alignment among levels enables different groups to work to the same master schedule.	Partially	Until the schedule is properly sequenced by identifying the appropriate predecessors and successors, it cannot be horizontally integrated. However, we verified that the schedule was vertically integrated. To do this we tested two critical path milestones (each of which includes several activities) in a subschedule to see if their start and finish dates could be traced to the integrated master schedule. The dates for one milestone matched exactly, while those for the other milestone were off by a couple of days.
Establishing the critical path for key activities	Scheduling software should be used to identify the critical path, which represents the chain of dependent activities with the longest total duration. Establishing a project’s critical path is necessary to examine the effects of any activity slipping along this path. Potential problems along or near the critical path should also be identified and reflected in scheduling the duration of high-risk activities.	Mostly	The project’s critical path was defined using scheduling software and included activities involved in construction, moving UN personnel, and demolishing the Temporary North Lawn Building. However, specifying a date for the UN staff to return to the remodeled building yielded a second critical path that included more activities related to design drawings, furniture installation, testing, and other construction. While both critical paths appeared reasonable, until the missing logic is fixed, we could not tell whether the new logic would affect the critical path.
Identifying the float between key activities	The schedule should identify the float—the amount of time by which a predecessor activity can slip before the delay affects successor activities—so that a schedule’s flexibility can be determined. As a general rule, activities along the critical path have the least float. Total float is the total amount of time by which an activity can be delayed without delaying the project’s completion (if everything else goes according to plan).	Partially	We found that the total float for remaining activities ranged from 7 to 1,310 days. This unusually long float was not accurate, since it was being driven by the many activities identified above that were missing predecessors and successors. As a result, the schedule’s true flexibility could not be determined until the missing logic was fixed.
Conducting a schedule risk analysis	A schedule risk analysis should be performed using statistical techniques to predict the level of confidence in meeting a project’s completion date. This analysis focuses not only on critical path activities but also on activities near the critical path, since they can affect the project’s status.	No	The CMP did not perform a schedule risk analysis to determine the level of confidence in meeting the project’s completion date. Project officials did conduct a qualitative risk analysis that included definitions of risk probability and considered but did not quantify the impact of risks on time and cost. Using these data, the project developed a risk probability and impact matrix with different combinations of low, moderate,

**Enclosure II**

Best practice	Explanation	Met?	GAO analysis
			<p>high, and very high risks to objectives. However, the CMP did not identify a schedule reserve, which is an activity at the end of the schedule that has no specific scope assigned, since it is not known which risks may materialize. Without a schedule reserve, any delays in any activities on the critical path will lead to further delays in the scheduled completion date.</p>
<p>Updating the schedule using logic and durations to determine dates</p>	<p>The schedule should be continuously updated using logic and durations to determine dates, and the schedule should be analyzed continuously for variances and changes to the critical path and completion date.</p>	<p>Mostly</p>	<p>The CMP provided evidence that it monitored the actual start and completion dates of work activities, and we found no evidence of broken logic. Moreover, because the schedule was up to date and reflected the project's current status, we had confidence that project officials were using the schedule to actively manage the project. Thus, the schedule was an effective tool for determining the actual duration of work completed, analyzing variances to determine the root causes of schedule slips, and using the results of such analyses when planning future work. However, because of the missing logic for over one-third of the activities, we cannot have confidence in the projected end date.</p>

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**Table 3: Extent to Which the CMP Swing Space Subschedule Met Best Practices**

<b>Best practice</b>	<b>Explanation</b>	<b>Met?</b>	<b>GAO analysis</b>
Capturing key activities	The schedule should reflect all key activities as defined in the project's work breakdown structure, which defines in detail the work necessary to accomplish a project's objectives, including activities to be performed by both the owner and contractors.	Yes	The swing space schedule was based on the guaranteed maximum price (GMP) agreement and the preliminary drawings specifications. To ensure that the schedule contained all activities, the CMP relied on structural, architectural, and design engineering teams who reviewed the schedule for completeness. Moreover, we traced 15 bid packages from the GMP cost estimate to the schedule to verify that it included all of the effort.
Sequencing key activities	The schedule should be planned so that it can meet critical project dates. To meet this objective, key activities need to be logically sequenced—that is, listed in the order in which they are to be carried out. In particular, activities that must be completed before other activities can begin (predecessor activities), as well as activities that cannot begin until other activities are completed (successor activities), should be identified. This helps ensure that interdependencies among activities that collectively lead to the accomplishment of events or milestones can be established and used as a basis for guiding work and measuring progress.	Partially	Of the 352 activities not yet completed, 71 (20 percent) had missing logic, causing us to question the validity of the critical path, which represents the chain of dependent activities with the longest total duration, and the reasonableness of the project completion date. More than half the tasks with missing logic did not have successors, which was a concern since the schedule would not identify the impact of any delay on other tasks that depend on them. This logic error must be remedied for the schedule to be properly sequenced. Skanska agreed to tie these activities to the appropriate floor completion milestone successors so that the schedule would model the current plan.
Assigning resources to key activities	The schedule should reflect what resources (e.g., labor, materials, and overhead) are needed to do the work, whether all required resources will be available when needed, and whether any funding or time constraints exist.	No	The schedule did not include any resources for labor, materials, or equipment because Skanska stated that plenty of resources were available. Although the schedule does not include resources, CMP officials said that they actively managed furniture purchases and installations using Excel spreadsheets that included more details about each floor move than the schedule.
Establishing the duration of key activities	The schedule should realistically reflect how long each activity will take to execute. In determining the duration of each activity, the same rationale, historical data, and assumptions used for cost estimating should be used. Durations should be as short as possible and have specific start and end dates. The schedule should be continually monitored to determine when forecasted completion dates differ from the planned dates; this information can be used to determine whether schedule variances will affect downstream	Yes	The maximum duration for remaining normal tasks was 50 days – an adequate level of detail for the project to objectively measure progress. Skanska estimated activity durations by applying metrics such as square footage and productivity rates by trade. Skanska also relied on its experience when determining the activity durations for various New York City inspections.

**Enclosure II**

<b>Best practice</b>	<b>Explanation</b>	<b>Met?</b>	<b>GAO analysis</b>
	work.		
Integrating key activities horizontally and vertically	The schedule should be horizontally integrated, meaning that it should link products and outcomes associated with other sequenced activities. These links are commonly referred to as “handoffs” and serve to verify that activities are arranged in the right order to achieve aggregated products or outcomes. The schedule should also be vertically integrated, meaning that the dates for starting and completing activities in the integrated master schedule should be aligned with the dates for supporting tasks and subtasks. Such mapping or alignment among levels enables different groups to work to the same master schedule.	Mostly	Until activities are linked to the correct successors, the schedule will not be horizontally integrated. In addition, we tested the vertical integration of this schedule and of the CMP integrated master schedule and found that milestones for the most part had matching dates. There was a small discrepancy in the dates produced by the two schedules for one milestone, but the difference was within a few days, including a weekend, of the correct date.
Establishing the critical path for key activities	Scheduling software should be used to identify the critical path, which represents the chain of dependent activities with the longest total duration. The establishment of a project’s critical path is necessary for examining the effects of any activity slipping along this path. Potential problems along or near the critical path should also be identified and reflected in scheduling time for high-risk activities.	Mostly	There were 23 activities on the critical path, including commissioning heating and air-conditioning units, testing the security system, and conducting final fire department inspections, all of which drive the final move-in date for the staff. Because some activities still needed to be connected to other tasks, we could not determine whether additional activities would show up on the critical path. As a result, the critical path does not fully meet this best practice.
Identifying the float between key activities	The schedule should identify the float—the amount of time by which a predecessor activity can slip before the delay affects successor activities—so that a schedule’s flexibility can be determined. As a general rule, activities along the critical path have the least float. Total float is the total amount of time by which an activity can be delayed without delaying the project’s completion (if everything else goes according to plan).	Mostly	The maximum total float for activities was 94 days; however, this float was expected to decrease once the activities with missing logic were linked to their successors. In addition, we questioned why the total float was so high for a project that was scheduled to be completed in a few months.
Conducting a schedule risk analysis	A schedule risk analysis should be performed using statistical techniques to predict the level of confidence in meeting a project’s completion date. This analysis focuses not only on critical path activities but also on activities near the critical path, since they can affect the project’s status.	No	Skanska did not perform a schedule risk analysis because the contract’s scope of work did not require one. The project team is relying on its ability to identify and respond to risks by adding resources to mitigate any delays. Without performing this analysis, Skanska cannot provide the UN with a level of confidence in when this work will be completed.

**Enclosure II**

<b>Best practice</b>	<b>Explanation</b>	<b>Met?</b>	<b>GAO analysis</b>
<p>Updating the schedule using logic and durations to determine dates</p>	<p>The schedule should be continuously updated using logic and durations to determine dates, and the schedule should be analyzed continuously for variances and changes to the critical path and completion date.</p>	<p>Yes</p>	<p>Skanska updated the schedule weekly using data collected from the construction managers on activity status. On a monthly basis, Skanska submitted its schedule to the CMP, which analyzed it to identify potential activities that could be performed concurrently to accelerate the work. The CMP office then met with the UN to identify any changes that needed to be incorporated into the schedule. While some minor adjustments to the schedule's logic still needed to be made, Skanska demonstrated during our schedule walk-through that it understood scheduling best practices and said it would incorporate the adjustments we identified. As a result, we were confident that the schedule could be used to determine the project's current status.</p>

**Comments from the Department of State**



**United States Department of State**

*Assistant Secretary for Resource Management  
and Chief Financial Officer*

*Washington, D.C. 20520*

Ms. Jacquelyn Williams-Bridgers  
Managing Director  
International Affairs and Trade  
Government Accountability Office  
441 G Street, N.W.  
Washington, D.C. 20548-0001

JUL 22 2009

Dear Ms. Williams-Bridgers:

We appreciate the opportunity to review your draft report, "UNITED NATIONS: Renovation Still Scheduled for Completion in 2013, But Risks to Its Schedule and Cost Remain," GAO Job Code 545087.

The enclosed Department of State comments are provided for incorporation with this letter as an appendix to the final report.

If you have any questions concerning this response, please contact Lisa Spratt, Program Analyst, Bureau of International Organization Affairs at (202) 647-6395.

Sincerely,

A handwritten signature in black ink, appearing to read "James L. Millette".

James L. Millette

cc: GAO – Kay Halpern  
IO – Esther Brimmer  
State/OIG – Mark Duda

**Department of State Comments on GAO Draft Report**  
**United Nations: Renovation Still Scheduled for Completion in 2013,**  
**But Risks to Its Schedule and Cost Remain**  
**(GAO-09-870R, Job Code 545087)**

Thank you for the opportunity to comment on your draft report entitled *United Nations: Renovation Still Scheduled for Completion in 2013, But Risks to Its Schedule and Cost Remain*. The Department of State welcomes the GAO report and concurs with its recommendation that the Capital Master Plan (CMP) Office should implement the best practices for scheduling contained in GAO's *Cost Estimating and Assessment Guide*, to the extent practical for the CMP.

The Department agrees that the CMP Office should strive to implement scheduling practices that will help them improve their management of the project by providing better information on the impact and risk of delays. We note that by not fully implementing some of these best practices, the CMP Office may not be taking all the steps it could to proactively manage the project, as many of these practices are intended to alert managers sooner to impediments to timely execution of key activities. We believe that making improvements consistent with those recommended by the GAO will provide greater confidence that the project will be able to be completed within the established schedule.

The Department remains concerned with the current projected cost overruns and will closely review the refined cost estimate when it becomes available. We acknowledge that agreement on how the associated costs are to be handled is a key decision in relation to the project budget. However, we also believe that there is potential for additional cost savings to be identified given the current bidding environment and we expect the UN to do everything possible to stay within the budget approved by member states.

## Comments from the United Nations



REFERENCE:

24 July 2009

Dear Messrs Dorn and Melito:

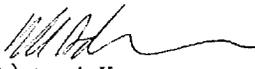
Thank you for your letter dated 10 July 2009 in which you requested my comments on behalf of the United Nations regarding your draft report on the Capital Master Plan.

In summary, I find the draft GAO report to be a valuable and accurate assessment of the current state of planning for the United Nations renovation project, and in general concur with your findings and recommendations.

Upon receipt of your draft report, staff members from the concerned offices within the Department of Management were in contact with members of your team and provided several suggestions regarding the report. I understand your team will be taking these suggestions into account as you finalize your report.

I wish to extend my appreciation to your team for their continued courtesy and professionalism.

Sincerely,



(For) Angela Kane  
Under-Secretary-General  
for Management

Mr. Terrell Dorn, Director, Physical Infrastructure Issues  
Thomas Melito, Director, International Affairs and Trade  
Government Accountability Office  
Washington DC

(545087)

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