



City of New York

OFFICE OF THE COMPTROLLER

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FINANCIAL AUDIT

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Audit Report on the Department of
Buildings' Compliance with the High
Risk Construction Oversight Study

7E13-124A

November 7, 2014

<http://comptroller.nyc.gov>



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November 7, 2014

To the Residents of the City of New York:

My office has audited the New York City Department of Buildings (DOB) to determine whether DOB has implemented the actions recommended in the High Risk Construction Oversight (HRCO) Report and whether the recommendations were implemented within the time frames stated in DOB's HRCO Implementation Milestones document. We audit agencies such as DOB as a means of ensuring that the resources of City agencies are operating in the best interests of the public.

In July 2008, DOB initiated the HRCO study in response to two fatal crane collapses earlier that year as well as an increase in the number of construction accidents in New York City since January 2006. DOB entered into two contracts totaling \$5.81 million with CTL Engineers & Construction Technology Consultants, P.C. (CTL) to perform the HRCO study and to assist with recommendation implementation. The goal of the study was to make recommendations for improvements to the DOB's regulatory framework and construction industry practices to improve safety. CTL made 65 recommendations, each of which had implementation time frames specified in the HRCO Implementation Milestones document. According to the High Risk Construction Milestones, DOB was to implement 49 of the recommendations within a two-year period. In addition, the High Risk Construction Milestones indicated that the remaining 16 recommendations needed additional analysis.

Our audit found that DOB has failed to fully implement the recommendations of the HRCO Report and so also failed to comply with its own HRCO Implementation Milestones. More than four years after the preparation of the HRCO Implementation Milestones document, only 8 of the 65 (12 percent) recommendations were fully implemented, 17 of the 65 (26 percent) recommendations were partially implemented, 18 of the 65 (28 percent) recommendations were in progress, and 22 of the 65 (34 percent) of the recommendations were not implemented. Additionally, the audit identified serious weaknesses in DOB's internal controls and oversight of the implementation process for the HRCO Report recommendations, including DOB's lack of a single point of responsibility. The audit also identified weaknesses in DOB's oversight of the implementation contract it entered into with CTL and with CTL's performance.

The results of the audit have been discussed with DOB 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,



Scott M. Stringer

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THE CITY OF NEW YORK OFFICE OF THE COMPTROLLER FINANCIAL AUDIT

Audit Report on the Department of Buildings' Compliance with the High Risk Construction Oversight Study

7E13-124A

EXECUTIVE SUMMARY

The New York City Department of Buildings (DOB) is responsible for enforcing the New York City Construction Codes and the zoning regulations to ensure the safe and lawful use of buildings and properties. In July 2008, DOB initiated the High Risk Construction Oversight (HRCO) study in response to two fatal crane collapses earlier that year as well as an increase in the number of construction accidents in New York City since January 2006. A March 15, 2008 collapse resulted in 4 fatalities and a May 31, 2008 collapse resulted in 2 fatalities. According to the Fiscal Year 2009 Mayor's Management Report, the number of construction-related accidents increased from 83 in FY 2006 to 123 in FY 2008. Using emergency procurement procedures, DOB entered into a \$3.91 million contract with CTL Engineers & Construction Technology Consultants, P.C. (CTL) that started July 7, 2008 and ran through July 6, 2009, to perform the study. The goal of the study was to make recommendations for improvements to DOB's regulatory framework and construction industry practices to improve safety.

CTL submitted the HRCO report (HRCO Report) to DOB on June 5, 2009. In the report, CTL outlined the study's findings and made 65 recommendations. To address these recommendations, in September 2009, DOB developed HRCO Implementation Milestones, a document that presented an implementation timeframe for each of the recommendations. According to the HRCO Implementation Milestones, DOB was to implement 49 of the recommendations within a two-year period, and indicated that the remaining 16 recommendations needed additional analysis.

To assist with the implementation of the HRCO Report's recommendations, DOB awarded a second contract to CTL (the Implementation Contract) at a cost of \$1.90 million, this time using the negotiated acquisition method of procurement. The contract term was from December 14, 2009 through December 13, 2010. In its Pre-Solicitation Review submitted to the Mayor's Office of Contracts, DOB asserted that it "has an urgent need to retain services of the incumbent contractor to institutionalize construction safety improvements recommended under the existing emergency contract." In total, the amount expended in connection with the two contracts was \$5.81 million.

Audit Findings and Conclusion

Despite the critical public safety concerns that prompted DOB's retention of CTL to make and implement the HRCO Report recommendations, our audit found that DOB has failed to fully

implement them in the more than four years that have passed since the HRCO Report was issued. Our audit found that, more than four years after the preparation of the HRCO Implementation Milestones document, only 8 of the 65 (12 percent) recommendations were fully implemented, 17 of the 65 (26 percent) recommendations were partially implemented, 18 of the 65 (28 percent) recommendations were in progress, and 22 of the 65 (34 percent) of the recommendations were not implemented.¹ Additionally, the audit identified serious weaknesses in DOB's internal controls and oversight of the implementation process for the HRCO Report recommendations, including DOB's lack of a single point of responsibility (either a person or a group). Although DOB officials have stated that implementation of the HRCO Report's recommendations was a high priority, that commitment appears to have faded. This raises the question as to whether some of the \$5.81 million in public monies that was expended may have been wasted. Moreover, the failed attempt thus far to address what have been identified as high risk deficiencies in the DOB's regulations and oversight may continue to expose the public and construction site workers to accidents and injuries.

The audit also identified weaknesses in DOB's oversight of the Implementation Contract it entered into with CTL and with CTL's performance. Under the Implementation Contract, CTL was responsible for producing a variety of deliverables to be used by DOB to implement the recommendations in the HRCO Report.² However, our review found deficiencies in the deliverables submitted to DOB. Based on our review, we estimate that the value of the work not performed totals more than \$357,000, approximately 19 percent of the \$1.9 million Implementation Contract. Also, DOB's documentation of the scoping and negotiation of the Implementation Contract was inadequate. Although the audit team did not find any evidence of impropriety, the failure of DOB to document and justify its contract decisions and negotiations leaves it vulnerable to fraud and abuse.

Audit Recommendations

This report makes a total of 8 recommendations, including that DOB:

- Review the HRCO Report recommendations to ensure they are still pertinent to DOB's goals and current construction practices and environment. This review should be comprehensive and capture the full content of each recommendation as put forward by CTL in the HRCO Report.
- Develop formal tracking and reporting requirements for recommendation implementation.
- Create a project management team responsible for independently verifying recommendation implementation status as well as performing the tracking and reporting function. Ensure that this team has the necessary technical knowledge to head up this endeavor.
- Ensure that all actions (e.g., reviews, analyses, meetings, etc.) are formally and

¹ The audit team used the following definitions to determine recommendation implementation status:

- **Implemented:** Full compliance with recommendation or meeting nature of recommendation.
- **Partially implemented:** Partial compliance with recommendation (i.e., only part of the recommendation is in effect).
- **Implementation in progress:** Progress has been made towards meeting some or all of the recommendation. This may include legislation that has been introduced but not yet enacted, a draft of a bulletin or procedure, groundwork performed by the Consultant under the implementation contract, meeting a milestone on the implementation schedule, etc.
- **Not implemented:** 1) DOB has not acted on the recommendation; 2) It states that it is not pursuing the recommendation, but has not provided documentation of discussions regarding the recommendation and/or formal justification for the decision; or 3) It claims to have acted on the recommendation but has not provided evidence that it has done so.

² According to dictionaryofconstruction.com, a deliverable is defined as: 1) A report or product of one or more tasks that satisfy one or more objectives and must be delivered to satisfy contractual requirements; 2) Another name for products, services, processes, or plans created as a result of doing a project.

properly documented.

- Maintain appropriate files of deliverables, meeting minutes, communications with industry and CTL, training session attendance sheets, etc.
- Adequately monitor consultant contracts to ensure that all tasks are completed and completed in a way that provides value to the agency.
- Ensure that all contracts specify when a consultant's work product is the property of the agency and that this be required in all contracts, except for documented extraordinary circumstances.
- Ensure that significant actions and decisions connected to establishing the scope of a contract, along with their justifications and/or authorizations when required, are formally and properly documented.

Agency Response

In its response, DOB agreed with seven recommendations and partially agreed with one recommendation. Despite this consensus, DOB stated, "While your input can help further our commitment to providing quality public service and maximizing our resources, we disagree with some of your findings and recommendations. In actuality, we find some of your conclusions to be very misleading and/or inaccurate. The audit did not properly reflect the overall outcome of the HRCO recommendations, and did not consider all the things that were accomplished by the Department of Buildings (the Department) based on this study. A few things that were ignored included, for example, the Department creating and staffing a Concrete Unit and having an in-house Curriculum Specialist who prepares customized training curriculums for Department staff."

Auditor Comment

DOB fails to explain its assertion that some statements made in the audit report are "misleading and/or inaccurate." This statement appears inconsistent with DOB's overall agreement with all of the recommendations in whole or in part in one instance. The audit examined all documentation provided and testimony given by DOB that was relevant to the audit objective. The fact remains that the HRCO recommendations have not been fully implemented notwithstanding initiatives such as the creation of the Concrete Unit and the position of Curriculum Specialist.

AUDIT REPORT

Background

The New York City Department of Buildings (DOB) is responsible for enforcing the Construction Codes and the zoning regulations to ensure the safe and lawful use of buildings and properties.

In July 2008, DOB initiated the High Risk Construction Oversight (HRCO) study in response to two fatal crane collapses earlier that year as well as an increase in the number of construction accidents in New York City since January 2006. DOB hired CTL Engineers & Construction Technology Consultants, P.C. (CTL) to perform the study. Using emergency procurement procedures, DOB entered into a contract with CTL that started on July 7, 2008 and ran through July 6, 2009, at a cost of \$3.91 million.³ DOB represented that the services it sought to procure were vital to immediately identifying hazardous conditions and finding gaps in the regulatory and enforcement schemes that may contribute to accidents.⁴

Based on the prior accidents, DOB included three high risk areas in the HRCO study: concrete used in high-rise construction, cranes and hoists, and excavation operations. The scope of the study included site observations, a review of DOB's operations, industry outreach, and the benchmarking of other jurisdictions. In order to provide expertise in various areas, CTL entered into subcontracts with other specialist firms to perform the study. CTL was responsible for the study overall, as well as responsible for assessing issues with high-rise concrete. Crane Tech Solutions was responsible for cranes, AECOM was responsible for excavations, Patuxent Engineering Group was responsible for hoists, Construction Safety Consultants was responsible for site safety, and DBR Group was responsible for regulatory operations. The goal of the study was to make recommendations for improvements to the DOB's regulatory framework and construction industry practices to improve safety.

CTL submitted the HRCO Report to DOB on June 5, 2009. In the report, CTL outlined the study's findings and made 65 recommendations. The recommendations were categorized as follows: 25 for concrete operations, 31 for crane and hoist activities, and 9 for excavation operations. To address the study's recommendations, in September 2009, DOB developed HRCO Implementation Milestones, a document that presented an implementation timeframe for each of the recommendations. According to the HRCO Implementation Milestones, DOB was to implement 49 of the recommendations within a two-year period, and indicated that 16 recommendations needed additional analysis.

To assist with the implementation of the HRCO Report's recommendations, DOB awarded a second contract to CTL, this time using the negotiated acquisition method of procurement.⁵ This second contract with CTL, (the Implementation Contract) included work related to implementing 35 of the 65 HRCO Report recommendations. (As described on page 10, the remaining 30 recommendations were not included in the Implementation Contract.) It was to run for one year, from December 14, 2009 through December 13, 2010, at a cost of \$1.90 million.⁶ In its Pre-Solicitation Review submitted to the Mayor's Office of Contracts, DOB asserted that it "has an urgent need to retain services of the incumbent contractor to institutionalize construction safety improvements recommended under the existing emergency contract." It further stated that, "[t]he Department lacks sufficient staff with the requisite knowledge and skills to implement these

³ All contract funding has been expended.

⁴ Comptroller's May 15, 2008 letter approving DOB's emergency contract request.

⁵ DOB's Enforcement Unit (Unit) is responsible for implementing the HRCO recommendations. The Unit tracks the recommendations on a spreadsheet.

⁶ All contract funding has been expended.

proposals. . . . Implementing CTL's recommendations is a high priority for the Department as we believe they will significantly reduce the risk of future catastrophic failures in construction in the City." In total, the amount expended in connection with the two contracts was \$5.81 million.

Objectives

The objective of this audit was to determine whether DOB has implemented the actions recommended in the HRCO Report and whether the recommendations were implemented within the timeframes stated in the HRCO Implementation Milestones document.

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 including auditors with engineering backgrounds.

The scope of this audit covers the period from June 2009, when the HRCO Report was issued, through December 2013. We did not assess the credentials of CTL or the other specialist firms that conducted the HRCO study or the merit of their report recommendations; such an assessment is outside the scope of our audit. 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 DOB officials during and at the conclusion of this audit. A preliminary draft report was sent to DOB officials and discussed at an exit conference held on May 27, 2014. On September 18, 2014, we submitted a draft report to DOB officials with a request for comments. We received a written response from DOB on October 2, 2014.

DOB agreed with seven recommendations and partially agreed with one recommendation presented in the audit report. Despite this consensus, the response stated, "While your input can help further our commitment to providing quality public service and maximizing our resources, we disagree with some of your findings and recommendations. In actuality, we find some of your conclusions to be very misleading and/or inaccurate. The audit did not properly reflect the overall outcome of the HRCO recommendations, and did not consider all the things that were accomplished by the Department of Buildings (the Department) based on this study. A few things that were ignored included, for example, the Department creating and staffing a Concrete Unit and having an in-house Curriculum Specialist who prepares customized training curriculums for Department staff."

The full text of DOB's response is included as an addendum to this report.

Auditor Comment

DOB fails to explain its assertion that some statements made in the audit report are “misleading and/or inaccurate.” This statement appears inconsistent with DOB’s overall agreement with all of the recommendations in whole or in part in one instance. The audit examined all documentation provided and testimony given by DOB that was relevant to the audit objective. That fact remains that the HRCO recommendations have not been fully implemented notwithstanding initiatives such as the creation of the Concrete Unit and the position of Curriculum Specialist.

FINDINGS AND RECOMMENDATIONS

Despite the critical public safety concerns that prompted DOB's retention of CTL to make and implement the HRCO Report recommendations, our audit found that DOB has failed to fully implement them in the more than four years that have passed since the HRCO Report was issued. The failure to fully put these recommendations into practice raises the question as to whether some of the \$5.81 million in public monies that was expended may have been wasted. Moreover, the public and construction site workers remain at risk from accidents and injuries. The audit also identified weaknesses in DOB's oversight of the Implementation Contract it entered into with CTL and with CTL's performance. In particular, problems were identified with certain deliverables produced under the contract that are explained in detail below, and DOB failed to adequately document the scoping and negotiation of the Implementation Contract.

HRCO Report Recommendations Not Implemented

The HRCO Report presented 65 recommendations. According to DOB's Implementation Milestones document prepared in September 2009, all recommendations were to have been acted on in a maximum two-year timeframe. Specifically, by September 2011, 49 of the recommendations were to be fully implemented and the remaining 16 recommendations were to be analyzed in connection with the revision cycle for the construction codes or were to otherwise undergo additional analysis. However, our audit found that, as of December 2013, more than four years after the preparation of the HRCO Implementation Milestones document, only 8 of the 65 (12 percent) recommendations were fully implemented, 17 of the 65 (26 percent) recommendations were partially implemented, 18 of the 65 (28 percent) recommendations were in progress, and 22 of the 65 (34 percent) of the recommendations were not implemented (see Appendix I).

These findings stand in contrast to representations made to auditors by DOB that 30 recommendations (46 percent) had been fully implemented, 12 recommendations (18 percent) had been partially implemented, 11 recommendations (17 percent) were in the process of being implemented, and 3 recommendations (5 percent) required further study.⁷ In addition, DOB stated that it is not pursuing 9 (14 percent) recommendations (see Table I and Appendix II). DOB stated that it chose not to pursue 3 of the 9 recommendations because of a lawsuit filed by the steel industry, which is discussed in more detail below.⁸

⁷ At and after the exit conference, DOB provided the audit team with a substantial amount of additional information regarding implementation of the HRCO recommendations. When DOB clearly stated that its claimed implementation status changed, the new status is reflected in the table and figures. However, if DOB did not claim a new status, the status DOB presented during audit fieldwork is reported. We question why DOB did not initially provide all relevant information during fieldwork. In addition, during audit fieldwork, DOB reported that 3 recommendations require further study. Despite the additional information that DOB gave us at and after the exit conference, DOB officials have not informed us that the status of these 3 recommendations has changed. Since DOB has not changed its status, we are leaving the auditor review status for these 3 recommendations as "Not Implemented" in Table I and Appendix II. However, based on the additional information, 1 recommendation appears to have been implemented and 2 partially implemented. We question why DOB did not initially present this information.

⁸ During audit fieldwork, DOB reported that 3 recommendations were not being pursued because of a lawsuit filed by the steel industry. At the exit conference, DOB provided the audit team with a May 2014 Service Update showing that 1 of the 3 recommendations has now been partially implemented. However, DOB has not informed us that the status of this recommendation has changed. Since DOB has not changed its status, we are leaving the auditor review status for this recommendation as "Not Implemented" in Table I and Appendix II. DOB did not provide any additional information regarding the two other recommendations that it claimed were not being pursued because of the steel industry lawsuit.

Table I

Implementation Status Assessments by the Comptroller and Status Claimed by DOB

Status	Comptroller	DOB
Implemented	8	30
Partially Implemented	17	12
Implementation in Progress	18	11
Not Implemented	22	
Further Study		3
Not Pursuing		9
Total	65	65

Although DOB officials provided cursory explanations as to why the agency did not pursue the remaining 6 of the 9 recommendations, they failed to substantiate that the explanations tendered were, in fact, official agency decisions and that they were made prior to the commencement of the audit. Appropriate documentation to show official decisions would include minutes of internal discussions and/or written justification memoranda created at or about the time final decisions were made that explained the basis for the decisions not to pursue individual recommendations.⁹ Further, no explanation was tendered for why four years after DOB committed to rectifying what it identified as emergency conditions by implementing the 65 recommendations, DOB would identify 3 of those recommendations as still needing further study.

In light of the fact that the threat to public safety was deemed by DOB to be vital, immediate and of such high priority as to justify letting a \$3.9 million contract on an emergency basis and a \$1.9 million contract for implementation, it is of concern that all the HRCO Report recommendations have not yet been implemented.

Steel Institute of New York Lawsuit

DOB claimed that 8 recommendations were affected by a lawsuit filed by the Steel Institute of New York against the City of New York in July 2009. According to DOB, New York City's Law Department recommended that it was best not to proceed with implementing new crane regulations until the Steel Institute case was resolved. However, DOB's actions were not consistent with this assertion. DOB drafted a local law, Intro 2 of 2010, which was introduced to City Council on February 3, 2010, that addressed 3 of the 8 crane recommendations. This action took place prior to the decision in DOB's favor rendered on December 31, 2011. The Steel Institute's final request to appeal was denied on December 16, 2013.

Internal Control and Oversight Issues

The audit identified serious weaknesses in DOB's internal controls and oversight of the implementation process for the HRCO Report recommendations. Although requested, DOB did not provide any documentation that evidenced the initial planning process for implementing the recommendations of the HRCO Report (e.g., meeting minutes, internal e-mails, etc.). At the introductory walk-through meeting with the audit team, DOB officials stated that the DOB

⁹ During audit fieldwork, DOB reported that 6 recommendations were not being pursued because of reasons other than the steel industry lawsuit. After the exit conference, DOB provided the audit team with additional information regarding 4 of the 6 recommendations. However, DOB has not informed us that the status of these recommendations has changed. Since DOB has not changed its status, we are leaving the auditor review status for these recommendations as "Not Implemented" in Table I and Appendix II. However, based on the additional information provided for the 4 recommendations, 1 recommendation appears to have been partially implemented, 1 recommendation appears to be in progress, and 2 recommendations are not implemented. We question why DOB did not initially present this information.

Enforcement Unit was responsible for implementing the HRCO recommendations.¹⁰ However, although representatives from the Enforcement Unit were present at this meeting, the DOB officials told the audit team that no one in attendance was capable of discussing the initial implementation process and explained that the four main people assigned to work on the planning and implementation were no longer with DOB. Beyond commenting that high level personnel were assigned to work on the planning and implementation, the DOB officials were unable to explain what actions it took when it received the HRCO Report from CTL.

The project manager assigned by DOB to the contract with CTL to assist with the implementation of the HRCO Report recommendations said that he was unaware of how DOB decided which recommendations would be included for implementation by CTL pursuant to the Implementation Contract. He described his role as receiving the deliverables from CTL and passing them on to the “agency experts” for action. He did not oversee any staff nor did he maintain a tracking system for the deliverables.

In response to a request from the audit team for a plan or implementation schedule for the recommendations, DOB provided the September 2009 HRCO Implementation Milestones document. Although clearly outdated since virtually all of the milestone dates had passed, this original “plan” had never been revised. In fact, on March 31, 2014, more than four years after it was issued, the HRCO Implementation Milestones was still posted on the DOB’s website (<http://www.nyc.gov/html/dob/html/safety/hrco.shtml>) as its “Implementation Plan,” along with a statement that reads, “Currently, the Department is in the process of implementing these recommendations.”

The DOB has issued no formal reporting on the status of the implementation of the HRCO Report’s recommendations. DOB officials stated that the recommendations were tracked on a spreadsheet, statuses were updated “as needed,” and prior versions were not maintained. According to a director present at the walk-through meeting, he looked at the spreadsheet approximately every six months to see what could be implemented through operations and did what was possible.¹¹

Our audit found that DOB lacks a single point of responsibility (either a person or a group) for overseeing the ongoing implementation of the HRCO Report recommendations. DOB represented that the team of high level personnel was initially assigned to work on the planning and implementation of the HRCO Report’s recommendations was no longer in place. Instead, various groups within the Enforcement Unit are currently attempting to implement recommendations relevant to their areas on an ad-hoc basis.

DOB has no written procedures or standardized definitions for each of these various groups within the Enforcement Unit to use to determine a recommendation’s status. Such procedures and standard definitions are particularly important in light of DOB’s representation at the time it sought to enter into the implementation contract with CTL that it “lacks sufficient staff with the requisite knowledge and skills to implement these proposals.” The lack of standardized controls and oversight, may have contributed to the assertion by DOB staff that certain recommendations were addressed when in fact it has been determined by the auditors that they were not. For example, DOB officials initially claimed that some recommendations were addressed in the 2008 Building Code, which was effective July 1, 2008, nearly one year prior to the HRCO Report having been issued.¹²

Although DOB officials have stated that implementation of the HRCO Report’s recommendations

¹⁰ An example of a recommendation not implemented includes an engineering review of hoists by a dedicated DOB group monitoring the quality of structural information on concrete design drawings.

¹¹ After the exit conference, DOB provided “Recommendation Status” spreadsheets for April through August 2011 that tracked deliverable status and listed the next steps to be taken. This document indicates that for a limited timeframe of approximately 5 months, at least, DOB did monitor implementation progress.

¹² CTL was fully cognizant of the provisions of the 2008 Building Code, and frequently cites it in the HRCO Report.

was a high priority, that commitment appears to have faded. Approximately \$5.81 million was expended on two contracts to develop and implement 65 public safety recommendations. However, DOB failed to fully implement these supposedly urgent recommendations and does not now have an adequate process in place to insure their implementation. DOB's inaction undercuts its justification for the expenditure of a significant amount of public funds on the two supposedly urgent contracts with CTL. Moreover, the failed attempt thus far to address what have been identified as high risk deficiencies in the DOB's regulations and oversight may continue to expose the public and construction site workers to accidents and injuries.

DOB Response: "Notably, the Department has seen a 12.7% increase in initial permit issuance during the past couple of years, which typically has a correlation with increased construction activity, while reporting a decline in construction-related fatalities."

Auditor Comment: Contrary to DOB's claim, according to the 2014 Mayor's Management Report, the 5-year trend (Fiscal Years 2010 through 2014) for DOB's performance indicator "Construction-related fatalities" has been "up."

DOB Response: "The Department cooperated with the auditors, and attempted to produce all relevant documents requested in a timely fashion. Some requests were overly broad, and amount of material too voluminous. This, coupled with negligible communication from the auditors with regards to follow-up questions that need explanation or the need for meetings with our SMEs, placed the Department in the unusual position of determining what was specifically needed."

Auditor Comment: We disagree with DOB's statement that documentation requests made by the audit team were overly broad. Because the audit team had been denied a workspace in DOB's offices, it had to rely upon DOB to provide appropriate documentation. The audit team requested documentation showing how each HRCO recommendation had been addressed, as well as policies, procedures, laws and contracts relevant to the implementation.

Although DOB states that it attempted to produce all documents in a timely manner, it failed to do so during the course of the audit. Despite its claims of cooperation in its response, at the audit exit conference, the Acting Commissioner acknowledged that DOB did not provide the audit team with all the information it should have. This was followed by DOB submitting copious amounts of documentation to the audit team; much of which was irrelevant to the actual implementation of the HRCO recommendations.

Regarding DOB's claim of negligible communication, although the audit team informed DOB officials on October 30, 2013, that it wanted to meet to discuss preliminary audit findings and followed up with several e-mails, DOB failed to arrange this meeting, claiming repeatedly that required participants were not available. Eventually, DOB stated in a December 20, 2013 e-mail, "In January, 2014, we will resume our efforts to schedule a meeting." The audit team made every effort to communicate; however, DOB was not receptive.

Recommendations

DOB should:

1. Review the HRCO Report recommendations to ensure they are still pertinent to DOB's goals and current construction practices and environment. This review

should be comprehensive and capture the full content of each recommendation as put forward by CTL in the HRCO Report.

DOB Response: “The Department agrees with the need for this recommendation. While the Department prioritizes its projects, it has not deviated from its responsibilities to enforce the Construction Codes and the zoning regulations of New York City, thereby ensuring the safe and lawful use of buildings and properties.

The Department has launched a team to review and oversee future phases of the HRCO recommendations. This team will work to ensure that the Department’s goals, and those of the HRCO recommendations, are consistent.”

2. Develop formal tracking and reporting requirements for recommendation implementation.

DOB Response: “The Department is in agreement with this recommendation, and will develop standardized formal tracking and reporting requirements.”

3. Create a project management team responsible for independently verifying recommendation implementation status as well as performing the tracking and reporting function. Ensure that this team has the necessary technical knowledge to head up this endeavor.

DOB Response: “The Department agrees with the need for this recommendation. The Department plans to build a formal project management team to monitor the status of the HRCO Report recommendations.

On a quarterly basis, this team would provide formal reporting on the status of the HRCO Report Recommendations to the Department’s Deputy Commissioner of Enforcement and Chief of Staff.”

4. Ensure that all actions (e.g., reviews, analyses, meetings, etc.) are formally and properly documented.

DOB Response: “The Department is in agreement with this recommendation, and will develop formal tracking, reporting and documentation methods as Recommendation 2 also suggested.”

Issues with the Implementation Contract

During the course of the audit, we identified weaknesses in DOB’s oversight of the Implementation Contract it entered into with CTL and with CTL’s performance. There were problems with some of the deliverables produced under the contract, and documentation of the scoping and negotiation of the Implementation Contract was also inadequate.

Problems with Contract Deliverables

Under the Implementation Contract, CTL was responsible for producing a variety of deliverables (e.g., technical bulletins, checklists, standard operating procedures) to be used by DOB to implement the recommendations in the HRCO Report. However, our review found deficiencies in the deliverables submitted to DOB. As detailed below, we found that CTL failed to perform a number of tasks required under the contract. Based on our review, we estimated that the value of the work not performed totals more than \$357,000, approximately 19 percent of the \$1.9 million contract.

The audit team requested from DOB all deliverables produced by CTL under the Implementation Contract, the term of which ended on December 13, 2010. The audit team identified 3 deliverables as missing from those DOB provided for our review. Also, 6 deliverables did not fully address the work scope set out for them in the contract. For example, Concrete Deliverable 4a did not include a draft of inspection guidelines for the industry, and Crane Deliverable 10 did not include a “document explaining fields of further research” as required by the contract. Additionally, 5 deliverables were not in a finalized format – they were not in the form required by the contract (i.e., technical bulletin or manual) and/or contained track changes comments.

The audit review found two instances where the deliverables provided by CTL merely consisted of a rehashing of what they had previously written in the HRCO Report, and provided minimal to no additional information on how to implement the related recommendations. Specifically, in Crane Deliverable 3c, which required CTL to address Recommendation C-5 Counter Weights, the deliverable produced by CTL in connection with the Implementation Contract was nearly identical to what they wrote in the HRCO Report. Similarly, for Crane Deliverable 3b, which required CTL to address Recommendation C-15 Load Test, CTL merely recycled what it had previously written in the HRCO Report. CTL’s work products should have added value and content beyond that already available in the HRCO Report and should not merely have been a repetition of the information previously provided to DOB.

For those deliverables that require training sessions, best practices require that attendance be recorded and that those records be retained. Similarly, when working sessions with DOB were held by CTL pursuant to the Implementation Contract, appropriate documentation evidencing those sessions should have been retained, such as minutes of these sessions documenting DOB input, along with lists or attendance sheets of participants. In addition, in the “Additional Expectations” section of the Implementation Contract’s cranes section, CTL was specifically required to have created project schedules and bi-weekly status reports. Documentation should have been maintained by DOB. Although we requested all written documentation associated with the Implementation Contract, DOB did not produce evidence that one of two required concrete training sessions was conducted. Similarly, DOB failed to produce the project schedules and bi-weekly status reports that CTL was required to prepare. Also, DOB did not provide sufficient proof that regularly scheduled working sessions were conducted by CTL with DOB.¹³

Finally, the work product produced pursuant to the Implementation Contract was for DOB and the property of DOB. In fact, the stated justification for the contract included “the development of written protocols, check lists, reference material” necessary to implement the HRCO Report recommendations. Nevertheless, the audit review found that the excavation deliverables¹⁴ contained language restricting the use of the work product, stating that, “They are not provided for general distribution, inclusion in regulatory documents, or as field instruments.”

DOB Response: “The Department disputes this finding. The Department relies on the opinions of its Subject Matter Experts (SMEs) and stand by their respective positions that the deliverables were validated as per contract. Further, the audit report showed no proof of this assessment.”

Auditor Comment: The audit team based its finding on its review of the CTL deliverables that it received from DOB. Specific examples of deliverables’ failure to comply with contract work scopes are cited in the finding. It is especially troubling to the auditors that, as was the case with crane deliverables 3b and 3c discussed

¹³ After the exit conference, DOB provided a number of e-mails and agendas evidencing that there had been what could be referred to as “wrap up” meetings over the apparent final two months of work on the deliverables. However, no evidence was provided showing that CTL conducted regularly scheduled working sessions during the life of the project to review deliverables in progress.

¹⁴ The deliverables prepared by CTL for the excavation recommendations are a series of manuals providing guidance on general plan exam, technical audit, and field inspection.

above, DOB SMEs would accept rehashing what CTL had previously written in the HRCO Report as a “new” deliverable when no value has been added.

Documentation Issues

While the HRCO Report made 65 recommendations for improvements to DOB’s procedures to enhance public safety, the Request for Proposals (RFP) for the Implementation Contract only sought assistance with the implementation of 44 of the 65 recommendations. However, DOB did not provide the audit team with any documentation that described the basis for its not including 21 recommendations in the Implementation Contract RFP or with any documentation describing how these 21 recommendations would otherwise be handled.¹⁵ Therefore, we do not know how DOB intended to implement these recommendations.

Moreover, the Implementation Contract that was ultimately entered into only required assistance with 35 of the recommendations, not the 44 that were included in the RFP. For 8 of the 9 recommendations that were not required in the final Implementation Contract, the Implementation Contract itself states that the work was removed for budgetary reasons. For the remaining recommendation, the Implementation Contract provided no explanation and instead simply stated under work description, “None.” Accordingly, a total of 30 of the 65 recommendations presented in the HRCO Report were not included in the Implementation Contract. However, we did not receive documentation that reflected the decision making processes that resulted in the omission of almost half of the recommendations from the Implementation Contract, and accordingly, we were not able to ascertain the basis for DOB’s decision to exclude these items from the Implementation Contract. After the exit conference, DOB provided additional information including CTL’s initial and revised proposal. The initial proposal states that it “is intended to serve as a basis for our upcoming discussions, so that we can determine the best way to proceed.” A revised proposal states that it “provides revisions to our original August 21, 2009 proposal per our on-going discussions.” Unfortunately, no record of these discussions has been provided for audit team review, and the decision making process remains unclear.

Furthermore, for 13 of the recommendations included in the RFP, the scope of work stated in the Implementation Contract differs from that given in the RFP. While the audit team understood that there may have been modifications to the work scope during negotiations with the vendor as part of the negotiated acquisition process, DOB did not provide any documentation (besides the previously mentioned revised proposals) to substantiate the contract negotiation process or explain why the scopes differed. The Procurement Policy Board Rules, Section 3-04(b)(5) requires that for contracts procured through negotiated acquisition, “The ACCO or designee shall maintain a written record of the conduct of negotiations.” Although the contract states that CTL and DOB have “successfully negotiated the rates, terms and conditions of this Agreement,” no record of these negotiations has been provided.

It should also be noted that in its proposals CTL provided cost as both a Time and Materials (T&M) estimate and a fixed price. Although the contract states that the work will be conducted on a fixed price basis, there is no documentation justifying or evidencing this selection.

Because of these issues, the audit team was unable to assess whether DOB appropriately planned, scoped, and negotiated the Implementation Contract. Additionally, any future inquiries, audits, or investigations that may arise may be similarly hampered by this lack of a paper trail.

¹⁵ After the exit conference, DOB provided information to the audit team in an attempt to address this issue. Audit team analysis found that this documentation failed to comment on all 65 HRCO recommendations; in fact, 37 of the 65 HRCO Recommendations were not addressed. Although this documentation may have been referred to while scoping the Implementation Contract, it is incomplete and insufficient to explain how 44 recommendations were included in the RFP.

Furthermore, although the audit team did not find any evidence of improprieties, the failure to document and justify decisions and negotiations leaves DOB vulnerable to fraud and abuse.

Recommendations

DOB should:

5. Maintain appropriate files of deliverables, meeting minutes, communications with industry and CTL, training session attendance sheets, etc.

DOB Response: “Although the Department produced numerous deliverable files, communications with industry, attendance sheets, etc. we nonetheless agree with this recommendation and will maintain better and more standardized documentation.”

6. Adequately monitor consultant contracts to ensure that all tasks are completed and completed in a way that provides value to the agency.

DOB Response: “The Department is in partial agreement with this recommendation. Our technical and subject matter experts believe the deliverables received matched the contract terms. We will continue to monitor contracts to ensure that all tasks are completed in accordance with the contract deliverables.”

Auditor Comment: The audit team re-iterates its finding that there were deficiencies in the CTL deliverables that it received from DOB. We encourage DOB to allocate sufficient resources for monitoring.

7. Ensure that all contracts specifically state where a consultant’s work product is the property of the agency and that this be required in all contracts, except for documented extraordinary circumstances.

DOB Response: “The contract did include such a specification, specifically stating that all work produced was the property of the City, as follows: *“Upon execution of this Agreement, any reports, documents, data, photographs and/or other materials produced pursuant to this Agreement, and any and all drafts and/or other preliminary materials in any format related to such items, shall become the exclusive property of the City of New York.”* The contract further stated, within its Appendix A, which is an Appendix the Department routinely attaches to contracts of this type, that *“No report, document or other data produced in whole or in part with contract funds shall be copyrighted by the Contractor nor shall any notice of copyright be registered by the Contractor in connection with any report, document or other data developed for the contract.”* The Department does agree that this type of provision is appropriate for this type of contract; accordingly the Department will continue to include this type of provision in such contracts.”

Auditor Comment: The excavation deliverables clearly state that “They are not provided for general distribution, inclusion in regulatory documents, or as field instruments.” By accepting deliverables containing language of this nature, DOB failed to clearly enforce the terms of its contract and a potential conflict as to

ownership may arise.

8. Ensure that significant actions and decisions connected to establishing the scope of a contract, along with their justifications and/or authorizations when required, are formally and properly documented.

DOB Response: “The Department is in agreement with this recommendation, and will more formally document, as was suggested in Recommendations 4 and 5, all major actions relating to the Department of Buildings’ Compliance with the High Risk Construction Oversight Study.”

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 including auditors with engineering backgrounds.

The scope of this audit covers the period from June 2009, when the HRCO Report was issued, through December 2013. We did not assess the credentials of the Consultant or the other specialist firms that conducted the HRCO study or the merit of their report recommendations because such an assessment was outside the scope of our audit.

We obtained background information from the DOB website to familiarize ourselves with DOB's functions and the HRCO study. Of specific interest were the HRCO Report, which presented 65 recommendations for improving construction regulations and practices, and the HRCO Implementation Milestones Document, which detailed goals and timeframes for implementing the recommendations.

The contracts for the HRCO study and its implementation were retrieved from the Comptroller's OASIS database and reviewed for work scope, dollar amounts, and other pertinent information.

To understand the DOB internal controls relevant to our audit and to understand the process used by DOB to evaluate and implement the recommendations set forth in the HRCO Report, we interviewed officials from DOB's Enforcement Unit. Also, we reviewed organizational charts for the various groups comprising the Enforcement Unit to obtain an understanding of the Unit's reporting structure. Additionally, we interviewed the HRCO implementation project manager to understand his function in the process. The implementation project manager was not a member of the Enforcement Unit. We documented our understanding of these controls and procedures in written memoranda.

To determine whether DOB complied with the actions recommended in the HRCO Report, the audit team independently evaluated the 65 recommendations to establish their implementation status. DOB provided us with a spreadsheet listing each recommendation along with an implementation status and the implementation date, if applicable. The spreadsheet also contained comments and links to information found on the Internet and/or references to documentation provided directly by DOB to support its stated status. The audit team used the information provided by DOB as the starting point for its audit testing.

The audit team compared DOB's comments and documentation for each recommendation to the requirements presented in the HRCO Report and also to the schedule put forth in the HRCO Implementation Milestones document. We obtained additional information that was not cited by DOB but necessary to conduct our review from the Internet. The analysis was highly technical and detailed, and entailed the review and interpretation of various laws, bills, codes, and other regulations, including the recently enacted Local Law 141 of 2013 (formerly Introduction 1056 of 2013), which revises and updates the 2008 New York City Construction Codes. Also, we examined and considered documentation provided by DOB regarding a lawsuit filed by the Steel Institute of New York. After completing the analysis, the audit team assigned an implementation status to each recommendation and summarized the results.

Additionally, DOB provided us with the deliverables (i.e., the work product) it received from CTL for the Implementation Contract. The audit team conducted a review to determine whether all deliverables required by the contract were received, completed, and finalized. For the deliverables that were found to have problems or issues, a dollar value corresponding to the deficiency was calculated by prorating the contract prices of these deliverables. The audit team also examined whether the deliverables helped DOB achieve the requirements of the HRCO Implementation Milestones document.

At and after the exit conference, DOB provided the audit team with additional documentation. This documentation was reviewed and the audit report was revised as required.

Because the complete population of 65 recommendations underwent audit testing, the results allow us to accurately and reliably assess whether DOB complied with the actions recommended in the HRCO Report within the timeframes stated in the HRCO Implementation Milestones document.

APPENDIX I

Auditor Review Status of HRCO Report Recommendations

HRCO Report Recommendations		Implemented	Partially Implemented	Implementation in Progress	Not Implemented
HC-1	Formwork Design Requirements		X		
HC-2	Protection of Existing Concrete	X			
HC-3	Formwork Special Inspection		X		
HC-4	Formwork Lateral and Wind Load Design	X			
HC-5	Formwork Construction for Wind Resistance	X			
HC-6	Wind Monitoring (Further Study)			X	
HC-7	Wind Tunnel Studies (Further Study)			X	
HC-8	DOB Inspector Qualifications		X		
HC-9	DOB Inspection Procedures			X	
HC-10	Housekeeping Requirements			X	
HC-11	Site Safety Hierarchy (Further Study)				X
HC-12	Upgrading Netting Requirements (Further Study)				X
HC-13	Material Handling (Further Study)				X
HC-14	Fall Hazard Awareness		X		
HC-15	Contractor Documentation (Further Study)				X
HC-16	Repeat Offense Enforcement (Further Study)				X
HC-17	Special Inspection Rule	X			
HC-18	Field Inspection		X		
HC-19	Inspection of Testing Labs		X		
HC-20	Reinforcing Bend Quality Assurance			X	
HC-21	Reinforcing Placement Quality Assurance			X	
HC-22	Monitoring of Peer Review		X		
HC-23	Structural Drawing Information		X		
HC-24	Monitoring of Structural Information Quality				X
HC-25	Monitoring Constructability				X
C-1	HMO "C" License	X			
C-2	Bolted Connections				X
C-3	Third Party Inspection			X	
C-4	Rigging Safety		X		
C-5	Counter Weights				X
C-6	Maintenance and Repair			X	
C-7	Approved Manufacturer			X	
C-8	Tie-Ins		X		
C-9	Foundations		X		
C-10	none listed in report				
C-11	Inspector and Examiner Training		X		
C-12	Articulating Boom Crane	X			
C-13	Crane Assembly				X
C-14	Older Equipment		X		
C-15	Load Test			X	

APPENDIX I

HRCO Report Recommendations		Implemented	Partially Implemented	Implementation in Progress	Not Implemented
C-16	RS 19.2			X	
C-17	Tracking Mobile Cranes				X
C-18	Accident Investigation		X		
C-19	C&D Self Auditing			X	
C-20	Component Tracking			X	
C-21	Electric Tower Cranes (Further Study)			X	
C-22	Data Recorder – “Black Box” (Further Study)				X
C-23	HMO “A” and “B” License	X			
C-24	Scaffolding Hoist (Further Study)				X
H-1	Hoist – Equipment Acceptance (Further Study)				X
H-2	Hoist – PE Sign-off				X
H-3	Hoist – Riding on Top of Cars (Further Study)				X
H-4	Hoist – ANSI Standards			X	
H-5	Hoist – Qualified Inspections			X	
H-6	Hoist – Off-site Controls (Further Study)				X
H-7	Hoist – On-Site Log Book				X
H-8	Hoist – Regulation of Hoists (Further Study)				X
E-1	Excavations at Footings		X		
E-2	Permitting of Underpinning			X	
E-3	Preconstruction Surveys		X		
E-4	Monitoring During Excavations	X			
E-5	Minimum Drawing Standards			X	
E-6	Limited Technical Review		X		
E-7	Underpinning Notification				X
E-8	TR1 and Inspection Log				X
E-9	On-Site Meeting				X
Totals 65		8	17	18	22

Status Definitions:

Implemented: Full compliance with or meeting the nature of the recommendation.

Partially implemented: Partial compliance with the recommendation (i.e., only part of the recommendation is in effect).

Implementation in progress: Progress has been made towards meeting some or all of the recommendation. This may include legislation that has been introduced but not yet enacted, a draft of a bulletin or procedure, groundwork performed by the consultant under the implementation contract, meeting a milestone in the implementation schedule, etc.

Not implemented: 1) DOB has not acted on the recommendation; 2) it states that it is not pursuing the recommendation, but has not provided documentation of discussions regarding the recommendation and/or formal justification for the decision; or 3) it claims to have acted on the recommendation but has not provided evidence that it has done so.

**Comparison of DOB Claimed Status and Action
Versus Auditor’s Assessment of HRCO Recommendations**

HRCO Report Recommendation	Status per DOB	Status Per Audit Review	Implementation Action as Reported by DOB	Audit Analysis and Determination	Effect(s) ³
<p>HC-1 — Formwork Design Requirements</p> <p>Require essential specification information to be included on stamped formwork designs. Essential specifications shall include information required in chapter 6 of ACI 318. At a minimum, critical information such as reshoring sequences and schedules, required numbers of reshored floor levels, lumber material grade and rated stress, structural configuration and spacing of structural members, vertical formwork design, nailing schedules, and lateral bracing sequences and requirements shall be included.</p>	Implemented	Partially Implemented	Completed with adoption of LL 141/13	<p>Recommendation specifically seeks to ensure that design drawing provides sufficient information. DOB points to LL141/13 as implementing; however, neither this nor ACI 318 Chapter 6 states that essential specification information is required to be included on stamped formwork designs. Although the formwork requirements stated in the local law are quite comprehensive, they do not meet this recommendation. However, 2014 BC 3305.3.6.8 provided by DOB at the exit conference requires that a signed and sealed reshoring schedule be maintained on site.</p>	<p>Deficiencies in information provided on design drawings may result in critical engineering decisions being made at the site by unqualified persons at the site, such as contractors who lack the requisite experience and knowledge necessary to judge the adequacy of an engineering design. This creates a safety issue.</p>
<p>HC-3 — Formwork Special Inspection</p> <p>Require regular special inspection of formwork and reshore installations preferably by the formwork engineer of record, for structural integrity, conformance to essential specifications and the design intent.</p>	Implemented	Partially Implemented	Completed with adoption of LL 141/13	<p>Although Section 3305.3.3.2 of LL 141-2013 does require the formwork designer (or representative of the designer) to conduct visual observations of the formwork for the general conformance with the design intent, Section 3305.3.3.1 leaves the initial and regular periodic inspections to "qualified person designated by the contractor" -- not the recommended formwork engineer of record; thus, not meeting this more stringent criteria and contradicting the intent of this recommendation.</p>	<p>By allowing these inspections to be conducted by a person designated by the contractor, independence is sacrificed by creation of a conflict of interest.</p>

Notes:

1. The following 22 report recommendations were not included in this Appendix because their audit review status either matched or was better than that reported by DOB: HC-2, HC-4, HC-5, HC-6, HC-7, HC-17, HC-22, HC-23, C-1, C-7, C-8, C-12, C-14, C-16, C-19, C-21, C-23, H-4, H-5, E-3, E-4, and E-6.
2. Acronym/Abbreviations Legend and Recommendation Number Legend at end of Appendix II.
3. We used the GAGAS performance audit definition in assessing “effect.” GAGAS §6.77 states “The effect is a clear, logical link to establish the impact or potential impact of the difference between the situation that exists (condition) and the required or desired state (criteria).”

APPENDIX II

HRCO Report Recommendation	Status per DOB	Status Per Audit Review	Implementation by DOB	Audit Analysis and Determination	Effect(s)
<p>HC-8 — DOB Inspector Qualifications</p> <p>Enhance level of knowledge among DOB inspectors to include qualifications consistent with current NYC Building Code requirements regarding site safety practices, proper concrete formwork installation, and proper shoring and reshoring placement.</p>	Implemented	Partially Implemented	HRCO2 - Training sessions initially conducted on May 4, 2011. Also, inspectors are trained and certified to do concrete testing.	As part of the Implementation Contract, CTL developed a training presentation with enhanced curriculum. At the exit conference, DOB provided proof that CTL conducted an initial training session on May 4, 2011. DOB also provided a list of classes that concrete inspectors are required to take (training provided by DOB and outside vendors). This curriculum appears to comply with the report recommendation, including the site safety aspect. However, DOB has not provided evidence that the inspectors are actually receiving this training in the recommended frequency.	DOB inspectors' knowledge base may not be adequate for performing required inspections. Inspectors who are not properly trained may overlook deficiencies and fail to properly enforce Code requirements.
<p>HC-9 DOB Inspection Procedures</p> <p>Update and publish standard sets of inspection protocols to create a consistent and uniform level of enforcement.</p>	Implemented	In Progress	HRCO2 - Incorporated into guide	Under the Implementation Contract, CTL reviewed and modified the inspection checklist, and reviewed and commented on DOB's SOP. Although DOB states that it has implemented, no supporting documentation has been provided showing that DOB has officially published these protocols. Also, DOB has not promulgated a rule with the new requirements.	Standard sets of inspection protocols to create a consistent and uniform level of enforcement are not updated and published. Therefore, the City and the industry cannot be assured that the inspectors are providing uniform enforcement.
<p>HC-10 — Housekeeping Requirements</p> <p>Clarify specific housekeeping requirements in inspection protocols.</p>	Implemented	In Progress	HRCO2 - Incorporated into guide.	Housekeeping requirements are part of DOB inspection procedures. Although DOB states that it has implemented, no supporting documentation has been provided showing that DOB has indeed clarified housekeeping requirements in its protocols.	Uniform acceptable housekeeping standards not established. DOB inspectors do not have reference for enforcement to reduce the risk of falling debris.
<p>HC-11 — Site Safety Hierarchy (Further Study)</p> <p>Require site safety personnel's line of accountability to lead to owner (and not to the contractor or CM) to avoid a conflict of interest.</p>	Partially Implemented	Not Implemented	Responsibilities of site safety manager - hired by contractor	Intent of recommendation is to have line of accountability directly to owner -- not contractor -- to resolve conflict of interest. DOB's comment stating that the site safety manager is hired by the contractor completely contradicts the intent of the recommendation. Additional documentation provided by DOB after the exit conference does not show that the conflict of interest has been removed.	By allowing the site safety manager to report directly to the contractor rather than the owner, a conflict of interest remains. An efficient way to increase site safety level was not implemented.

APPENDIX II

HRCO Report Recommendation	Status per DOB	Status Per Audit Review	Implementation by DOB	Audit Analysis and Determination	Effect(s)
<p>HC-12 — Upgrading Netting Requirements (Further Study)</p> <p>Study the effectiveness of enhancing existing netting requirements.</p>	Further Study Required	Not Implemented	Further study needed	DOB initially stated status as Further Study Required.	Flying debris from buildings under construction that is not properly contained may create hazardous conditions .
<p>HC-13 — Material Handling (Further Study)</p> <p>Establish requirements for the use of outrigger systems for material handling.</p>	Further Study Required	Not Implemented	Further study needed	DOB initially stated status as Further Study Required.	Hazards associated with current methods of material handling and storage, caused by rigging errors or serious fall hazards, remain unaddressed.
<p>HC-14 — Fall Hazard Awareness</p> <p>Implementation of a fall hazard awareness campaign through the use of posters, ads, and training at each jobsite for workers before they are allowed on site.</p>	Implemented	Partially Implemented	"If You Fall They Fall" campaign launched February 2009; "Experience is Not Enough" launched April 2011	"If You Fall, They Fall" campaign was on-going during HRCO Report preparation, since it is cited in report to be continued. It is unclear when this campaign ended, and how long a gap there was before the "Experience is Not Enough" campaign launched. However, DOB did not provide industry training guidelines for review, nor was there any evidence provided that workers are trained prior to being allowed on a jobsite or that DOB monitors/tracks this training. After the exit conference, DOB provided information on safety conferences it has held since 2011 -- however, this does not meet the standard of developing guidelines for worker training requirements.	DOB may not be fully committed to fall hazard awareness campaign.
<p>HC-15 — Contractor Documentation (Further Study)</p> <p>Require contractor to document remedial actions taken when workers are identified as non-compliant regarding safety measures, including tie-off requirements. Remedial actions could include additional training sessions, suspension, or removal from job site.</p>	Implemented	Not Implemented	DOB implemented SWO monitoring program	Recommendation focuses on the individual workers' lack of compliance, as opposed to the contracting firm. The Stop Work Order monitoring program does not appear to require the contractor to document remedial actions taken against individual workers when they are identified as being non-compliant with safety measures. At and after the exit conference, DOB provided as additional documentation a number of stop work orders and violation reports. Issuing stop work orders and issuing violations for unsafe conditions help to improve site safety; however, this is not what is required by the HRCO recommendation.	Worker safety would be enhanced by DOB implementing measures to require contractors to document actions taken against workers who do not comply with safety measures.

APPENDIX II

HRCO Report Recommendation	Status per DOB	Status Per Audit Review	Implementation by DOB	Audit Analysis and Determination	Effect(s)
<p>HC-16 — Repeat Offense Enforcement (Further Study)</p> <p>Require a “two strikes and you’re out” provision to be levied against the contractor in the event the contractor fails to enforce safety regulations and procedures. This clause would require that the project is shut down a prescribed number of days after a predetermined number of code violations or reportable incidents. The purpose of the shut down is to provide the contractor a period of time to properly implement safety measures.</p>	Further Study Required	Not Implemented	Further analytical study needed	DOB initially stated status as Further Study Required.	The possibility of project shutdowns could be a strong method of ensuring compliance with safety regulations and procedures.
<p>HC-18 — Field Inspection</p> <p>Enhance level of knowledge among DOB inspectors to include qualifications consistent with the current NYC Building Code, specific to ACI Special Inspector training, to promote consistent enforcement of concrete practices, including field testing procedures.</p>	Implemented	Partially Implemented	HRCO2 training session held for concrete, field and laboratory testing, as well as additional training towards International Certification for DOB inspectors.	At the exit conference, DOB provided proof that CTL conducted an initial training session on May 4, 2011. DOB also has provided a list of classes that concrete inspectors are required to take (training provided by DOB and outside vendors). However, DOB has not provided evidence that the inspectors are actually receiving this training in the recommended frequency. After the exit conference, DOB provided information regarding ACI certifications achieved by various staff (through examination). The recommendation clearly indicates that inspectors are to achieve a knowledge level equivalent to ACI Special Inspector; however, our analysis of the certifications provided shows that only two people have achieved ACI Concrete Construction Special Inspector Certifications – and one of the two could not be found in either the organizational charts or inspector headcount list provided by DOB. Although certifications were provided for 10 others, they were not those of Special Inspector.	DOB inspectors may lack sufficient training to consistently enforce critical quality issues.

APPENDIX II

HRCO Report Recommendation	Status per DOB	Status Per Audit Review	Implementation by DOB	Audit Analysis and Determination	Effect(s)
<p>HC-19 — Inspection of Testing Labs</p> <p>Enhance level of knowledge among DOB personnel to include qualifications consistent with the current NYC Building Code, specific to ACI Special Inspector training, to promote consistent inspection of laboratory practices and conditions.</p>	Implemented	Partially Implemented	Certified DOB inspectors for concrete field and laboratory testing; established concrete enforcement unit performing audits of licensed concrete testing laboratories at construction sites and in laboratories. Additionally, the Department revokes licenses for industry abuse.	No documentation was provided to show that training was conducted by either CTL or DOB. At the exit conference, DOB provided a list of classes that concrete inspectors are required to take (training provided by DOB and outside vendors). However, DOB has not provided evidence that the inspectors are actually receiving this training in the recommended frequency. As per HC-18, certifications provided by DOB after the exit conference show that only 2 people have achieved ACI Concrete Construction Special Inspector Certifications.	DOB personnel may lack level of knowledge necessary to enforce DOB's auditing of concrete testing laboratories for quality and code compliance.
<p>HC-20 — Reinforcing Bend Quality Assurance</p> <p>Require documentation through photo and/or video that site bending practice complies with accepted industry standards and tolerances. Conformance may be spot checked by the DOB through inspection of logs and field conditions.</p>	Partially Implemented	In Progress	Developed guide for reinforcement bending and placement inspection. Incorporate documentation in special inspection duties and responsibilities rule, pending code update. See also Intro 1056. Proposed text included in 1056 to be followed in implemented rule.	DOB has not provided references to show that the requirement for photo/video documentation has been codified in LL 141/13. As part of the Implementation Contract, CTL developed a bending and placement guide which requires photo documentation. After the exit conference, DOB re-submitted this deliverable with its logo inserted in the footer of the document. However, no documentation was provided to evidence that these guidelines were officially distributed to industry for use by the Special Inspectors.	DOB cannot verify that improved bending practices in conformance with code requirements are being utilized regularly.
<p>HC-21 — Reinforcing Placement Quality Assurance</p> <p>Require documentation through photo and/or video that steel placement complies with accepted industry standards and tolerances. Conformance may be periodically spot checked by the DOB through inspection of construction logs and field conditions.</p>	Partially Implemented	In Progress	Developed guide for reinforcement bending and placement inspection. Incorporate documentation in special inspection duties and responsibilities rule, pending code update.	DOB has not provided references to show that the requirement for photo/video documentation has been codified in LL 141/13. As part of the Implementation Contract, CTL developed a bending and placement guide which requires photo documentation. After the exit conference, DOB re-submitted this deliverable with its logo inserted in the footer of the document. However, no documentation was provided to evidence that these guidelines were officially distributed to industry for use by the Special Inspectors.	DOB cannot verify that bar placement is in conformance with code requirements.

APPENDIX II

HRCO Report Recommendation	Status per DOB	Status Per Audit Review	Implementation by DOB	Audit Analysis and Determination	Effect(s)
<p>HC-24 — Monitoring of Structural Information Quality</p> <p>DOB should retain professional structural engineers to review drawings to verify that the minimum level of structural information is contained on each set of structural drawings, shop drawings, and formwork drawings. Information to include requirements contained in ACI publications as noted in current NYC Building Code.</p>	Not Pursuing	Not Implemented	Would require DOB to hire additional inspectors. Please refer to Directive # 2 of 1975.	DOB initially stated status as Not Pursuing.	DOB is unable to adequately ensure that a minimum level of structural information is contained on each set of structural drawings, shop drawings, and formwork drawings.
<p>HC-25 — Monitoring Constructability</p> <p>DOB should retain professional structural engineers to audit and verify that a sufficient, minimum level of details and detailing is included on each set of structural drawings and shop drawings. Minimum level of detailing to comply with requirements of ACI publications as noted in current NYC Building Code.</p>	Not Pursuing	Not Implemented	Would require DOB to hire additional inspectors.	DOB initially stated status as Not Pursuing.	DOB is unable to provide technical reviews of constructability.
<p>C-2 — Bolted Connections</p> <p>All bolted connections must be checked regularly. Crane maintenance personnel must have basic knowledge about bolt torquing.</p>	Implemented	Not implemented	This requirement is now a part of all submitted plans. Third party inspection is required prior to erection of crane. A report is submitted to DOB, including testing of bolts. All inspection information is recorded and becomes part of the crane's maintenance log.	The HRCO Report states that timeframes for checking bolted connections should be recommended by the engineer of record or the OEM. Although additional documentation submitted by DOB at the exit conference included CD-6 forms that require the rigging supervisor to certify torquing of the crane sections at erection, jumping, and dismantling, these certifications are not always fully completed and may not address all recommended timeframes. In the Implementation Milestones document, DOB committed to issuing a technical bulletin (and later codifying requirements) to implement this recommendation. Despite the fact that CTL developed rules and regulations for bolted connections under the Implementation Contract, DOB failed to issue a bulletin. Additionally, DOB has not addressed other aspects of the recommendation including visual inspection of fasteners after use, showing markings of grade and type on bolts and nuts, and having critical fastener information available on site.	DOB cannot verify the adequacy of measures (i.e., importance of knowledgeable and experienced workers and promotion of oversight) in place. Without official procedures and improved training, the issue of loose connections may still persist.

APPENDIX II

HRCO Report Recommendation	Status per DOB	Status Per Audit Review	Implementation by DOB	Audit Analysis and Determination	Effect(s)
<p>C-3 — Third Party Inspection</p> <p>Allow third party inspectors (inspectors from entities independent from DOB and the crane owner or user) to perform the required annual crane inspections needed for the CD (certificate of operation) permit.</p>	Partially Implemented	In Progress	Proposed in Intro 2 of 2010. The City Council has not voted.	Intro 2 of 2010 Section 3319.6.4 reads "Upon setup or installation, the crane...shall not be operated until the crane...has passed an inspection in accordance with rules promulgated by the department." Because DOB is to promulgate rules as to performance of the inspection, it is implicit that DOB will allow third party inspections. (As of 6/4/2014, Intro 2 of 2010 not yet enacted.) No mention is made of DOB auditing third party inspections to check quality as recommended in the HRCO Report.	A quality assurance system to audit the inspectors has not been addressed.
<p>C-4 — Rigging Safety</p> <p>Establish a DOB sanction group to review current industry practices, how they differ from the regulations, and determine the best means to enforce current regulations. The practice of dragging or side pulling the load should be eliminated. The 30 hour tower crane rigger class should devote a substantial portion of its curriculum to the erection, climbing and dismantling of tower cranes as well as general rigging.</p>	Implemented	Partially implemented	Mandated more training for workers performing rigging operations. Side loading regulated by RS 19-2, 23.3.4. LL 44-08 and Rule 104-10 strengthened rigging training. Intro 1056 adds further training requirements. Law took effect during HRCO report and prior to the release of the HRCO recommendations. (Draft of SOP and training manual will be submitted under separate title. The drafted SOP and manual are currently used by the Department.) The Department also tracks violations associated with rigging safety.	RS 19-2 does regulate side loading as stated in the HRCO Report. LL 44-08 (effective March 2009) requires training as specified in the recommendation. Rule 104-10 (effective February 2011) strengthens training and licensing requirements. However, the recommendation also asked for DOB to establish a group to focus on enforcement of the rigging regulations. No information provided on this portion of the recommendation.	Rigging regulations may not be enforced effectively.

APPENDIX II

HRCO Report Recommendation	Status per DOB	Status Per Audit Review	Implementation by DOB	Audit Analysis and Determination	Effect(s)
<p>C-5 — Counter Weights</p> <p>Counter weight information should be readily available on the drawing and on the counter weight module itself.</p>	Implemented	Not Implemented	This requirement is now a part of all submitted plans.	<p>Although DOB says that this is required for all plans, no supporting documentation outlining this requirement has been provided. Additionally, the part of the recommendation requiring that counter weight information be readily available on the counter weight module itself cannot be met through a plan submission. At the exit conference, DOB presented as additional documentation a Service Notice for a Third-Party Certification Protocol for Tower Cranes that requires the third party inspector to certify that the individual counterweights are marked permanently noting their appropriate weights. However, this Notice was issued in June 2014, which is after our scope period. It should be noted that DOB is now moving in the right direction on this matter.</p>	<p>Errors in counterweight configuration can have "catastrophic results," according to the HRCO Report. Additionally, DOB inspectors cannot audit the installed counterweight configuration without the information being available on the counterweight module.</p>
<p>C-6 — Maintenance and Repair</p> <p><u>Repair</u>: The Owner must notify DOB of all major structural repairs while the component is actively registered (has CD) or upon renewal if the CD lapsed.</p> <p><u>Maintenance</u>: The owner must increase the written maintenance and inspection log requirements to provide more complete records of the work performed on each crane.</p>	Implemented	In Progress	<p>All repairs and inspections are documented into a report, and this becomes part of the crane's history. A 5-year history is maintained in CD. This requirement is now a part of all repairs.</p>	<p>Under the Implementation Contract, CTL developed appropriate maintenance and inspection procedures; however, DOB has not provided any proof that these standards have been implemented or codified (as required by the Implementation Milestones document). DOB did not provide documentation showing the specific requirements for the report maintained in the CD, or any evidence that this report is required. Although DOB provided additional documentation at the exit conference, none of it addressed the recommendation.</p>	<p>DOB cannot verify that crane owners maintain all necessary information voluntarily, specifically repair or maintenance records for longer than 1 year. As a result, a DOB inspector cannot successfully audit repair or maintenance records related to crane's structural components.</p>

APPENDIX II

HRCO Report Recommendation	Status per DOB	Status Per Audit Review	Implementation by DOB	Audit Analysis and Determination	Effect(s)
<p>C-9 — Foundations</p> <p>Foundations should be subjected to special inspection and require improved design and erection procedures.</p>	Implemented	Partially Implemented	Special Inspections are part of submission to C&D. This is specific to Tower Cranes. (It is the applicant's responsibility to coordinate with concrete unit regarding foundation)	<p>Although DOB states that "special inspections are part of submission to C&D", we have not been given a checklist or other document detailing what is required in the submission. After the exit conference, DOB provided additional documentation citing BC 2014 Section 1704.20 as requiring special inspections of structural stability of temporary structures. DOB stated that this would include foundations, thereby meeting this part of the recommendation. We question why DOB failed to initially identify this section of Intro 1056 as being relevant. The recommendation also calls for improved design and erection procedures for foundations -- DOB has not provided any documentation regarding this aspect.</p>	DOB has not implemented all necessary protocols to ensure that construction cranes are properly supported, which could result in catastrophic failure.
<p>C-11 — Inspector and Examiner Training</p> <p>Assess the various skill sets of the inspectors and plan examiners of the Department of Buildings and provide them the necessary training and tools to complete their tasks effectively and efficiently.</p>	Implemented	Partially Implemented	C&D in collaboration with Building University is continuously sending their inspectors and engineers to training facilities throughout the US and in-house.	<p>At the exit conference, DOB provided a list of crane classes taken by inspectors and examiners. However, not all courses have been taken by each inspector or examiner. Because DOB has not provided us with detailed training requirements -- i.e., number of courses taken each year, frequency of re-taking, course options, etc. -- it is unclear whether the HRCO's recommendation for continual training from multiple providers is being fully met. Additionally, DOB provided purchase requests for a number of books on cranes. Although this is a step towards having appropriate tools/reference sources, it certainly does not fully address the scope presented in the recommendation. Furthermore DOB has not responded to the recommendation's more comprehensive approach to the issue that addresses the hiring of inspectors and staffing of plan examiner group.</p>	DOB Inspectors and examiners may not be receiving all necessary training and tools to complete their tasks effectively and efficiently.

APPENDIX II

HRCO Report Recommendation	Status per DOB	Status Per Audit Review	Implementation by DOB	Audit Analysis and Determination	Effect(s)
<p>C-13 — Crane Assembly</p> <p>All assembly, climbing and dismantling of a tower crane must include the on-site participation of a Technical Advisor who is one of the following:</p> <ol style="list-style-type: none"> 1. A representative from the Original Equipment Manufacturer (OEM). 2. A qualified, factory trained representative of the distributor /OEM. 3. A qualified, factory trained owner's representative. 	Implemented	Not Implemented	<p>HRCO recommendation - Mandates a safety meeting prior to the erecting, jumping or dismantling of a crane. Per LL 46/08</p>	<p>Contrary to DOB's statement that the recommendation mandates a safety meeting, this recommendation actually calls for a Technical Advisor to be on-site during assembly, climbing, and dismantling. The recommendation states that this is necessary should an emergency situation arise. Additional documentation provided by DOB at the exit conference merely supports its prior assertion that a safety coordination meeting is held, but has not provided any documentation showing that this HRCO recommendation is met.</p>	<p>Recommendation serves to expand and strengthen site safety. Lack of a Technical Advisor on site during assembly, climbing, and dismantling poses a problem for appropriately handling emergency situations.</p>
<p>C-15 — Load Test</p> <p>The test weights to be used should not exceed the manufacturer's specification or, in case where the manufacturer is not available, the applicable ANSI standard should be followed.</p>	Implemented	In Progress	<p>C&D implemented this requirement through their inspection and engineering review. Load test protocol put together by engineers and reviewed by DOB engineers. This information is provided to inspectors.</p>	<p>DOB provided an undated SOP for Tower Crane Load Test as additional documentation after the exit conference. It is not an official technical bulletin, which DOB committed to issuing along with codification in its Implementation Milestones document. It is unknown whether this document was actually made available to the industry. Additionally, the SOP does not include a requirement that the test weights do not exceed the manufacturer's specification, as recommended in the HRCO report. Also, it does not include other procedures as stated in the HRCO's recommendation, including a line pull test on all gears, a moment test, and testing of all limit and pre-limit switches. Although DOB initially claimed that C&D had implemented this requirement through its engineering review, we were not provided any standards or guidelines that C&D follows.</p>	<p>By failing to provide appropriate and complete guidance to the industry, equipment and site safety may be jeopardized.</p>

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HRCO Report Recommendation	Status per DOB	Status Per Audit Review	Implementation by DOB	Audit Analysis and Determination	Effect(s)
<p>C-17 — Tracking Mobile Cranes</p> <p>Require the crane user/owner of mobile cranes to notify DOB prior to the start of a job and when the crane will leave the jobsite. DOB must also be notified if there are changes in the schedule. The notification is required for all jobs that require a Certificate of on-site inspection.</p>	Not Pursuing	Not Implemented	Not pursued due to Steel Institute vs. LiMandri	DOB initially stated status as Not Pursuing.	DOB is not pursuing regulations that would ensure that mobile crane activity is closely monitored.
<p>C-18 — Accident Investigation</p> <p>The Crane and Derrick Unit should augment and audit its incident/accident reporting procedure to confirm each file contains the required information and the inspectors' investigation is organized and thorough.</p>	Implemented	Partially Implemented	C&D implemented this requirement through the use of a special form. Forms: CD-15; CD-99	The form CD-99 (dated 12/10) does provide a file/procedural checklist. Form CD-15 (dated revised 2/04), although not apparently updated, captures necessary information. At the exit conference, DOB provided an undated Incident-Accidents SOP, along with re-submitting CD-99 and CD-15. Because the SOP is undated, we do not know when it was prepared and if it, in fact, has been distributed to inspectors. Furthermore, while the SOP is quite comprehensive, it still does not include various requirements detailed in the HRCO Report: provide updates to the file every 3 months until the investigation finalizes, a procedure for file closure (e.g., including rescinds of SWOs, equipment repairs performed, etc.), ensuring that equipment, etc. is not moved or altered after the incident, and using a standardized form for witness statements.	DOB has not included all requirements detailed in the HRCO report, which are intended to strengthen DOB's accident investigation process.
<p>C-20 — Component Tracking</p> <p>DOB should institute a tracking system for the major structural components of cranes.</p>	Partially Implemented	In Progress	BIS is now capable of tracking components. Legislative authority to implement tracking proposed in Intro 2 of 2010; bill not enacted. Not included in Intro 1056 due to Steel Institute vs. LiMandri.	Review of Intro 2 of 2010 (introduced February 2010) finds that legislation has been introduced: Sections 3319.5.2.1, 3319.5.2.2, and 3319.5.2.3 sufficiently address component tracking. DOB submitted a C&D Component Overview printout from BIS for a specific crane as additional documentation at the exit conference. Although each listed part has been assigned an ID number that is maintained in BIS, it does not appear as if BIS can "track" each part, as opposed to merely recording it. DOB's ability to record part numbers is only a small step towards meeting the recommendation.	DOB has introduced appropriate legislation; however the current system only records the part numbers and cannot track component parts of the cranes. The tracking of all key structural components of cranes guards against the use of counterfeit or substandard components.

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HRCO Report Recommendation	Status per DOB	Status Per Audit Review	Implementation by DOB	Audit Analysis and Determination	Effect(s)
<p>C-22 — Data Recorder – “Black Box” (Further Study)</p> <p>DOB should consider the use of data recording devices that will provide critical information regarding the operation of cranes within the jurisdiction.</p>	Not Pursuing	Not Implemented	C&D researched and found out that this is not a standard feature among all tower crane manufacturers, and therefore this recommendation is not been pursued.	DOB initially stated status as Not Pursuing.	By not pursuing this recommendation, DOB has opted not to adopt new technology available to assist with determining fatigue life of components, accident investigation/prevention, identifying crane overload events.
<p>C-24 — Scaffolding Hoist (Further Study)</p> <p>DOB should require a plan review and inspection of custom built hoisting systems that are able to hoist loads exceeding 1 ton (907 kg).</p>	Implemented	Not Implemented	Custom built scaffold hoisting systems to hoist loads exceeding one (1) ton are submitted to DOB's borough offices as ALT II type of application filed by a NYS Professional Engineer.	HRCO Report acknowledges that plans are submitted to the borough office as part of a building permit application. However, the recommendation calls for a formal plan review of the design and calculations for these custom hoisting systems -- this type of review is not performed by DOB plan examiners. Also, the recommendation calls for inspection of these systems by DOB.	Equipment of this nature can lift several tons of material several stories high, and poses the risks of falling loads and lifting over people. A review of the design and calculations combined with inspection by a knowledgeable inspector is needed to minimize these risks.
<p>H-1 — Hoist – Equipment Acceptance (Further Study)</p> <p>Create and implement an Equipment Acceptance Certification program for hoisting equipment employed in the NYC area.</p>	Not Pursuing	Not Implemented	Not pursued due to Steel Institute vs. LiMandri. A need to create a "Prototype" hoisting system. Not considered at this time.	DOB initially stated status as Not Pursuing.	By not pursuing a singular certification program there is no assurance that hoist equipment in use in NYC meets a minimum of quality standards.
<p>H-2 — Hoist – PE Sign-off</p> <p>Require the building engineer of record or an engineer acceptable to DOB to review that the building can support the loads imposed by the hoist.</p>	Implemented	Not Implemented	When application is submitted to the Department, we receive a letter from engineer stating that the building can support loads imposed by hoist. If the letter is not received, application is rejected.	Sample letters where an engineer certifies that loads on the buildings were analyzed were provided by DOB. However, documentation (such as a submission checklist) showing that this is, in fact, required for all hoists was not provided. Furthermore, DOB has not issued a technical bulletin or codified this requirement as it committed to do in its Implementation Milestones document.	Lack of an engineering review of the loads imposed by the hoist on the building leaves the structure susceptible to failure.

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HRCO Report Recommendation	Status per DOB	Status Per Audit Review	Implementation by DOB	Audit Analysis and Determination	Effect(s)
<p>H-3 — Hoist – Riding on Top of Cars (Further Study)</p> <p>Restrict actions of workers riding on top of cars to limit inherent dangers of working on and in close proximity to moving equipment.</p>	Not Pursuing	Not Implemented	Deemed not practical. The Department has no authority to impose social requirements on citizens; however, we perform outreach and educational safety programs. (Safety presentation available under separate heading) OSHA is responsible for NY State work practices.	DOB initially stated status as Not Pursuing.	Riding on top of cars is an inherently dangerous practice and has been associated with a number of accidents. Workers remain at risk unless appropriate safety protocol precautions are implemented.
<p>H-6 — Hoist – Off-site Controls (Further Study)</p> <p>Introduce and implement an Off-site Hoist Equipment Control Program to check that the equipment is adequate for the intended use.</p>	Not Pursuing	Not Implemented	Not pursued due to Steel Institute vs. LiMandri. Cannot be implemented without code change.	DOB initially stated status as Not Pursuing.	Control systems are currently self-regulated and vary by supplier. The lack of a requirement or standardized practice creates a risk that hoist equipment may not be in serviceable condition and have compromised load carrying capacity.
<p>H-7 — Hoist – On-Site Log Book</p> <p>Require that all site locations maintain an On-Site Hoist Equipment Log to standardize record keeping of all pertinent data.</p>	Implemented	Not Implemented	Log is kept by general contractor (GC) at site. The Department requires inspector to check for log during inspection.	As part of the Implementation Contract, CTL developed a detailed document identifying log book components and requirements. DOB did not provide a bulletin or other procedures regarding the standardization of record keeping. As additional documentation at the exit conference DOB submitted a series of DOB Elevator Division checklists. These are totally unrelated to the recommendation requiring that general contractors maintain a standardized log book. No documentation has been provided to support DOB's statement that the recommendation has been implemented.	Because DOB does not require standardized log books, there may be gaps in inspection, maintenance, and testing history. A log is necessary to document conformance with manufacturer specifications and other regulations.
<p>H-8 — Hoist – Regulation of Hoists (Further Study)</p> <p>(Note: DOB has recommendation as being "Merge Hoists with C & D")</p> <p>Hoist equipment (Personnel and Material Hoists and Back-Structures) should be subjected to engineering review, permitting and site inspection by a dedicated DOB department.</p>	Not Pursuing	Not Implemented	Deemed not practical as units are quite different.	DOB initially stated status as Not Pursuing.	DOB has chosen not to consolidate hoist engineering reviews and inspections under a dedicated group. A dedicated group with appropriate expertise could more readily ensure that serious conditions are being addressed.

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HRCO Report Recommendation	Status per DOB	Status Per Audit Review	Implementation by DOB	Audit Analysis and Determination	Effect(s)
<p>E-1 — Excavations at Footings</p> <p>Excavations which must extend below the bearing level of an existing footing or foundation should be restricted to ensure adequate measures are taken regarding stability of the structure.</p>	<p>Implemented</p>	<p>Partially Implemented</p>	<p>Currently, support of excavation plans are required. The 2008 Code already satisfy plan requirements. This would include design for underpinning, as well as other shoring methods meant to support adjoining structures directly or indirectly. These systems cannot be designed without due diligence inspection of adjoining structure to determine its condition and foundation system, including the strata of soil or rock it bears upon. In addition, the 2008 code required both pre-construction survey and movement monitoring, if Commissioner requires. Both of these requirements provide an indication of SOE design performance and early indication of inadequacies in design or execution. The Department proactively monitors, and in cases of SWO, they are asked to produce drawings; monitoring details, and pre-construction survey.</p>	<p>As per the HRCO Report, the "2008 NYC Building Codes do not provide clear requirements for temporary excavations at footings." BC Section 1803.1 states "Excavation ... shall not remove lateral support ... without first underpinning or protecting ... against settlement or lateral translation." Section 1814 .1 of the code states, "Where the protection and/or support of adjacent structures is required, an engineer shall prepare a preconstruction report... ." Both of these sections fail to identify a minimum point at which additional protection is necessary. The Recommendation seeks to do so by adding language restricting the excavation to a defined geometry unless stability is otherwise provided. DOB provided additional information after the exit conference. While we agree that the 2014 code provides additional safeguards and requires the engineer to devise specific support methods, we find that the HRCO Recommendation remains partially unaddressed.</p>	<p>Excavations that are not properly supported may pose a hazard to employees. Additionally, unsupported excavations under sidewalk excavations may pose a hazard to pedestrians. According to OSHA records, for the period from 1990 to 2000 approximately one-half of excavation fatalities (approximately 48%) resulted from excavation cave-ins.</p>

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HRCO Report Recommendation	Status per DOB	Status Per Audit Review	Implementation by DOB	Audit Analysis and Determination	Effect(s)
<p>E-2 — Permitting of Underpinning</p> <p>DOB should implement a procedural method for permitting underpinning that is differentiated as shallow or deep to better screen these operations for associated safety issues.</p>	<p>Partially Implemented</p>	<p>In Progress</p>	<p>All underpinning requires design, application and permit. The department did not choose to delineate between shallow and deep underpinning at the design and permit level. Targeted inspection of underpinning operations and deep excavations has been implemented and any issues that arise, are referred to excavation unit for engineering audit.</p>	<p>The HRCO Report acknowledges that at the time of its writing "Underpinning is currently permitted by submission of a design drawing package... underpinning submittals are not technically reviewed by DOB during permitting." The intent of the HRCO Report recommendation is to identify "deep" underpinning at the design and permitting phase, so issues can be identified in advance of construction through technical review. This contrasts DOB's current approach of conducting engineering audits after issues arise. After the exit conference, DOB provided a "Support of Excavation and Underpinning Drawing Review Checklist". The checklist requires identification of the underpinning type and height (less than greater than 8'), and requires drawings, etc. similar to those requested by the Recommendation Approach. However, DOB has not provided us with formal written procedures evidencing that this form has been in use during the permitting phase or that screenings for safety issues are conducted prior to construction.</p>	<p>The HRCO report states that "From a safety viewpoint, underpinning is probably the most dangerous subgrade activity that is currently tracked by the NYC DOB." Deep underpinning are potentially more hazardous than shallow underpinning. Therefore, by not implementing the recommendation, DOB will not be able to ensure at the permit stage (before construction), the safety of a deep underpinning design.</p>

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HRCO Report Recommendation	Status per DOB	Status Per Audit Review	Implementation by DOB	Audit Analysis and Determination	Effect(s)
<p>E-5 — Minimum Drawing Standards</p> <p>Design submittals for excavation, earth retention, or underpinning permits should include sufficient plan, section, and detail drawings as necessary to convey the full intent and scope of the construction. DOB should establish minimum requirements for submittals</p>	Implemented	In Progress	<p>Minimum drawing standards have been established and implemented in form of the "SOE Requirements Document". HRCO also delivered a training manual for Excavation Engineers and a "lighter", more basic, manual for borough plan examiners. HRCO rolled both of these out in a few training sessions. Excavation Unit has incorporated these manuals into our Excavation Engineering audit checklist. These requirements may have to be issued as a bulletin or rule. The SOE requirements document has been published on our website during safety. The borough has not officially implemented a requirement for a basic review of SOE. Excavation Engineering review SOE (including underpinning) on an audit basis that is based on a referral from field inspectors. The Department performs limited number of pro-active reviews based on request from engineer.</p>	<p>As per the HRCO Report, the SOE Requirements Document was being drafted at the time of the study to meet the intent of the recommendation. However, a final, formally issued "SOE Requirements Document" has not been provided for the audit team's review. Therefore, we are unable to determine whether this document does in fact satisfy the recommendation. None of the documentation provided by DOB at the exit conference provides adequate guidance defining the minimum content requirements for excavation, earth retention, and underpinning design drawings submitted for permit.</p>	<p>Design drawing inadequacies (ranging from minor elevation issues to potentially un-constructible details) were identified at approximately 46% of sites reviewed by HRCO. Without adequate drawings, contractors may not be able to directly build or develop more detailed construction drawings.</p>

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HRCO Report Recommendation	Status per DOB	Status Per Audit Review	Implementation by DOB	Audit Analysis and Determination	Effect(s)
<p>E-7 — Underpinning Notification</p> <p>The contractor should notify the Department of Buildings a minimum of 24 hours, but no more than 72 hours (3 working days) in advance of the start of underpinning construction. The notification should be written, and it should include a brief narrative description of the activity including the length and location of underpinning to be installed, height of typical pit or pier, and the estimated duration of construction. The contractor should also be required to provide the same notification to the underpinning designer and to the responsible agent for special inspections if different from the designer.</p>	Implemented	Not Implemented	<p>All excavation, including underpinning, requires notification to the department and to adjacent property owner in advance of the work starting. Contractor is currently required to notify the special inspector in advance of the commencement of work for which special inspection is required. If no notification is done, the Department issues SWO for at least 3 days.</p>	<p>The 2008 Code Section 3304.3.1 requires notification prior to the start of any earthwork, as acknowledged by the HRCO Report. However, this is a one-time notification which most probably will not reflect the start of underpinning activity. Also, a narrative description of the underpinning work is not required by the code. Neither this, nor additional documentation provided by DOB after the exit conference, supports compliance with the recommendation.</p>	<p>“Underpinning Notification” is intended to help make site construction activity more transparent. Building inspectors can be routed more effectively to observe this high risk construction activity.</p>
<p>E-8 — TR1 and Inspection Log</p> <p>Critical inspection information, including the TR1 form and a log of special and progress inspections, should be maintained on site for the benefit of the construction parties and DOB.</p>	Partially Implemented	Not Implemented	<p>The 2008 code revision requires the TR1s to be kept on site and available upon request. Requirement of a log is not in Code. 28-116 and 1 RCNY 101-06 require that inspection reports be kept by the person making the inspections, and that they are made available to DOB upon request, but not required to be stored on site.</p>	<p>DOB states that the 2008 Code requires TR1s to be kept on site -- however, the audit team could not find this requirement in the Code and DOB did not provide a citation either at or after the exit conference. DOB comments infer that there is no requirement that a log of progress and special inspections be kept on site. However, this recommendation requires a log of this nature to be kept on site.</p>	<p>Maintaining this information on-site will facilitate and provide a record of compliance with inspection requirements.</p>
<p>E-9 — On-Site Meeting</p> <p>The contractor should schedule an on-site meeting with the designer and special inspector (as applicable) to walk through the planned operation in advance of the start of construction. The contractor should notify the Department of Buildings of the time and place of the meeting, and attendance by the NYC DOB should be at their discretion.</p>	Not Pursuing	Not Implemented	<p>This initiative would slow the construction process significantly, and therefore was not implemented.</p>	<p>DOB initially stated status as Not Pursuing.</p>	<p>On-site meetings may identify design flaws and unanticipated conditions that can be addressed before construction starts. This may save time and money if conditions may need to be handled at a later date once construction has already begun.</p>

APPENDIX II

Acronym/Abbreviations Legend

ACI	American Concrete Institute
ALT II	Alteration Type-2
ANSI	American National Standard Institute
BC	Building Code (NYC)
BIS	Buildings Information System
C&D	Cranes and Derricks
CD	Certification of Operation
CD - #	Crane & Derrick Form Number
CM	Construction Manager
Intro	Introduction (pending legislation in City Council)
LL	Local Law
OEM	Office of Emergency Management
RCNY	Rules of the City of New York (NYC Rules)
RS	Reference Standard
SOE	Support of Excavation
SOP	Standard Operating Procedure
SWO	Stop Work Order
TR1	Technical Report: Statement of Responsibility

Recommendation Number Legend

HC - #	High-rise Concrete
C - #	Cranes
H - #	Hoists
E - #	Excavations



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October 2, 2014

Ms. Marjorie Landa
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Re: Audit Report Draft (7E13-124A)
Audit Report on the Department of Buildings' Compliance with the High
Risk Construction Oversight (HRCO) Study

Dear Ms. Landa:

Thank you for the opportunity to respond to the findings and recommendations of the above-captioned final audit report. While your input can help further our commitment to providing quality public service and maximizing our resources, we disagree with some of your findings and recommendations. In actuality, we find some of your conclusions to be very misleading and/or inaccurate. The audit did not properly reflect the overall outcome of the HRCO recommendations, and did not consider all the things that were accomplished by the Department of Buildings (the Department) based on this study. A few things that were ignored included, for example, the Department creating and staffing a Concrete Unit and having an in-house Curriculum Specialist who prepares customized training curriculums for Department staff.

As your report indicates, the objective of the audit was to determine whether the Department of Buildings implemented the actions recommended in the HRCO Report and whether the recommendations were implemented within the timeframes stated in the HRCO Implementation Milestones document. We appreciate the opportunity to address your audit findings and concerns, and will use it as a guide to further improve our policies and procedures.

Following are the Department's responses to the eight (8) recommendations, as well as clarifying comments in reference to points that were addressed during the audit process with your team.

Clarifying Comments:

The Department disagrees with some of the major conclusions in the audit report.

1. Audit Findings and Conclusion

Audit: HRCO Report Recommendations not Implemented.

The Department does not agree with your findings and interpretation regarding the statuses of HRCO recommendations. Although the Department clearly stated that certain recommendations were not accepted, and were deemed not practical or jurisdictionally appropriate for the Department to implement, the audit refers to those simply as not implemented. Of the twenty-two recommendations you reported as not implemented, the Department did not pursue nine due to



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budgetary, legal and/or resource constraints, three others were referred for further study and the remaining ten are somewhere along the implementation continuum.

2. Findings and Recommendations

Audit: Public monies may have been wasted.

The Department disputes this finding. The Department relies on the opinions of its Subject Matter Experts (SMEs) and stand by their respective positions that the deliverables were validated as per contract. Further, the audit report showed no proof of this assessment.

3. Internal Control and Response Issues

Audit: Failed attempt to address high risk deficiencies may continue to expose the public and construction site workers to accidents and injuries.

The Department seriously disputes this finding. Notably, the Department has seen a 12.7% increase in initial permit issuance during the past couple of years, which typically has a correlation with increased construction activity, while reporting a decline in construction-related fatalities.

Presentation of Information

The Department cooperated with the auditors, and attempted to produce all relevant documents requested in a timely fashion. Some requests were overly broad, and amount of material too voluminous. This, coupled with negligible communication from the auditors with regards to follow-up questions that need explanation or the need for meetings with our SMEs, placed the Department in the unusual position of determining what was specifically needed.

4. Appendix (Some Representative Examples)

HC-8 -- DOB Inspector Qualifications (Assessed as Partially Implemented)

The Department disputes this assertion, in fact, DOB Inspector Qualifications, subsequent to the publication of the HRCO recommendations, has included personnel certified by the American Concrete Institute (ACI) to perform inspections and testing, both at construction sites and in concrete testing laboratories. These certifications are the National Standard for inspection and testing of concrete, and are the same qualifications required of the Special Inspection Agencies performing these inspections and tests on behalf of building owners nation-wide.

The Department also provides ongoing training classes for all inspectors, and newly-hired inspectors are mentored by selected senior inspectors. Documented proof of training classes were presented to the auditors.

HC-12 -- Upgrading Netting Requirements (Assessed as Not Implemented)

The recommendation itself asked the Department to study the effectiveness of enhancing existing netting requirements. The Department reviewed the issue during the latest Code Revision which led to a complete rewrite and expansion of Section 3308 within the 2014 Code. In the 2014 Code, the Department adopted the latest National Standards for nets, expanded the distance nets have to be projected, added requirements for net design and for there to be a design professional that specifies the tensile strength of the nets.



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HC-13 -- Material Handling (*Assessed as Not Implemented*)

The 2014 Construction Codes, adopted via the aforementioned LL141/13, includes enhancements to material handling safety with improved rigging requirements of BC 3316.9., as well as material storage requirements in BC 3303.4.5. While this recommendation addresses the use of outrigger platforms to potentially improve material handling at construction sites, it is not the only possible way in which this can be accomplished. The use of outrigger platforms is not prohibited by the 2008 Construction Codes, and such platforms are in use by contractors who choose to do so.

Prohibition of material overhangs, which would require the use of outrigger platforms, was discussed by the 2014 Code Committees (Construction and Demolition Safety Committee). This committee of experts could not come to consensus on such a requirement, and instead proposed other safety enhancements adopted within LL141/13. The auditors were furnished with these facts.

HC-14 -- Fall Hazard Awareness (*Assessed as Partially Implemented*)

The Department has focused many safety presentations on fall awareness, for example, the "If You Fall They Fall" campaign launched in February 2009 and the "Experience is Not Enough" campaign launched in April 2011. In addition, there was the passage of Local Laws 41/08 and 40/08 as well as the implementation of a Concrete Safety Manager General Inspection Checklist. The Department's position is that this recommendation was implemented, and will continue to emphasize fall awareness.

5. Steel Institute of New York Lawsuit

Audit: DOB's actions were not consistent with this assertion.

Although as pointed out, the Department drafted legislation that was introduced after a federal lawsuit was filed challenging a large number of Department laws, that proposed legislation was not enacted, nor does that single piece of proposed legislation contradict the general point that DOB did not pursue various other legislative actions in view of that lawsuit.

Recommendation Responses:

The Department shared with the audit team many documented proofs of implementation, based on HRCO recommendations, which the auditors opted not to include and/or recognize in this report. Safety is a key Department priority. Indeed, the Department of Buildings serves to promote the safety of all people that build, work and live in New York City.

Recommendation 1:

Review the HRCO Report recommendations to ensure they are still pertinent to DOB's goals and current construction practices and environment. This review should be comprehensive and capture the full content of each recommendation as put forward by CTL in the HRCO Report.

Agency Response:

The Department agrees with the need for this recommendation. While the Department prioritizes its projects, it has not deviated from its responsibilities to enforce the Construction Codes and the zoning regulations of New York City, thereby ensuring the safe and lawful use of buildings and properties.



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The Department has launched a team to review and oversee future phases of the HRCO recommendations. This team will work to ensure that the Department's goals, and those of the HRCO recommendations, are consistent.

Recommendation 2: ***Develop formal tracking and reporting requirements for recommendation implementation.***

Agency Response: The Department is in agreement with this recommendation, and will develop standardized formal tracking and reporting requirements.

Recommendation 3: ***Create a project management team responsible for independently verifying recommendation implementation status as well as performing the tracking and reporting function. Ensure that this team has the necessary technical knowledge to head up the endeavor.***

Agency Response: The Department agrees with the need for this recommendation. The Department plans to build a formal project management team to monitor the status of the HRCO Report recommendations.

On a quarterly basis, this team would provide formal reporting on the status of the HRCO Report Recommendations to the Department's Deputy Commissioner of Enforcement and Chief of Staff.

Recommendation 4: ***Ensure that all actions (e.g., reviews, analyses, meetings, etc.) are formally and properly documented.***

Agency Response: The Department is in agreement with this recommendation, and will develop formal tracking, reporting and documentation methods as Recommendation 2 also suggested.

Recommendation 5: ***Maintain appropriate files of deliverables, meeting minutes, communications with industry and CTL, training session attendance sheets, etc.***

Agency Response: Although the Department produced numerous deliverable files, communications with industry, attendance sheets, etc. we nonetheless agree with this recommendation and will maintain better and more standardized documentation.

Recommendation 6: ***Adequately monitor consultant contracts to ensure that all tasks are completed and completed in a way that provides value to the agency.***

Agency Response: The Department is in partial agreement with this recommendation. Our technical and subject matter experts believe the deliverables received matched the contract terms. We will continue to monitor contracts to ensure that all tasks are completed in accordance with the contract deliverables.



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Recommendation 7: ***Ensure that all contracts specifically specify where consultant's work product is the property of the agency and that this be required in all contracts, except for documented extraordinary circumstances.***

Agency Response: The contract did include such a specification, specifically stating that all work produced was the property of the City, as follows: "*Upon execution of this Agreement, any reports, documents, data, photographs and/or other materials produced pursuant to this Agreement, and any and all drafts and/or other preliminary materials in any format related to such items, shall become the exclusive property of the City of New York.*" The contract further stated, within its Appendix A, which is an Appendix the Department routinely attaches to contracts of this type, that "*No report, document or other data produced in whole or in part with contract funds shall be copyrighted by the Contractor nor shall any notice of copyright be registered by the Contractor in connection with any report, document or other data developed for the contract.*" The Department does agree that this type of provision is appropriate for this type of contract; accordingly the Department will continue to include this type of provision in such contracts.

Recommendation 8: ***Ensure that significant actions and decisions connected to establish the scope of the contract, along with their justifications and/or authorizations when required, are formally and properly documented.***

Agency Response: The Department is in agreement with this recommendation, and will more formally document, as was suggested in Recommendations 4 and 5, all major actions relating to the Department of Buildings' Compliance with the High Risk Construction Oversight Study.

Thank you, once again, for giving us the opportunity to respond to this draft audit report. We look forward to receiving your final version.

Sincerely,

A handwritten signature in black ink that reads "Rick D. Chandler".

Rick D. Chandler, P.E.
Commissioner

cc: George Davis III
 Philip Monaco
 Joshua Florsheim
 Kerry Castro