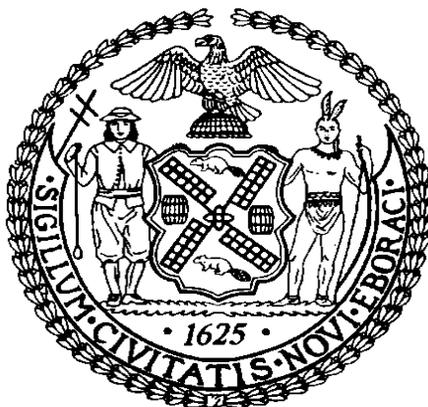


**CITY OF NEW YORK
OFFICE OF THE COMPTROLLER**

**John C. Liu
COMPTROLLER**

FINANCIAL AUDIT

**Tina Kim
Deputy Comptroller for Audit**



**Audit Report on
Job Order Contracting by the
Department of Design and Construction**

7E11-120A

June 28, 2012

<http://comptroller.nyc.gov>



THE CITY OF NEW YORK
OFFICE OF THE COMPTROLLER
1 CENTRE STREET
NEW YORK, N.Y. 10007-2341

John C. Liu
COMPTROLLER

June 28, 2012

To the Residents of the City of New York:

My office has audited the New York City Department of Design and Construction (DDC) to determine whether it is properly administering its job order contracting (JOC) program. We audit construction programs such as this to ensure that the cost of the work is reasonable and the quality of work is satisfactory.

The audit found that DDC is unlikely to attain between \$2 million and \$3.7 million in cost savings from the job order contracting program because the program is not being administered as effectively as it should be. Under a job order contract, DDC can direct a contractor to perform individual job order tasks as needed rather than awarding individual contracts for each small project. However, the audit found that job orders are not developed in a timely manner, cost estimates are not reliable indicators of the actual cost of work, and construction work is not carried out in a timely manner. Moreover, there is a lack of guidelines that spell out the circumstances and monetary threshold for job order work and a lack of standards for measuring whether the JOC program is, in fact, achieving anticipated cost savings. Furthermore, when job order work was delayed, DDC did not impose liquidated damages totaling more than \$450,000.

The audit recommends that the DDC formulate measurement criteria to assess whether the JOC program is attaining its goal of achieving savings in overall project costs, complete development and submit job orders for registration within the required 45-day timeframe, provide independent estimates for job order work, ensure that JOC contractors complete work on schedule, develop and implement written guidelines that stipulate the circumstances and monetary threshold under which the use of job order contracts would be appropriate, and ensure that all job orders contain provisions for liquidated damages.

The results of the audit have been discussed with DDC officials, and their comments have been considered in preparing this report. Their complete written response is attached to this report.

If you have any questions concerning this report, please e-mail my audit bureau at audit@comptroller.nyc.gov.

Sincerely,



John C. Liu

Table of Contents

AUDIT REPORT IN BRIEF	1
Audit Findings and Conclusions	1
Audit Recommendations	2
Agency Response	2
INTRODUCTION	4
Background	4
Objective	5
Scope and Methodology Statement	5
Discussion of Audit Results	5
FINDINGS AND RECOMMENDATIONS	7
The Job Order Contracting Program is Not Being Administered Effectively	7
Recommendation	8
Problems with Job Order Development	9
Recommendations	11
Problems with Job Order Estimates	12
Recommendations	12
Problems with Complying with Construction Schedules	14
Recommendations	15
No Written Policies for Performing Work under Job Order Contracts	15
Recommendation	16
More Than \$455,000 in Liquidated Damages Not Assessed	17
Recommendations	18
Problems with the PROGEN Database	18
Recommendation	18
DETAILED SCOPE AND METHODOLOGY	19
APPENDIX List of JOC Contracts	
ADDENDUM Agency Response	

The City of New York
Office of the Comptroller
Financial Audit

Audit Report on
Job Order Contracting by the
Department of Design and Construction

7E11-120A

AUDIT REPORT IN BRIEF

The Department of Design and Construction (Department) manages the design and construction of more than \$6 billion new and renovated City facilities such as firehouses, libraries, courthouses, sewers, and water mains. The Department uses job order contracting (JOC), a construction procurement method, for performing small- or medium-sized construction projects. Under a job order contract, the Department's Job Order Contracting Unit (JOC Unit) can direct a contractor to perform individual tasks as needed rather than awarding individual contracts for each small project. The cost of JOC work is based on previously established unit prices for specific items (e.g., roofing, drywall, etc.). Using the established unit prices, the JOC Unit will issue a job order to a job order contractor to carry out the work based on specific tasks.

The Department's use of JOC began in 1996 when the Department employed a consultant, The Gordian Group, to develop and implement the Department's JOC program that included creating a catalog of unit prices, software (PROGEN), and training and ongoing management throughout the life of the contract.

In Fiscal Years 2009 and 2010, the Department utilized 19 job order contracts authorizing up to \$74 million in construction expenditures. Under these contracts, the Department executed 139 specific job orders totaling \$24,549,827.

Audit Findings and Conclusions

The Department is unlikely to attain between \$2 million and \$3.7 million in cost savings from the JOC program because the program is not being administered as effectively as it should be. Had the program been administered more effectively, the Department might have achieved a cost saving that, according to the Department's JOC Training and Reference Manual, could **“save a typical facility owner 8-15% [highlighted in the manual] in overall project costs as compared to traditional contracting methods.”** Specifically, we found that job orders are not developed in a timely manner, cost estimates are not reliable indicators of the actual cost of work, and construction work is not carried out in a timely manner. Moreover, there is a lack of guidelines that spell out the circumstances and monetary threshold for job order work and a lack

of standards for measuring whether the JOC program is, in fact, achieving anticipated cost savings.

Furthermore, when job order work was delayed, the Department did not impose liquidated damages totaling more than \$450,000. Additionally, problems with the Department's PROGEN database impede the Department's ability to effectively monitor the status of JOC project work and ensure that projects are proceeding expeditiously. Finally, our observation of sampled job order projects and a review of file documentation leads us to conclude that the quality of work overall was satisfactory.

Audit Recommendations

This report makes a total of 12 recommendations, including that the Department:

- Formulate measurement criteria to assess whether the JOC program is attaining its goal of achieving savings in overall project costs.
- Complete development and submit job orders for registration within the required 45-day timeframe.
- Provide independent estimates for job order work.
- Ensure that JOC contractors complete work on schedule.
- Develop and implement written guidelines that stipulate the circumstances and monetary threshold under which the use of job order contracts would be appropriate.
- Ensure that all job orders contain provisions for liquidated damages. Determine whether liquidated damages should be assessed for the cases noted in this report.
- Ensure that accurate and complete information is recorded in the PROGEN system.

Agency Response

In its response, the Department stated that "The Department of Design and Construction (DDC) appreciates the City Comptroller's efforts with respect to this audit of DDC's administration of the Job Order Contracting (JOC) program and will be using this report to help improve our process." The Department agreed with eight recommendations and disagreed with four recommendations.

One of the areas of disagreement concerns our recommendation that the Department formulate measurement criteria to assess whether the JOC program is attaining its goal of achieving savings in overall project costs as compared to traditional contracting methods. The Department disagreed with this recommendation for the following reasons:

- 1) that the main purpose of the JOC program, which is to expedite the procurement process for work for which it is ideally suited, may not necessarily translate to cost savings, and;
- 2) that the criteria that we used to estimate possible cost savings and which we obtained from the Department's JOC Manual, was simply part of the Department's JOC consultant's marketing material. Consequently, the Department intends to remove any "marketing materials" from its updated JOC Manual.

We disagree with the Department's position. Despite the Department's efforts to repudiate its JOC Manual and its goal of seeking cost saving by effectively carrying out the JOC program, we consider cost saving a valuable objective. Accordingly, we reaffirm our recommendation.

The full text of the Department's response is attached as an addendum to this report.

INTRODUCTION

Background

The Department of Design and Construction (Department) manages the design and construction of new and renovated City facilities such as firehouses, libraries, courthouses, sewers, and water mains. The Department uses job order contracting (JOC), a construction procurement method, for carrying out small- or medium-sized construction projects. A JOC is a competitively bid, indefinite quantity contract under which a contractor performs a series of individual tasks as needed, which are based on previously established unit prices.¹ The contract amount represents the maximum cap under which the contractor may perform work under individual task orders. Vendors seeking to obtain a JOC contract must bid on an adjustment factor known as a “multiplier,” which represents a bidder’s indirect costs such as overhead, profit, bonds, and insurance. Contracts are awarded to the bidder with the lowest multiplier. After awarding a JOC contract, the Department can direct the contractor to perform specific project work under individual task orders. The cost of the work is determined by multiplying the unit price for each individual task by the quantity of units of work performed, and then adjusted by the multiplier. The advantage to using JOC is that the Department does not have to competitively bid individual contracts for each small project. Consequently, projects can be completed more quickly, thereby yielding potential cost savings.

The Department’s use of JOC began in 1996 when it employed a consultant, The Gordian Group, to develop and implement the Department’s JOC program and to provide consulting services. The Gordian Group also created a construction task catalog of unit prices for specific work items upon which the value of JOC contracts are based. The catalog contains approximately 85,000 unit prices for general construction, electrical, plumbing, and mechanical work items. Unit prices consist of the costs for local labor, material, and equipment and are annually adjusted in accordance with an industry standard construction cost index. Work items for which there are no unit prices in the construction task catalog are known as “non-prepriced” items and costs must be determined by obtaining competitive bids.

JOC contracts are solicited and administered by the Department’s Job Order Contracting Unit (JOC Unit), which consists of a director, deputy director, and eight engineers. The work is carried out on behalf of the Department’s Division of Structures, whose 10 program units deal with client City agencies (e.g., Police Department, Department of Homeless Services, etc.). During Fiscal Years 2009 and 2010, the JOC Unit administered a total of 19 contracts (12 original contracts and seven contract renewals) with 12 contractors (eight general construction, two plumbing, one mechanical, and one electrical) whose maximum cap with renewals totaled \$74 million. The original duration for each contract is two years; contracts can be renewed for two years.

After contracts are awarded, the Department’s program units generate work requests which are forwarded to the JOC Unit for evaluation. If the request is deemed suitable for a JOC,

¹ Unit prices are for specific work items such as “install 5/8 inch fire rated drywall, paint metal door frame and jamb, install stainless steel wall plate.”

a project is formally initiated and individual work scopes are jointly determined by a JOC project manager, program unit project manager, agency representative, design consultant, and JOC contractor. Based on this determination, a contractor must submit a job order proposal to the JOC Unit that identifies specific work items and their associated unit prices from the construction task catalog. After approval of the final cost by the JOC project manager, director, and program unit director and subsequent registration with the Comptroller's Office, a job order authorizing the work is issued to the contractor. Any subsequent changes in the work scope must be authorized under a supplemental job order. Once a JOC contractor has started to carry out a job order, the work is supervised by project managers employed by the Department's program units. During Fiscal Years 2009 and 2010, the Department registered 139 job orders totaling \$24,549,827 with the Comptroller's Office.

Information about the administration of JOC projects is contained in PROGEN, a proprietary software application developed and maintained by The Gordian Group.

Objective

The objective of this audit is to determine whether the Department of Design and Construction is properly administering job order contracts to ensure that the cost of the work is reasonable and the quality of work is satisfactory.

Scope and Methodology Statement

We conducted this performance audit 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. This audit was conducted in accordance with the audit responsibilities of the City Comptroller as set forth in Chapter 5, §93, of the New York City Charter. This audit was conducted by staff that included auditors with engineering backgrounds.

The scope of this audit covers Fiscal Years 2009 and 2010. Please refer to the Detailed Scope and Methodology at the end of this report for the specific procedures and tests that were conducted.

Discussion of Audit Results

The matters covered in this report were discussed with Department officials during and at the conclusion of this audit. A preliminary draft report was sent to Department officials on April 23, 2012, and discussed at an exit conference held on May 11, 2012. On May 16, 2012, we submitted a draft report to Department officials with a request for comments. We received written comments from the Department on May 31, 2012.

In its response, the Department stated that “The Department of Design and Construction (DDC) appreciates the City Comptroller’s efforts with respect to this audit of DDC’s administration of the Job Order Contracting (JOC) program and will be using this report to help improve our process.” The Department agreed with eight recommendations and disagreed with four recommendations.

One of the areas of disagreement concerns our recommendation that the Department formulate measurement criteria to assess whether the JOC program is attaining its goal of achieving savings in overall project costs as compared to traditional contracting methods. The Department disagreed with this recommendation for the following reasons:

- 1) that the main purpose of the JOC program, which is to expedite the procurement process for work for which it is ideally suited, may not necessarily translate to cost savings, and;
- 2) that the criteria that we used to estimate possible cost savings and which we obtained from the Department’s JOC Manual, was simply part of the Department’s JOC consultant’s marketing material. Consequently, the Department intends to remove any “marketing materials” from its updated JOC Manual.

We disagree with the Department’s position. Despite the Department’s efforts to repudiate its JOC Manual and its goal of seeking cost saving by effectively carrying out the JOC program, we consider cost saving a valuable objective. Accordingly, we reaffirm our recommendation.

FINDINGS AND RECOMMENDATIONS

The Department's JOC Training Manual indicates that savings of from 8 percent to 15 percent are possible when using JOC as compared to traditional contracting methods. We doubt, however, whether the Department is achieving such potential savings of up to \$3.7 million dollars because of problems in administering the program as effectively as it should be to ensure that the cost of the work is reasonable. Specifically, we found that job orders are not developed in a timely manner, cost estimates are not reliable indicators of the actual cost of work, and construction work is not carried out in a timely manner. Moreover, there is a lack of guidelines that spell out the circumstances and monetary threshold for job order work, and a lack of standards for measuring whether the JOC program is, in fact, achieving anticipated cost savings.

Furthermore, when job order work was delayed, the Department did not impose liquidated damages totaling more than \$450,000. Additionally, problems with the Department's PROGEN database impede the Department's ability to effectively monitor the status of JOC project work and ensure that projects are proceeding expeditiously. Finally, our observation of sampled job order projects and a review of file documentation leads us to conclude that the quality of work overall was satisfactory.

These matters are discussed in greater detail in the sections of this report.

The Job Order Contracting Program is Not Being Administered Effectively

According to the Department's December 2006 JOC Training and Reference Manual (JOC Manual), "Independent studies have shown that using **JOC can save a typical facility owner 8-15%** [highlighted in the manual] in overall project costs as compared to traditional contracting methods. These cost savings occur from reduced design costs, lower procurement costs, lower hard construction costs and reduced post award costs." In addition, the JOC Manual states, "The benefits of a well run JOC program are lower construction costs, better quality work with fewer change orders, and timeliness of construction."

We doubt that the Department is attaining these anticipated cost savings because of weaknesses in the administration of the JOC program. Specifically:

- job orders are not developed in a timely manner;
- cost estimates are not reliable indicators of the actual cost of work;
- job order construction work is not carried out in a timely manner; and
- there are a lack of written guidelines that spell out the circumstances and monetary threshold for job order work.

The cost of the 139 job orders that were registered in Fiscal Years 2009 and 2010 totaled \$24,549,827. According to the Department's yardstick measurement of 8 percent to 15 percent cost savings, the cost of the 139 job orders performed under a conventional contracting method would have ranged between \$26.5 million and \$28.2 million, thereby yielding a cost saving of

between \$2 million and \$3.7 million had the JOC method been used effectively. But given the noted deficiencies with the job order contracting program, we conclude that the Department is falling short in attaining these cost saving goals. Accordingly, if the Department were to remedy the problems that beset the program and ensure that it was effectively administered, the Department would garner significant cost savings on an annual basis. In that regard, the Department should also formulate written standards for measuring the success of the JOC program as a means of achieving cost savings as compared to traditional contracting methods.

Recommendation

1. The Department should formulate measurement criteria to assess whether the JOC program is attaining its goal of achieving savings in overall project costs as compared to traditional contracting methods.

Department Response: “DDC does not agree with recommendation # 1.

DDC believes that the purpose of the JOC program is to expedite the procurement process for work that is ideally suited for the JOC program. Work that is ideally suited for JOC includes construction projects that perform routine and repetitive work where the project’s cost can be fairly matched to the quantities and type of construction materials used. This type of work would then bypass the prolonged bidding process as JOC contracts would already be in place awaiting the work order to be implemented. This saving of time in the procurement process may translate to cost savings but the main goal of this time saving is to proceed to registration more expeditiously and to get the work started faster once a need is identified.

DDC understands the origin of the auditors concerns. They were based on DDC’s own internal JOC manual that stated that JOC projects should reduce the overall construction costs. This statement in our manual was an assumption based on statements made by our JOC consultant as part of its national marketing literature. The JOC consultant (Gordian), a former military procurement specialist, developed the JOC system to enable the military to move contractors in place to build routine base camps anywhere in the world. It is one of many procurement tools for the military. This system translated easily to the civil side of construction and is in use by DDC and other agencies in New York. DDC is in the process of reviewing and updating our JOC manual, which was last updated before 2006. We will look to remove all marketing materials.”

Auditor Comment: We audited the performance of the Department’s JOC program in accordance with the established cost saving criteria that were set forth in its JOC Manual. After our audit found that the Department is unlikely to attain between \$2 million and \$3.7 million in cost savings from the JOC program, the Department apparently chose to repudiate the statement in its manual about cost saving, stating that it “was an assumption based on statements made by our JOC consultant as part of its national marketing literature.” Consequently, because the Department believes that the goal of saving money is simply a marketing assumption, the Department states that “We will look to remove all marketing materials under the JOC program.” However, the Department’s

failure to embrace cost savings as part of its goals is misguided. As recently as 2012, the Department's JOC consultant, the Gordian Group, affirmed that "Cost Savings is one of the cornerstones of Job Order Contracting solutions. Independent studies estimate the total cost savings from 8% to 15%. Savings are realized from increased efficiencies in four areas: Procurements, Design, Construction, and Post Construction." Accordingly, rather than ignore this important objective, we believe that the Department should seek to attain cost savings under the JOC program by incorporating the conclusions and recommendations of our audit in its JOC program practices.

The Department is indeed correct that, among other things, "the purpose of the JOC program is to expedite the procurement process for work that is ideally suited for the JOC program." However, as shown in the next section of this audit, the Department is not even attaining this goal, given that 80 percent of the sampled job orders exceeded the Department's 45-day guideline for job order development.

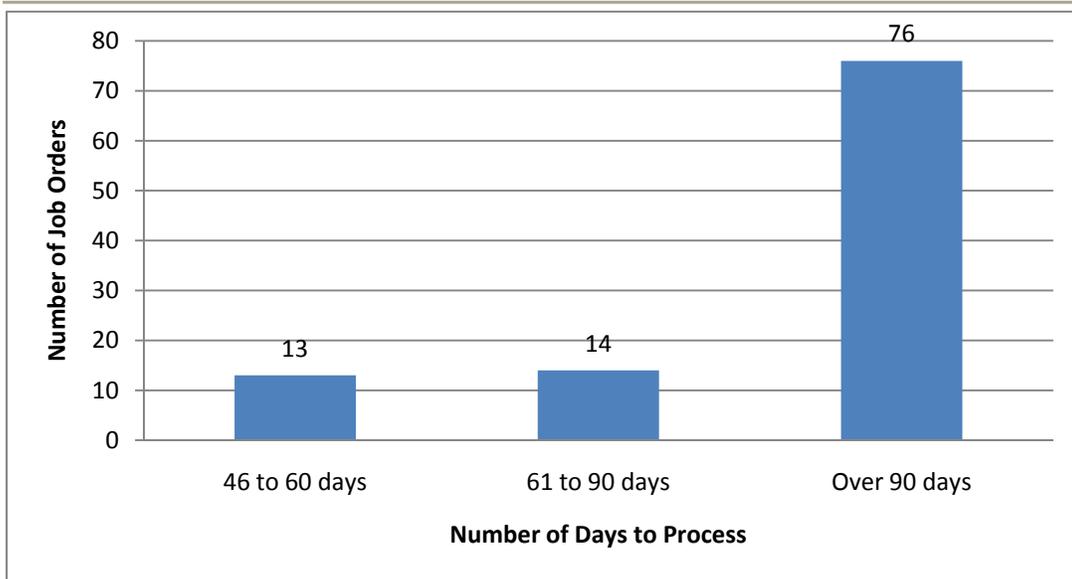
Problems with Job Order Development

The Department is not effectively administering the JOC program to ensure that it is carried out in a timely manner. Our review indicated that the overall time to develop and process 80 percent of sampled job orders exceeded Department guidelines. Critical development tasks include preparing scopes of work, requesting, obtaining, and reviewing contractor price proposals, and submitting job orders for registration.

According to Department procedures, job orders should be submitted for registration within 45 days of initiating a JOC project. However, 103 (80 percent) of the sampled 139 job orders exceeded this timeframe.² In these cases, the job order development process ranged up to 422 days longer than the 45-day guideline. As an average, job order development was 81 days longer than the 45-day standard. (See Chart 1 on page 10.)

² There was no file documentation by which to ascertain the development timeframes for 10 of the 139 job orders.

Chart 1
Job Orders That Exceeded
Standard Development Time



For example, the Department issued a \$185,393.70 job order on November 13, 2009 (No. 07-LBR-H01-003.00) to Geomtrix Services to replace a hot water boiler at the Flatbush Library in Brooklyn. The project development process totaled 350 days rather than the 45 days specified in Department guidelines. As another example, the Department issued a \$453,059 job order on October 10, 2008 (No. 07-HSV-G02-003.00) to Biltmore Contracting to renovate the interior of the Forest Hills Community House in Queens. The job order development process totaled 467 days rather than the 45 days specified in Department guidelines. In none of the cases was there any file documentation to indicate the justification for the delays in developing the job orders. Had the Department adhered to its development timeframes, job order projects could have been started and completed much sooner, thereby enhancing the likelihood that the JOC program would attain potential cost savings.

The JOC method has been advocated as an effective means of reducing the amount of time and subsequent cost to procure construction work. Under the traditional method of contracting, the City's "Agency Procurement Indicators" for Fiscal Year 2010 shows that the average number of days for the Department to process competitive sealed bids was 150 days. In contrast, the Department's JOC Manual (Module 1) states:

"Independent studies have shown that JOC can save between 75-85% in the time it takes to engage construction contractors over the more traditional contracting methods. These studies have shown that for small projects, i.e., < \$20,000, the average procurement time using the traditional system was 233 days, for JOC the number of procurement days

dropped to 42 for a savings of 82%. For medium sized projects the traditional time was 193 days while JOC averaged 52 days, a savings of 73%.”

Clearly, the Department is far from attaining the savings in procurement time that it promotes in its JOC Manual. Problems with carrying out job order development in a timely manner can be attributed to excessive time to review and approve work items, and, as discussed in the following sections, the lack of reliable independent estimates and information in the PROGEN database for tracking project timetables.

Recommendations

The Department should:

2. Complete development and submit job orders for registration within the required 45-day timeframe. The Department should provide written justification for cases in which the timeframe is exceeded.

Department Response: See response to Recommendation No. 3.

3. Implement more effective project management controls to ensure that job order work is developed in a timely manner.

Department Response: “DDC agrees with recommendations numbered 2 & 3, and is in the process of developing procedures that will track and document the timeframes (including delays) for the development and construction of JOC projects.

DDC believes that these procedures and process will be a strong management tool to assess the effectiveness of the JOC program. However, DDC feels that the dates used by the auditors do not portray an accurate picture of the development of JOC job orders. DDC believes that the auditors included in their calculations of development time, periods for which the job orders were not under the control of the JOC unit. For example, once a job order is sent to the Office of Management and Budget (OMB) for approval, this time period is no longer controlled by DDC and any OMB delays should not have been included in the auditor’s calculation of development time.”

Auditor Comment: In our calculations of job order development time, we used the timeframe and incorporated the required activities that were stipulated in a flowchart that was reviewed and approved by Department officials at the start of the audit. There was no documentation in Department files to indicate that the excessive development timeframes were the result of Office of Management and Budget (OMB) reviews. We note that, as an average, job order development was 81 days longer than the Department’s 45-day standard. If, as the Department speculates, this lengthy timeframe was attributable to OMB, then the Department must seek to discuss ways of expediting reviews and incorporate the review timeframe within the overall job development timeframe. Furthermore, had the Department implemented more effective project management tools for tracking the timeliness of job order

development, it could have identified any bottlenecks that hindered the Department from achieving its goal of developing job orders within 45 days.

Problems with Job Order Estimates

We identified problems with the independent estimates of JOC costs that the Department is required to provide according to the Department’s “JOC Written Procedures” Section III.D. Of the 139 sampled job orders, 111 (80 percent) lacked the required estimates. Moreover, for the 28 projects that did contain cost estimates, the estimates were not reliable indicators of the actual cost of the JOC work in 17 cases. In these instances, the estimated costs ranged between 27 percent lower to 191 percent higher than the actual costs.

An independent job order cost estimate—provided by either a design consultant or the Department’s in-house cost verification unit—is used as a baseline measurement for effectively ascertaining the individual work items, associated costs, and quantities that comprise a job order. According to Department procedures, “the Independent Estimate should: a) Represent the total Project cost as if the Project were bid using traditional methods.” At that stage of completion, “detailed estimates are usually fairly accurate projections of the costs of construction.”³ However, given that the cost estimates for the sampled job orders were either missing or unreliable, the JOC Unit may be hampered in its ability to effectively gauge the costs and quantities of materials needed in contractors’ proposals and, consequently, to process job orders in a timely manner.

Furthermore, the large disparity between the estimated and actual job order costs casts doubt on the worthiness of employing design consultants to provide estimates. Of the 28 projects for which cost estimates were done, 17 were produced by the Department’s consultants.⁴ For 10 (58 percent) of the 17, we deemed the estimates to be unreliable indicators of the actual cost of the work.⁵ We calculated that the cost of the 10 estimates totaled \$70,000 (10 x \$7,000 per estimate). Given their unreliability, the expense of producing these estimates may not be justified, and accordingly, the Department should consider its policy of paying design consultants for this work.

Recommendations

The Department should:

4. Provide independent estimates for all job order work.

³ W. F. Chen, *The Civil Engineering Handbook* (Purdue University, 1995), p. 16.

⁴ For six of the 17 projects that had consultant estimates, the Department’s in-house staff also produced estimates.

⁵ For the other seven cases, the estimates ranged between 15 percent lower and 15 percent higher than the actual costs. Given that the estimates are based on construction drawings that contain a detailed level of complexity, we deem cost estimates that do not exceed this threshold to be reasonable.

Department Response: See response to Recommendation No. 6.

5. Develop guidelines to ensure that cost estimates are reliable indicators of the actual cost of the work.

Department Response: See response to Recommendation No. 6.

6. Ascertain the cost-effectiveness of using consultants to prepare cost estimates.

Department Response: “DDC does not agree with recommendations # 4, 5 & 6.

DDC feels that the auditors did not clearly explain the current estimating process in place. The auditors incorrectly make it appear that either no estimating (other than the JOC contractor’s estimate) is performed or if an independent consultant is used, the estimates are usually inaccurate. When an independent consultant’s estimate is performed it is usually done in the early stages of a project’s development, when a client agency is contemplating a potential project. At this stage the project may or may not have been slated to be a JOC project. This estimate is normally used by a client agency to determine if the project is affordable and if modifications (either additions or subtractions) should be made so that initial budgets can be set up. The estimate is also used to decide if a project is appropriate for the JOC program. Thus this initial independent consultant’s estimate may not resemble the final modified project.

Once it is decided that a project will be performed through the JOC program, a JOC contractor will be asked to perform and submit a detailed estimate of the quantities and types of materials to be used. The contractor’s proposal is based on materials and quantities that are jointly determined by DDC and the JOC contractor, and by prices that are already established in the JOC’s unit price book. DDC’s JOC unit reviews the JOC contractor’s detailed estimate and makes adjustments if necessary. These adjustments are based on the JOC unit performing a thorough review of the project which includes numerous walkthroughs of the project site itself to determine quantities and type of materials to be used and if they match the JOC contractor’s amounts.”

Auditor Comment: The Department’s response appears to downplay the function of independent estimates in the JOC program. An examination of the Department’s JOC Manual indicates that this type of estimate is an important tool for ascertaining the cost reasonableness of a JOC contractor’s price proposal. Although the Department did not directly explain its disagreement with our recommendation to provide independent estimates, the Manual sets forth this requirement in Section II.D.3, which states that the Program Unit is to “Obtain a preliminary estimate from the design consultant and provide to JOC PM. If there is no design consultant a preliminary estimate should be obtained from the DDC Cost Verification Unit.” Additionally, Section II.F.2 states that the consultant estimator or cost verification unit is to

“Update the Preliminary Estimate with an Independent Estimate after the Scope of Work has been fully developed.”

Our recommendation to develop guidelines to ensure that cost estimates are reliable indicators of the actual cost of the work is based on Section III.D.2e, which says, “The Independent Estimate should be a refinement of the Preliminary Estimate” and Section III.E.4, which requires that the “JOC PM reviews all portions of the Proposal including the Price Proposal which must be compared to the Independent Estimate.”

In response to the Department’s complaint that the current estimating process was not clearly explained, we note that the Department’s estimating process was spelled out in the audit (see report pages 4 and 5: e.g., “The cost of the work is determined by multiplying the unit price for each individual task by the quantity of units of work performed . . .,” and “a contractor must submit a job order proposal to the JOC Unit that identifies specific work items and their associated unit prices . . .”)

Problems with Complying with Construction Schedules

Department practice requires that job orders contain construction duration times by including anticipated construction start and end dates for all JOC projects. Our review of the documentation for 15 of the 139 job orders indicated that construction duration for 12 of the 15 sampled job orders whose cost was greater than \$500,000 exceeded their planned schedules. In these cases, the actual construction time ranged up to 28 months beyond planned durations.

For example, the Department issued a \$685,166 job order on December 9, 2009 (No. 08-LBR-E01-001.00) to RNH Electrical, Inc. to upgrade emergency power at the QCCL Data Center in Queens. As of January 24, 2012 (the date of our audit inspection), construction had been delayed by 596 days—almost 20 months. As previously discussed, the duration of this job order’s development was also excessive and totaled 262 days. Overall, the job order has so far taken 813 more days to complete than planned.

As another example, the Department issued a \$762,251 job order on October 26, 2009 (No. 08-CUL-G04-009.00) to Promo Pro to replace the roof at the ARC facility in Manhattan. Construction was delayed by 644 days—almost 22 months. The duration of this job order’s development was also excessive and totaled 100 days. Overall, the job order took 699 more days to complete than planned.

There was no adequate file documentation in these cases to indicate the reason for the delays in carrying out construction work for these job orders. Had the Department ensured that contractors adhered to their scheduled construction times, these job order projects would have been started and completed much sooner.

Recommendations

The Department should:

7. Ensure that JOC contractors complete work on schedule. In this regard, the Department should ensure that unfinished work is completed without further delay.

Department Response: See response to Recommendation No. 8.

8. Examine the reasons for construction delays and develop procedures to remedy any deficiencies that hinder the timely completion of job order work. Provide written documentation in project files for the cause of project delays.

Department Response: “DDC agrees with recommendations numbered 7 & 8.”

No Written Policies for Performing Work under Job Order Contracts

Many of the problems described above can be attributed to the Department’s lack of written policies or guidelines that spell out the circumstances—including a monetary threshold—under which the use of job order contracting is appropriate. According to the Manual, “JOC is a construction contract procurement system that enables the Department of Design and Construction (DDC) to expedite procurement of a large number of small to medium sized construction projects.” While as a general rule the Department stays within these guidelines, our review of the sampled job orders that exceeded \$500,000 highlights the problems that preclude the Department from fully attaining the cost savings feature of the JOC system.

According to the Department’s JOC Training and Reference Manual, “The average Job Order value is approximately \$250,000.” Nevertheless, the Department’s informal practice is to use job orders for work up to \$500,000, although Department officials may authorize job order amounts that exceed this threshold. Of 139 sampled job orders, the Department approved 16 (11 percent) that exceeded \$500,000.⁶ (Two of these job orders exceeded \$1 million.) In all these cases, the job order lacked the required authorizations from the Department’s assistant commissioner of technical support.

Moreover, as shown in Table 1 on page 16, the job orders were beset by the problems we previously discussed. Specifically:

- 15 (100 percent) of the job orders exceeded the 45-day development time;
- 12 (80 percent) were delayed in completing construction; and
- nine (60 percent) lacked independent estimates.

⁶ As discussed in the scope and methodology section, one of the 16 job orders was subsequently cancelled by the Department.

Table 1
Analysis of Sampled Job Orders
That Exceeded \$500,000

Job Order Amount	Development Time		Construction Time		Independent Estimates	
	Within 45 Days	Over 45 Days	On Schedule	Delayed	Yes	No
\$500,000 to \$1 million	0	13	3	10	5	8
Above \$1 million	0	2	0	2	1	1
Total =	0	15	3	12	6	9

As an example of these problems, the Department issued a \$795,103.74 job order on June 22, 2009 (No. 08-TRA-G02-002.00) to Biltmore Construction to perform interior renovations at the Department of Transportation Coin Collection Facility in Queens. The project development process totaled 106 days rather than the 45 days specified in Department guidelines. Furthermore, the independent estimate, which totaled \$1,416,143, was 78 percent higher than the actual cost of the job order. Finally, as of January 30, 2012, construction had been delayed by 245 days—almost eight months. Overall, the job order has so far taken 306 more days to complete than planned.

In another example, the Department issued a \$1,973,043 job order on June 26, 2009 (No. 08-COR-G08-002) to Volmar Construction to repair exterior masonry walls and replace doors and windows at Riker’s Island. The project development process totaled 113 days rather than the 45 days specified in Department guidelines. Furthermore, the independent estimate, which totaled \$2,632,708, was 33 percent higher than the actual cost of the job order. Finally, as of January 30, 2012, construction was delayed by 206 days—almost seven months. Overall, the job order has so far taken 274 more days to complete than planned.

Recommendation

9. The Department should develop and implement written guidelines that stipulate the circumstances and monetary threshold under which the use of job order contracts would be appropriate.

Department Response: “DDC agrees with recommendation # 9.”

More Than \$455,000 in Liquidated Damages Not Assessed

If work is delayed beyond its scheduled completion date, a contractor may, for individual job orders, be required to pay to the Department a specified amount of liquidated damages. According to JOC contract Article 15:

“Liquidated damages may be applied on a Job Order by Job Order basis at the sole discretion of the Department. In the event the Contractor fails to complete the Detailed Scope of Work for a Job Order within the Job Order Completion Time plus authorized time extensions, or if the Contractor, in the sole determination of the Commissioner, has abandoned the Work, the Contractor shall pay the City the sum fixed in the Schedule of liquidated damages . . . ”

Of the 15 job orders for which we reviewed file documentation, there were 12 cases in which construction was delayed.⁷ However, for all 15 sampled job orders for which construction was delayed beyond scheduled completion dates, documentation indicates that the Department chose not to invoke the contract provision for assessing liquidated damages before the job orders were issued and construction started. Moreover, there was no documentation to support those decisions. In at least two of these cases, our review of documentation and discussions with Department engineers indicate delays that could be attributable to contractors, thereby warranting the imposition of liquidated damages, which we calculate total \$455,400. (See Table 2 below.)

Table 2
Schedule of Liquidated Damages for Job Orders
That Lacked Liquidated Damages Provisions

Job Order No. and Contractor	Description	Liquidated Damages per Day Per Contract	Scheduled Completion Date	No. of Days Late	Amount Not Assessed Through 1/30/12
08-HLT-G01-001.00 Biltmore Contracting	Bedford Atlantic Armory Renovations	\$575	1/11/2010	196	\$112,700
08-LBR-E01-001.00 RNH Electrical, Inc.	Upgraded QCCL Data Center HVAC & Emerg. Power	\$575	6/13/2010	596	\$342,700
				Total =	\$455,400

While the Department is not obligated to assess liquidated damages, the practice of the Department to routinely relieve contractors of this obligation increases the City’s risk that work

⁷ One of the other 16 job orders (No. 07-COR-G08-005.01) was cancelled by the Department before construction commenced.

may not be completed on time, and therefore, jeopardizes the Department's ability to carry out the JOC program in a cost effective manner.

Recommendations

The Department should:

10. Ensure that all job orders contain provisions for liquidated damages. Assess liquidated damages when contractors fail to complete work in accordance with scheduled timeframes.

Department Response: See response to Recommendation No. 11.

11. Determine whether liquidated damages should be assessed for the two cases noted in this report.

Department Response: "DDC agrees with recommendation # 10 & 11."

Problems with the PROGEN Database

The Department's PROGEN database was intended to track information about JOC projects such as the dates when projects were initiated, work proposals were accepted, construction commenced and ended, and the amounts of independent estimates. However, during the course of our audit, we found that the PROGEN database is not regularly updated and contains inconsistent and missing information. As a result of these problems, the Department is hampered in its ability to effectively monitor the status of JOC project work and ensure that projects are proceeding expeditiously.

For our review of the 139 sampled job orders, we found that PROGEN lacked information about the proposal acceptance dates for 36 (26 percent) job orders. There were no construction commencement and completion dates in PROGEN for 87 (63 percent) job orders. Moreover, our review indicated the request for proposal dates in PROGEN for 27 (19 percent) job orders did not match the dates in the actual job order files; information for 31 (60 percent) of the 53 job orders that contained construction schedule dates did not match the dates in the job order files; and information for 16 (57 percent) of 28 job orders that contained independent estimate amounts did not match the amounts in the job order files. Furthermore, although the PROGEN system contained cost estimate information for all 139 job orders, the files lacked estimates for 111 of these.

Recommendation

12. The Department should ensure that accurate, timely, and complete information is recorded in the PROGEN system.

Department Response: "DDC agrees with recommendation # 12."

DETAILED SCOPE AND METHODOLOGY

We conducted this performance audit 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. This audit was conducted in accordance with the audit responsibilities of the City Comptroller as set forth in Chapter 5, §93, of the New York City Charter. This audit was conducted by staff that included auditors with engineering backgrounds.

The scope of this audit covered JOC projects performed under job orders associated with construction, plumbing, electrical, and mechanical job order contracts that were in effect during Fiscal Years 2009 and 2010. During this period, these included 19 JOC contract agreements totaling \$74 million with 12 contractors. (See Appendix for a list of contracts.)

To understand the requirements and internal control policies and procedures relevant to planning our audit, we obtained and reviewed rules and regulations governing the program and Department policies and procedures. These included the following:

- JOC Training and Reference Manual: December 2006
- JOC Written Procedure: 2006
- DDC Construction Task Catalog: August 2009 (prepared by The Gordian Group)

To understand the Department's internal controls for administering the program, we conducted walk-through meetings and interviewed Department personnel who oversee the program. We also obtained and prepared flow charts that describe the process by which job orders are generated and implemented. We documented our understanding of the Department's processes and controls in written descriptions.

We obtained from the Department a list of 141 job orders that were registered by the Comptroller's Office in Fiscal Years 2009 and 2010 (76 job orders in Fiscal Year 2009 and 65 job orders in Fiscal Year 2010). To ascertain the reliability of the data, we compared the information with a database of registered contracts and associated job orders we independently obtained from the Comptroller's Office of Contract Administration. Additionally, we independently obtained job order information from PROGEN, which is the system of record for the JOC Unit, and compared it with the data obtained from the Department. We compared job order information such as number, title, approved amount, contractor, and construction start and end dates. As a further test of reliability of PROGEN data, we reviewed the information in the 141 job order hard copy files obtained from the JOC unit and compared this data to that recorded in PROGEN.

Overall, our sample consisted of JOC projects that comprised 141 job orders and supplemental job orders (there were 57 original job orders and 84 supplemental job orders). After we commenced audit work, we found that two of the 141 job orders and supplemental job orders were issued to administratively extend the construction time and, therefore, did not involve the normal development process. Accordingly, we excluded these two job orders and

reduced the sample from 141 to 139 job orders and supplemental job orders. The 139 job orders totaled \$24,549,827 and consisted of 131 job orders that ranged from \$1,034 to \$1,973,043, and eight credit job orders that ranged up to -\$2,177,906.

To determine whether the JOC contracts are administered properly, we reviewed information in PROGEN to determine if it was utilized efficiently and whether information contained was accurate and complete. We also reviewed the JOC Unit project files for the 139 job orders and determined whether the files contained all required documentation such as initiation sheet, joint scope meeting, request for proposal, contractor proposal, approved job order, notice to proceed, and independent estimates.

Based on our initial review of the 139 job orders, we chose to examine in detail a sample of all 16 job orders whose price was \$500,000 or more. We chose to examine job orders that exceeded this monetary threshold because of their large dollar values and the fact that the Department requires additional supervisory oversight for job orders of this magnitude. We obtained construction records maintained by the program units for the 16 job orders and found that one of the 16 job orders was cancelled. Accordingly, we reduced our sample of job orders that exceeded \$500,000 to 15. The total cost of the 15 job orders was \$12,188,038, which represented 50 percent of the total cost of all 139 job orders. We reviewed file documentation such as construction schedules, project manager logs, progress photos, quality assurance reports, and payments for the 15 job orders and determined whether the construction was completed within the specified schedule and if there was evidence of adequate project supervision.

To test whether the cost of the work was reasonable, we reviewed the Department's August 3, 2001, JOCS Audit Report, which determined whether the prices in the Gordian Group's Construction Task Catalog were fair and accurate. As an additional test of cost reasonableness, we chose a judgmental sample of the current unit prices in the Construction Task Catalog and compared the prices with an industry standard, RS Means Building Construction Cost Data.

For work items that were "non-prepriced," we reviewed file documentation for the 16 job orders whose cost exceeded \$500,000 to determine if these items were procured competitively. We also ascertained whether the Department was using the appropriate multiplier factors for each job order.

To determine whether the quality of work was satisfactory, we conducted inspections to observe the work at five of the 15 sampled job order project sites. We chose these five projects because documentation indicated that they were either delayed, not completed, or had been inspected by the Department's in-house quality assurance staff. Our inspections were conducted from January 19, 2012, to February 1, 2012. Our own inspections were limited to visual observations of completed work because we were unable to inspect underground, in-wall, or other construction work that was covered by finishing materials.

Because each job order and project site is independent and has different work requirements, the field observations and file reviews were not projected to all job orders.

However, the results of our tests provide a reasonable basis to determine whether the Department is properly administering its JOC contracts.

Appendix

List of JOC Contracts

	Contractor	Trade	Contract No	Max Value in Millions	Job Orders in FY 09 & 10
1	Biltmore Contracting	General Construction	20070020010	\$ 5	\$ 883,135.75
2	Biltmore Contracting	General Construction	20090023886	\$ 5	\$ 2,499,943.53
3	Crescent Contracting	Plumbing	20070020715	\$ 2	\$ 82,363.03
4	D & K Construction	General Construction	20070020581	\$ 5	\$ 984,266.61
5	D & K Construction	General Construction	20090023924	\$ 5	\$ 1,269,338.96
6	EMCO Tech Construction	General Construction	20070020718	\$ 5	\$ 2,716,915.44
7	Geomatrix Services	HVAC	20070020699	\$ 2	\$ 412,277.39
8	Geomatrix Services	HVAC	20090023954	\$ 2	\$ 3,276,837.45
9	JCH Delta Contracting	General Construction	20070018556	\$ 5	\$ (686,741.41)
10	Mega Contracting	General Construction	20070020670	\$ 5	\$ 1,506,677.80
11	Par Plumbing	Plumbing	20070020714	\$ 2	\$ -
12	Par Plumbing	Plumbing	20090023918	\$ 2	\$ -
13	Pav-Lak Contracting	General Construction	20070010588	\$ 5	\$ 78,605.03
14	Promo Pro	General Construction	20070020708	\$ 5	\$ 835,767.67
15	Promo Pro	General Construction	20090030659	\$ 5	\$ 3,568,117.98
16	RHN Electric	Electrical	20070020702	\$ 2	\$ 2,151,649.25
17	RHN Electric	Electrical	20090023943	\$ 2	\$ 2,184,773.56
18	Volmar Construction	General Construction	20070020646	\$ 5	\$ (700,254.65)
19	Volmar Construction	General Construction	20090026971	\$ 5	\$ 3,486,154.16
				\$ 74	\$ 24,549,827.55



DAVID J. BURNEY, FAIA
Commissioner

May 31, 2012

H. Tina Kim
Deputy Comptroller
NYC Office of the Comptroller
1 Centre St
New York, NY 10007

Re: NYC Comptroller's Draft Audit Report on the Job Order Contracting by the Department of Design and Construction 7E11-120A

Dear Ms. Kim:

The Department of Design and Construction (DDC) appreciates the City Comptroller's efforts with respect to this audit of DDC's administration of the Job Order Contracting (JOC) program and will be using this report to help improve our process.

Before DDC responds to each individual recommendation, DDC would like to make some general comments on the overall findings of this audit:

DDC agrees with the auditors' overall findings that concluded that the quality of the JOC work was satisfactory overall.

The JOC program is a very successful tool in the City's procurement tool box. It is unique in that cost items are developed before bidding and bidders provide a multiplier that is associated with all of the items identified in the bid books. While no bid book can capture every single item used in a construction project, DDC's bid books are voluminous and provide a large inventory of items to choose from. As a procurement tool, JOCs provide a way for the agency to save a lot of time and effort once a job order or need is identified. This is possible because almost all of the procurement and administrative work is done upfront. The only open issues that consume some time in securing an actual job order are agreeing on the scope (quantity and type of materials) with the contractor and then securing the funds through the City's budget procedures. While DDC has some control over the period it takes to negotiate a scope, we do not have control over the budget process.

Below please see our responses to the draft audit recommendations:





“The Department should...”

1. “Formulate measurement criteria to assess whether the JOC program is attaining its goal of achieving savings in overall project costs as compared to traditional contracting methods.”

Agency Response to Recommendation number 1:

DDC does not agree with recommendation # 1.

DDC believes that the purpose of the JOC program is to expedite the procurement process for work that is ideally suited for the JOC program. Work that is ideally suited for JOC includes construction projects that perform routine and repetitive work where the project’s cost can be fairly matched to the quantities and type of construction materials used. This type of work would then bypass the prolonged bidding process as JOC contracts would already be in place awaiting the work order to be implemented. This saving of time in the procurement process may translate to cost savings but the main goal of this time saving is to proceed to registration more expeditiously and to get the work started faster once a need is identified.

DDC understands the origin of the auditors concerns. They were based on DDC’s own internal JOC manual that stated that JOC projects should reduce the overall construction costs. This statement in our manual was an assumption based on statements made by our JOC consultant as part of its national marketing literature. The JOC consultant (Gordian), a former military procurement specialist, developed the JOC system to enable the military to move contractors in place to build routine base camps anywhere in the world. It is one of many procurement tools for the military. This system translated easily to the civil side of construction and is in use by DDC and other agencies in New York. DDC is in the process of reviewing and updating our JOC manual, which was last updated before 2006. We will look to remove all marketing materials.

2. “Complete development and submit job orders for registration within the required 45 day timeframe. The Department should provide written justification for cases in which the timeframe is exceeded.
3. “Implement more effective project management controls to ensure that job order work is developed in a timely manner.”

Agency Response to Recommendation numbered 2 & 3:

DDC agrees with recommendations numbered 2 & 3, and is in the process of developing procedures that will track and document the timeframes (including delays) for the development and construction of JOC projects.





DDC believes that these procedures and process will be a strong management tool to assess the effectiveness of the JOC program. However, DDC feels that the dates used by the auditors do not portray an accurate picture of the development of JOC job orders. DDC believes that the auditors included in their calculations of development time, periods for which the job orders were not under the control of the JOC unit. For example, once a job order is sent to the Office of Management and Budget (OMB) for approval, this time period is no longer controlled by DDC and any OMB delays should not have been included in the auditor's calculation of development time.

4. "Provide independent estimates for all job order work."
5. "Develop guidelines to ensure that cost estimates are reliable indicators of the actual cost of the work."
6. "Ascertain the cost-effectiveness of using consultants to prepare cost estimates."

Agency Response to Recommendations numbered 4, 5 & 6:

DDC does not agree with recommendations # 4, 5 & 6.

DDC feels that the auditors did not clearly explain the current estimating process in place. The auditors incorrectly make it appear that either no estimating (other than the JOC contractor's estimate) is performed or if an independent consultant is used, the estimates are usually inaccurate. When an independent consultant's estimate is performed it is usually done in the early stages of a project's development, when a client agency is contemplating a potential project. At this stage the project may or may not have been slated to be a JOC project. This estimate is normally used by a client agency to determine if the project is affordable and if modifications (either additions or subtractions) should be made so that initial budgets can be set up. The estimate is also used to decide if a project is appropriate for the JOC program. Thus this initial independent consultant's estimate may not resemble the final modified project.

Once it is decided that a project will be performed through the JOC program, a JOC contractor will be asked to perform and submit a detailed estimate of the quantities and types of materials to be used. The contractor's proposal is based on materials and quantities that are jointly determined by DDC and the JOC contractor, and by prices that are already established in the JOC's unit price book. DDC's JOC unit reviews the JOC contractor's detailed estimate and makes adjustments if necessary. These adjustments are based on the JOC unit performing a thorough review of the project which includes numerous walkthroughs of the project site itself to determine quantities and type of materials to be used and if they match the JOC contractor's amounts.

7. "Ensure that JOC contractors complete work on schedule. In this regard, the Department should ensure that unfinished work is completed without further delay."





8. "Examine the reasons for construction delays and develop procedures to remedy any deficiencies that hinder the timely completion of job order work. Provide written documentation in project files for the cause of project delays"

Agency Response to Recommendations numbered 7 & 8:

DDC agrees with recommendation numbered 7 & 8.

DDC agrees that documentation relating to delays can and will be improved. In addition, as explained in our response to recommendations numbered 10 & 11, DDC is now performing delay analyses when projects exceed their time schedules. However, it should be noted that DDC has always realized the importance of completing a project on time. Often time delays are due to conditions, such as field conditions or scope changes made by client agencies, which are outside the control of DDC.

9. "Develop and implement written guidelines that stipulate the circumstances and monetary threshold which the use of the job order contracts would be appropriate."

Agency Response to Recommendation # 9:

DDC agrees with recommendation # 9.

DDC is in the process of updating the JOC manual. As part of this process, the manual will outline when the use of JOC is appropriate. In addition, DDC management will closely monitor use of the JOC program.

10. "Ensure that all job orders contain provisions for liquidated damages. Assess liquidated damages when contractors fail to complete work in accordance with scheduled timeframes."

11. "Determine whether liquidated damages should be assessed for the two cases noted in this report."

Agency Response to Recommendation # 10 & 11:

DDC agrees with recommendation # 10 & 11.

DDC has now informed all program units that all future JOC job orders will contain a provision for liquidated damages. In addition, all program units have been instructed to perform delay analysis when a project is late. Such analysis will be the basis for determining if a contractor is at fault and if liquidated damages should be sought. DDC has reviewed the two cases cited in the report and





determined that liquidated damages cannot be applied due to the fact that the initial JOC job orders indicated that liquidated damages do not apply.

12. "Ensure that accurate, timely and complete information is recorded in the PROGEN system."

Agency Response to Recommendation # 12:

DDC agrees with recommendation # 12.

PROGEN is a data system that is owned and developed by Gordian. DDC will conduct a review of the PROGEN system to determine if DDC should rely on this system and if so where deficiencies in data entry currently exist and how they can be corrected.

Sincerely,

David J. Burney, FAIA

