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DOI INVESTIGATION INTO THE CITY'S PROGRAM TO OVERHAUL THE 911 SYSTEM REVEALS SIGNIFICANT MISMANAGEMENT AT THE ROOT OF COST OVERRUNS AND DELAYS

Mark G. Peters, Commissioner of the New York City Department of Investigation ("DOI"), issued a Report today on the City's decade-long, multi-billion dollar effort to modernize its 911 system, known as the Emergency Communications Transformation Program ("ECTP"). The report, requested by Mayor Bill de Blasio last May, documents a number of management, oversight, and performance failures which caused the program to be years behind schedule and hundreds of millions of dollars over its original budget. As a result, the program has yet to fully deliver on its promise of a modernized 911 system that will more effectively respond to the health and safety needs of New Yorkers.

DOI Commissioner Mark G. Peters said, "Between 2004 and 2013, city officials mismanaged this project: They failed to adequately supervise sub-contractors, who presented the City with markups on products and services of up to 600 percent. City officials also pushed workers to 'sanitize' documents in order to make ECTP's progress and overall health appear better than it actually was. Once again, City officials, at a high level, allowed a much hyped tech program to run out of control and failed to provide basic supervision and oversight."

The original schedule for ECTP projected the program would be completed in its entirety by September 2007, at a projected cost of \$1.345 billion. According to current estimates, the program will not be fully delivered until 2017, nearly a decade behind schedule, and at a cost of approximately \$2 billion dollars. When these delays and cost overruns became public early last year, Mayor de Blasio requested that DOI conduct this investigation to determine the cause of the problems and what changes were needed going forward.

As part of its seven month investigation, DOI reviewed tens of thousands of documents, including copies of contracts, bids, progress reports, invoices, budget documents, and electronic communications. DOI also conducted more than 50 interviews with individuals involved with ECTP, conducted site visits and analyzed financial records related to the project's budget.

DOI found significant mismanagement, internal control weaknesses, and contractor performance deficiencies that created the conditions for the substantial delays and rising costs which have plagued the program. The report acknowledged significant steps the City has since taken to begin fixing these problems.

DOI's review identified an excessive reliance on consultants, leading to inflated markups on price estimates for products and services. In one instance, the sheer amount of sub-contractors involved in the program resulted in inflated price estimates of as much as 600 percent on a specific service.

In addition, multiple witnesses interviewed by DOI shared that, as late as the end of 2013, senior program officials created an environment that discouraged truthfulness – seeking to “sanitize,” “soften” or “spin” negative information about the program in reports to create the impression that ECTP’s status was better than it actually was.

The report also found a clear failure to present a complete picture of the total costs of the program. Though DOI did not perform a full accounting of expenditures, it found that at least \$211.4 million in costs relating to ECTP projects were not reflected as program costs. Instead, these costs were paid for by individual agency budgets, were not recorded because they were paid under contracts executed before ECTP began, or were omitted from ECTP cost-tracking altogether.

Other deficiencies uncovered by the investigation include:

- a failure to adequately plan or sufficiently define the scope and direction of the program;
- ineffective program governance that allowed the NYPD and FDNY to design separate systems rather than one coordinated system;
- the failure to appoint an independent integrity monitor; and
- inconsistent agency recordkeeping practices, including at the NYPD, which did not have a document retention policy for program records.

This report not only assesses what went wrong on ECTP and recommends remedies for the program going forward but also addresses ways to improve the City’s management of large scale technology projects in the future.

DOI issued seven recommendations to the City for ECTP and future large scale technology projects, a number of which the City has already implemented:

- ECTP’s scope and direction going forward must be well-defined in a written plan that should be drafted and agreed upon by all stakeholders. (The City’s Department of Information Technology & Telecommunications, (“DoITT”) has begun efforts to analyze and redefine the program’s scope.)
- The City must appoint a strong, central manager empowered by the Mayor to lead large-scale technology projects such as ECTP. (As to ECTP, the City has appointed DoITT Commissioner Anne Roest.)
- Where possible, the City should establish direct contractual relationships with vendors and avoid layers of subcontracting. The City should also seek to avoid ceding complete responsibility over projects to outside contractors. (As to ECTP, the City has begun steps to reduce contractor involvement, including the removal of a number of consultants.)
- The City should set forth written criteria for any reporting of ratings or metrics intended to measure the progress of the program or particular projects. Further, reporting should not take so much time and effort as to detract from staff’s ability to perform substantive program work. (The City has taken some preliminary steps to simplify the process.)
- The City should retain an independent integrity monitor for large scale technology projects such as ECTP. (As to ECTP, the City has now agreed to retain such a monitor.)
- The City should account for all costs relating to large-scale technology programs like ECTP as program costs.

- The City should implement standardized recordkeeping practices on large-scale, multi-agency technology projects. Agencies including NYPD should create a document retention policy for ECTP and future large-scale technology projects.

Commissioner Peters thanked Commissioner Roest of DoITT, William Bratton, Commissioner of the New York City Police Department, Daniel A. Nigro, Commissioner of the New York City Fire Department, Feniosky Peña-Mora, Commissioner of the Department of Design and Construction, and Dean Fuleihan, Director of the Office of Management and Budget, and their staffs, for their assistance in this investigation.

This investigation was conducted by Inspectors General Andrew Brunsdon and Andrew Sein, and their staff, including Counsel to the Inspectors General Annette Almazan, Special Investigator Nicole Clyne, Special Investigator Boris Galchenko, Investigative Attorney Glenn Greenberg, Special Investigator Elizabeth Mack, Chief Forensic Auditor Ivette Morales, Investigative Attorney Lindsey Ramistella, Special Investigator Peter Relyea, Special Investigator Rushelle Sharpe, Investigative Attorney Carolyn Sheehan, and Special Investigator Rickey Young, under the supervision of Associate Commissioner William Jorgenson.

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**New York City Department of Investigation
Report on the Emergency Communications
Transformation Program**

**MARK G. PETERS
COMMISSIONER**

February 2015

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EXECUTIVE SUMMARY

More than 30,000 New Yorkers call 911 for help on an average day. They call 911 to report life-threatening medical emergencies, fires, and crimes. They also call 911 in the event of a major disaster. Though New Yorkers rely on the 911 system to respond to emergencies, it has faltered at times due, in part, to antiquated technology and inefficient processes.

The City's decade-long attempt at overhauling its 911 system, known as the Emergency Communications Transformation Program ("ECTP" or "Program"), is years behind schedule and hundreds of millions of dollars over its original budget. ECTP has thus yet to fully deliver on its promise of a modernized emergency communications system that will more effectively respond to the health and safety needs of New Yorkers.

DOI conducted an investigation of ECTP, which was performed at the request of Mayor Bill de Blasio, over the last seven months. Our investigation examined the reasons for ECTP's failure to deliver a modernized 911 emergency communications system on time and within its original budget. This Report discusses the findings of our investigation. In sum, persistent mismanagement between 2004 and 2013 contributed to the delays and the waste of millions of dollars.

Background

The City launched ECTP in 2004 as an initiative to modernize New York City's 911 emergency communications system. The terrorist attacks of September 11, 2001 and blackout that affected the Northeast in August 2003 revealed significant deficiencies in the 911 system and prompted the City to convene an Emergency Response Task Force to propose recommendations for improvement. The Task Force's October 2003 report described, among other things,

inadequate call-taking capacity, outdated dispatch technologies, and the lack of coordination and co-location of the NYPD, FDNY, and EMS.

An ECTP planning document from January 2004 states that the Program’s overarching purpose was to “transform emergency communications and service delivery for the City of New York through streamlined operations and improved technology solutions.” Main goals of the Program were to improve emergency response times, enhance the quality of emergency communications service for New Yorkers, and ensure the safety of first-responders. To achieve these goals, ECTP provided for major upgrades or replacements of 911 systems, including the City’s emergency radio, 911 call-taking, and computer-aided dispatch (“CAD”) systems. As part of the Program, NYPD, FDNY, and EMS – which had been located at three separate locations – were to be co-located at two fully redundant Public Safety Answering Centers (“PSACs”).

The Program was originally scheduled to conclude in September 2007 and its capital budget was set at \$1.345 billion. More than ten years later, ECTP is still not complete. By early 2012, after several years of delays, the co-location of NYPD, FDNY, and EMS at PSAC 1 was completed and the agencies were using the new call-taking software. However, several key ECTP components still have not been completed. Construction on PSAC 2 is ongoing and the location is not yet ready for operations. Furthermore, although NYPD’s new CAD system was implemented in 2013, several years late, FDNY’s CAD upgrade remains in development. According to current estimates, the Program will not be fully delivered until 2017, approximately a decade behind its original schedule. The Program’s capital budget has also increased significantly, to approximately \$2.031 billion, which – as discussed below – is not a complete representation of this initiative’s true costs to New York City taxpayers.

On May 19, 2014, citing the Program’s costs and delays, as well as “significant and long-standing technical design, systems integration, and project management risks and issues that necessitate immediate corrective action,” Mayor Bill de Blasio ordered a halt to major work on ECTP pending reviews by the Department of Information Technology and Telecommunications (“DoITT”), the Department of Investigation (“DOI”), and the New York City Comptroller’s Office. On August 6, 2014, DoITT, DOI, and the Comptroller’s Office issued reports regarding the Program. DOI’s August 6 report set forth its preliminary findings and recommendations, but stated that a final report would follow in the coming months.

This final report sets forth the principal findings of DOI’s complete investigation and DOI’s recommendations for improving the administration of the City’s large-scale technology projects in the future.

DOI’s Investigation

As part of its investigation, DOI requested a wide range of documents from City agencies and major contractors involved in ECTP, including copies of contracts, bids, progress reports, invoices, budget documents, and electronic communications. City agencies and contractors produced more than 1.5 million documents to DOI. DOI also conducted more than 50 interviews with individuals who have been involved in ECTP. DOI conducted a variety of other investigative steps, including, but not limited to, analyzing financial records related to the ECTP budget and making site visits to the emergency call-taking and dispatching centers known as PSAC 1 and PSAC 2.

Findings of DOI’s Investigation

DOI has identified a variety of management failures, internal control weaknesses, and contractor performance deficiencies that, between 2004 and 2013, created the conditions for the

substantial delays and rising costs which have plagued the Program. No overt criminal conduct was discovered. However, DOI did identify inadequate Program controls permitting inflated price estimates by contractors, as well as attempts to hide the significance of problems facing the Program. More specifically, the Program's deficiencies include: (A) a fundamental failure to adequately plan or sufficiently define the initial scope and direction of the Program; (B) ineffective Program governance, both by officials at City Hall and at various agencies; (C) inadequate contractor management, resulting in a failure to control consultant costs; (D) undue pressure applied by Program officials upon employees to report positive information about the status of ECTP to City Hall; (E) the failure to appoint an independent integrity monitor; (F) a failure to present a clear picture of the Program's total costs; and (G) inconsistent recordkeeping practices at agencies involved in ECTP, including the NYPD, which did not have a document retention policy for Program records.

A. The City failed to engage in adequate Program planning.

- *ECTP lacked a well-defined scope or vision.*

Rather than clearly define the scope of the Program at the outset, the City initially delegated this responsibility to its systems integrator, Hewlett Packard Company ("HP"), which set forth Program activities in a series of task orders. By the end of HP's contract, there had been 29 task orders and approximately 550 task order amendments. Witnesses and records informed DOI that this "ad hoc" approach and a lack of Program definition resulted in frequent changes to the scope of work and compromised the Program's ability to meet deadlines or account for the cost impact of changes.

- *The City set aggressive deadlines and continually failed to meet them.*

The original Program schedule provided that ECTP would be completed in September 2007, a timetable that Program officials warned early on was “aggressive.” The City not only failed to meet its original schedule, but also continually failed to meet its new self-imposed deadlines. As noted above, the co-location of the agencies at the PSAC 1 and their migration to upgraded call-taking software occurred several years late. If the first call at PSAC 2 occurs in 2017 as currently anticipated, ECTP will conclude approximately ten years late. Planning, staffing, and contractor performance deficiencies, such as chronic software problems with the VESTA telephony software, contributed to these delays.

- *ECTP exceeded its original \$1.345 billion capital budget primarily due to the City’s decision to construct a new PSAC 2 facility and to hire a second systems integrator.*

During the course of the Program, ECTP’s capital budget increased significantly, from \$1.345 billion to \$2.031 billion. First, although the City originally planned and budgeted for PSAC 2 to be a renovated existing facility, in 2005, the City selected a new site on undeveloped land in the Bronx, requiring construction of a new facility. This decision raised the anticipated PSAC 2 construction costs by hundreds of millions of dollars. Second, because the Program took so much longer than planned, and because the original systems integrator HP did not deliver an operational PSAC 2 as contemplated by its original contract, the City committed hundreds of millions of dollars in additional funds to paying a systems integrator for the Program’s later years. Thus, in addition to the City’s approximate \$327 million payment to HP for its systems integration services during Stage 1 of the Program, it also entered into a \$285 million contract with Northrop Grumman Systems Corporation (“NGSC”) for systems integration services in connection with Stage 2 of the Program.

- *The City failed to conduct sufficient inquiry or investigation regarding the need for remediation work on radio remote sites.*

DOI learned that the NGSC contract contained an assumption that radio remote sites, which were to receive new equipment as part of the radio system upgrade, would be ready for installation of that equipment. However, those sites were not ready and required significant unplanned remediation work. DOI found that the Program did not initially discover the need for remediation due to insufficient due diligence both during the original determination of scope and during the course of the project.

B. ECTP lacked effective governance.

- *The City failed to establish an accepted centralized authority to supervise ECTP.*

Rather than establish a single unified agency to govern the consolidation and management of 911 operations, the City assigned DoITT, and later the Mayor's Office of Citywide Emergency Communications ("OCEC"), to manage the Program. According to witnesses interviewed by DOI, both DoITT and OCEC were not provided sufficient authority to lead the Program. A 2009 report indicated that the NYPD and FDNY had not accepted DoITT as Program manager, and that "DoITT and stakeholder agencies battle[d] over approaches without a clear approach to making decisions." Additional reports documented a "lack of buy-in" among the agencies to a shared ECTP vision and "[a] hard line [taken by the agencies] on their current operational practices." Several witnesses confirmed that, historically, NYPD and FDNY resisted collaboration on the consolidation of their operations. NYPD and FDNY witnesses also expressed the view that DoITT and OCEC did not adequately consult them or engage them in decision-making. At no time did City Hall intervene to insist on a single vision and plan.

- *Stakeholder agencies resisted shared solutions in the absence of an effective centralized authority.*

DOI identified several examples where a lack of agency coordination on consolidated solutions led to inefficiencies. First, the City has deviated from its original plan to build a single, unified CAD system for NYPD and FDNY, instead permitting each agency to individually develop their own CAD systems. Had the City developed a single CAD system for the NYPD and FDNY as part of the joint, streamlined effort, it could have avoided the costs of creating separate systems, such as the approximately \$11 million middleware between NYPD's ICAD system to FDNY and EMS's legacy systems. Second, notwithstanding a decision in August 2012 to create a single physical network ("SPN") for PSAC 2 to be used by both agencies, multiple witnesses and records demonstrated that NYPD and FDNY officials resisted the network consolidation based, in part, on the agencies' separate operational requirements and concerns regarding sharing equipment. In 2014, after the agencies rejected the SPN design, the Program reversed course and settled on a design involving separate networks for NYPD and FDNY. Third, despite original plans to have a shared radio equipment room at PSAC 2 for the agencies, DOI has learned that NYPD's request for a separate radio room was recently granted, further increasing the project's cost.

We note that there are some potentially legitimate individual specifications by NYPD and FDNY that could present problems for the creation of a SPN or other consolidated systems. However, our review demonstrates that rather than attempt to work through these obstacles, planners simply accepted them and allowed ECTP to move forward without serious attempts to see if they could be resolved.

C. Excessive reliance on outside consultants.

In the view of sources that DOI interviewed, City employees were overly dependent upon and excessively deferential to the outside ECTP systems integrator and layers of other private

contractors working on the Program. As one example, in 2011, a high-level Program official warned that it made “no sense” for the City to pay a systems integrator to be significantly involved in the radio project when Motorola, the lead radio contractor, was capable of performing the work independently. Nevertheless, the City continued to utilize NGSC on the radio project and continued to incur unnecessary costs, such as its 8% markup on equipment purchases. In 2013 alone, the City was billed a markup of approximately \$1.4 million for radio equipment purchases. Further, in at least one instance, the use of multiple layers of consultants resulted in inflated markups of as much as 600% in estimates for products and services.

D. Undue pressure exercised by Program officials upon employees to present positive information to City Hall.

- *DOI interviewed witnesses who stated that Program officials prior to this year sought to minimize the severity of problems or concerns in reports to City Hall to create the impression that ECTP’s status was better than it actually was.*

OCEC presented regular reports to City Hall including, among other information, color ratings that measured the severity of concerns in areas such as schedule, cost, and risks. DOI interviewed five City employees who stated that senior Program management regularly, and as late as 2013, sought to “sanitize,” “soften,” or “spin” negative information about the Program by changing these color ratings. DOI also spoke with a contractor representative who said that certain OCEC officials created an environment that discouraged truthfulness.

Former members of OCEC senior management explained that management’s changes to color ratings reflected simple disagreement with the ratings that were originally proposed by employees. Former Deputy Mayor Caswell Holloway, who received the reports, stated in an interview with DOI that he had no reason to believe that OCEC staff had been pressured to change colors to minimize risks.

Taken as a whole, however, the witness statements, along with the current state of the Program, undermine confidence in the credibility of the reports and call into question whether the reports downplayed areas of concern.

- *The Program spent an inordinate amount of time on reports.*

Multiple witnesses stated that OCEC staff expended a significant percentage of their time each month drafting the approximately 100-page reports presented to City Hall, and that this focus on reporting detracted from the ability of staff to perform substantive Program work.

E. The failure to appoint an independent integrity monitor.

An integrity monitor acts independently to identify programmatic risks of fraud, corruption, waste, and mismanagement. An integrity monitor identifies these risks by, among other things, conducting audits of invoices and payments for billing irregularities. Quality assurance – provided by Gartner from 2004 to 2011 – and independent validation and verification – provided by NASA from 2011 to 2014 – are distinct from integrity monitoring. Because ECTP has never had an integrity monitor in place for the ten year life of the Program, the billings of contractors and subcontractors have not been subject to ongoing independent oversight for fraud or corruption, despite documented concerns about Program costs and delays. We note that the City has now agreed to such a monitor and DOI is now in the process of drafting a RFP to hire a monitor.

F. Failure to present a clear picture of the total costs of the Program.

- *ECTP has not accounted for the total costs of the Program and has therefore understated those costs.*

DOI's analysis shows that the total cost of ECTP and related work is higher than that estimated in the Program's \$2.031 billion capital budget. DOI conducted an analysis of the budget, expenditures, and costs of the Program. DOI's analysis revealed that the City did not account for

certain ECTP project-related expenditures as Program costs in its records. Though DOI has not performed a full accounting of such expenditures, DOI found that at least \$211.4 million in costs relating to ECTP projects were not reflected as Program costs because: (1) expenditures during ECTP made under contracts executed before the Program were not recorded as Program costs; (2) costs relating to component projects were at times paid from individual agency budgets rather than from ECTP's budget; and (3) certain contracts relating to ECTP projects were omitted from ECTP cost-tracking altogether.

G. Failure to implement consistent recordkeeping and document retention policies

During the course of this investigation, DOI learned that City agencies did not utilize standardized recordkeeping practices for Program-related materials. This created some challenges in identifying and obtaining documents that were relevant to this review.

For example, during the course of responding to document requests during this investigation, NYPD informed DOI as follows: "The NYPD does not have an agency document (hard copy or soft copy) retention policy concerning employees' project emails or files. Active and retired personnel have the discretion to retain, discard, delete, materials during and after the completion of a project." While NYPD has cooperated with DOI and conducted searches for records, this and other statements by NYPD suggests that the NYPD has not maintained some unknown number of ECTP-related records because of its ad hoc retention practices in connection with the Program.

Recommendations

In order to mitigate the risks of similar management failures and internal control weaknesses in the context of ECTP and other large-scale technology projects, DOI makes the following recommendations:

1. ECTP's scope and direction going forward must be well-defined in a written plan that should be drafted and agreed upon by all stakeholders. (DoITT has begun efforts to analyze and redefine the Program's scope.)
2. The City must appoint a Program Manager empowered by the Mayor to lead large-scale technology projects such as ECTP. (As to ECTP, the City has appointed DoITT Commissioner Anne Roest who has recently taken a number of steps to centralize the process.)
3. Where possible, the City should establish direct contractual relationships with vendors and avoid layers of subcontracting. The City should also seek to avoid ceding complete responsibility over projects to outside contractors. (As to ECTP, the City has begun steps to reduce contractor involvement, including the removal of a number of consultants.)
4.
 - A) The City should set forth written criteria for any reporting of ratings or metrics intended to measure the progress of the Program or particular projects.
 - B) Reporting should not take so much time and effort as to significantly detract from staff's ability to perform substantive Program work. (The City has taken some preliminary steps to simplify the process.)
5. The City should retain an independent integrity monitor for large scale technology projects. (The City has committed to do so for ECTP.)
6. The City should account for all costs relating to large-scale technology programs like ECTP as costs of the program.
7.
 - A) The City should implement standardized recordkeeping practices on large scale, multi-agency technology projects.
 - B) Agencies, including the NYPD, should create a document retention policy for ECTP and future large scale technology projects.

As noted above, and discussed further below, the City has already begun to implement some of these recommendations.

DOI's findings and recommendations are discussed further below.¹

¹ To preserve the confidentiality of witnesses and sources, some citations have been omitted from this public report. The facts cited herein are supported by witness statements or documents that are maintained by DOI.

FACTUAL BACKGROUND

I. History of New York City's Emergency Communications System

In July 1968, New York City unveiled its first 911 call-taking system. Although the original system only allowed individuals to dial “911” in the event of a police emergency, the system was subsequently expanded to include fire and medical emergencies.

Over the subsequent decades, the City's emergency communications technology and infrastructure became outdated, and the NYPD and FDNY made efforts to upgrade their systems. For example, beginning in the 1990s, the FDNY took measures to renovate its five borough Communication Offices (“COs”).² In the late 1990s, there was an effort to build a backup 911 call center adjacent to One Police Plaza, an idea that was abandoned after September 11, 2001 due to financial and security concerns. The NYPD and FDNY also made attempts in the 1990s and early 2000s to upgrade their computer-aided dispatch (“CAD”) systems.³

The need to upgrade the City's 911 system became more urgent after the September 11, 2001 terrorist attacks on the World Trade Center and the blackout that affected the Northeast in the summer of 2003. During the September 11th attacks, emergency call-taking volumes reached all-time highs. Although systems remained functional, a significant number of 911 calls received immediately following the attacks never reached an operator. In its report assessing the events of September 11, the 9/11 Commission found that “[i]n several ways, [New York City's] 911 system was not ready to cope with a major disaster.” National Commission on Terrorist

² At that time, the FDNY had a Communication Office in each borough to serve as the agency's primary dispatch centers. During ECTP, the five COs were renovated to remain operational until the completion of PSACs 1 and 2.

³ A CAD system is a tool used by 911 call-takers and dispatchers to electronically enter and manage the information they receive in connection with a 911 call.

Attacks upon the United States, 9/11 Commission Report, at 318 (July 22, 2004).⁴ Again, during the blackout of August 2003, a number of callers were unable to reach 911 operators for hours due to, among others reasons, network congestion and the failure of backup power generating equipment at three Verizon central offices.

According to an internal FDNY document dated September 2003, a FDNY vendor encouraged the agency to “move forward immediately” with upgrading components of its emergency communications. The vendor simultaneously voiced concern that the City did not have “a clear vision for the future of emergency communications across agencies,” and that there was a risk that individual agencies proceeding independently would “build solutions in a stovepipe manner.”

In late 2003, then-Mayor Michael Bloomberg convened what was called the Emergency Response Task Force to review the City’s response to the power outage and to make recommendations to improve the City’s emergency preparedness. *See generally* The New York City Emergency Task Force, *Enhancing New York City’s Emergency Preparedness: A Report to Mayor Michael R. Bloomberg* (Oct. 28, 2003). In its October 28, 2003 report entitled “Enhancing New York City’s Emergency Preparedness,” the Task Force made a series of findings, including the following:

- The existing seven dispatch centers and three dispatch systems used by NYPD, FDNY, and EMS lacked “system integration” and had “varying operational practices,” which resulted in “decreased dispatching efficiency.” *Id.* at 9.
- This dispatch structure led to “an inefficient on-scene incident command structure,” where NYPD, FDNY, and EMS “operate[d] in a silo-based manner that lack[ed] overall coordination and communication.” *Id.* at 9

⁴ The 9/11 Commission was an independent, bipartisan commission created by Congress to report on the circumstances surrounding the September 11, 2001 terrorist attacks.

- The City’s emergency services organizations were operationally, technically and geographically segregated. *Id.*
- Components of the City’s emergency dispatch operations relied on outdated technologies that were neither interoperable nor capable of expanding to meet increased volume and demand. *Id.*
- “[T]hree Verizon central offices experienced outages . . . due to failures of [backup power] generating equipment.” *Id.* at 11.
- Call taking capacity was inadequate for the call volumes reached during the blackout. *Id.*
- The inability to quickly locate the closest appropriate unit to an emergency could jeopardize the City’s ability to provide an efficient response to incidents. *Id.* at 12.

The Task Force made a broad set of recommendations, including the following:

- “Review emergency dispatch and communications operations to improve the capacity for coordinated dispatch, and incident command and management.” *Id.* at 19.
- “The overall 911 system should be reviewed to eliminate single points of failure.” *Id.*
- “Integrate vehicle location and routing capability into emergency dispatch operations.” *Id.* at 20.
- “Agency radio communications efforts should leverage citywide efforts.” *Id.*

II. The Emergency Communications Transformation Program

A. Inception of ECTP

In 2004, the City initiated ECTP, a comprehensive effort to modernize its emergency communications system. As articulated in planning documents from early 2004, the overarching goal of ECTP was to “transform emergency communications and service delivery for the City of New York through streamlined operations and improved technology solutions.” City of New

York, 911 Emergency Communications Transformation Project, at 1 (Jan. 26, 2004). The main objectives of ECTP included:

- “Enhance the quality of citizen interactions with the emergency call center
- Improve emergency dispatch times
- Optimize the use of emergency call taking and dispatching resources
- Upgrade business continuity and disaster recovery capabilities
- Ensure safety of emergency response personnel.”

DoITT, Project Definition (PD) for the Provision of System Integration (SI) Services for the Emergency Communications Transformation Project (ECTP), at 4 (March 2004) (hereinafter “ECTP SI Project Definition”).

A central goal of ECTP was to consolidate and streamline emergency call-taking functions at two public safety answering centers (“PSACs”): (1) PSAC 1, which was already located in Brooklyn, and which served as NYPD’s call-taking and dispatch base of operations, and (2) a fully redundant PSAC 2, to be located at a separate, but undetermined, site.⁵ Other significant Program objectives included the development, upgrade, or maintenance of several application systems, including a “unified” CAD system for the three agencies and automated vehicle location (“AVL”)

⁵ As of 2004, NYPD, FDNY, and EMD call-takers and dispatch operators were not co-located at the same facility. NYPD was located at the then-NYPD-operated PSAC 1 in Brooklyn, FDNY was located at five separate FDNY-operated COs in each of the five boroughs, and EMD was located at a separate EMD dispatch center. At that time, a 911 call was first routed to the NYPD call-takers at PSAC 1. In situations where the caller needed fire or emergency medical assistance, the NYPD call-taker would initiate a conference call with the appropriate call-takers located at the separate FDNY and EMD facilities.

system⁶, as well as the improvement of communications infrastructures, including the City's emergency radio system, logging and recording⁷, and 911 telephony⁸ systems.

B. Original Program Budget and Schedule

ECTP's original capital budget was \$1.345 billion. This budget included costs associated with upgrading 911 technologies including call-taking and dispatch systems, renovating the existing PSAC 1, and developing a new PSAC 2 by renovating an existing facility.

In early 2004, the City's solicitation for the ECTP systems integrator set forth the proposed Program schedule. This schedule provided that ECTP would be completed in its entirety by September 2007, with implementation of a unified CAD system to be completed by June 2006, construction of PSAC 2 to be completed by March 2007, and all communications-related projects to be completed by August 2007. *See ECTP SI Project Definition*, at 14.

As discussed in greater detail in the findings below (sections I.C and I.D), ECTP's budget was increased to \$2.031 billion during the Program mainly due to the decision to construct a new PSAC 2 facility rather than renovate an existing building and the hiring of a new systems integrator. Moreover, the original Program deadlines repeatedly slipped, leaving ECTP as a whole a number of years behind its original schedule.

⁶ AVL is a program embedded within a CAD system that tracks the location of an emergency vehicle.

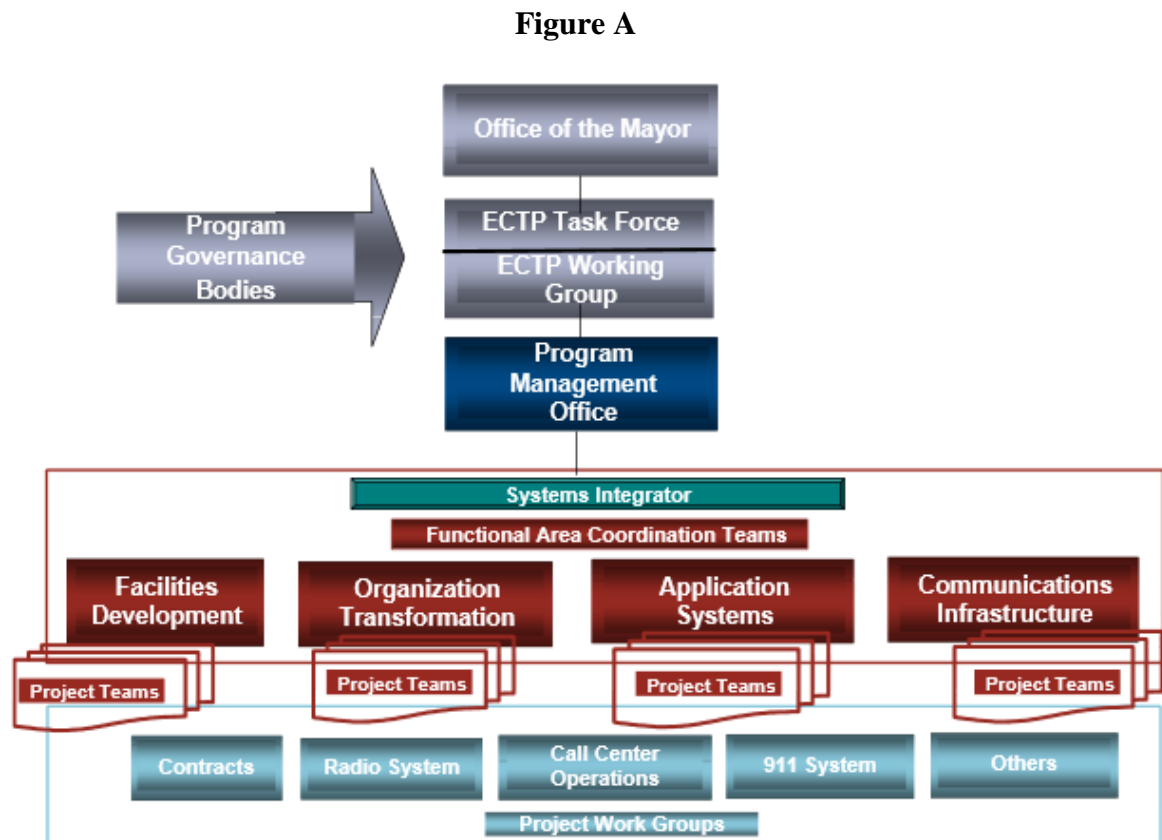
⁷ Logging and recording is the infrastructure of systems that captures, stores, and analyzes all voice and radio calls related to emergency communications for NYPD, FDNY, and EMD.

⁸ ECTP's telephony project sought to modernize the City's 911 call-taking technology.

C. Initial Program Management

1. City Governance Structure

As originally established in 2004, ECTP's governance structure consisted of several layers of executive oversight and management, which are illustrated below:



Source: Hewlett-Packard Company (“HP”), Statement of Work (SOW) for ECTP, at 40 (Mar. 6, 2005).

- The *Executive Sponsors* were the highest level of ECTP management. The Program’s Executive Sponsors were the Mayor’s Office, the Director of the Office of Management and Budget (“OMB”), and the Commissioners of the NYPD, FDNY, and DoITT. The role of the Executive Sponsors was, among other things, to “establish[] program vision and strategic directions” and to “[g]et[] support of other policy makers and executives.” Gartner, PMO Briefing Document, at 7 (Jan. 27, 2004).
- The *ECTP Task Force* was comprised of executive staff from the Executive Sponsor agencies, as well as executive staff from the Office of Labor Relations,

Department of Citywide Administrative Services, and Mayor's Office of Contract Services. The ECTP Task Force was responsible for "[i]nitial review of program directions, major program investments, and critical program issues," as well as "[p]roviding direction and recommendations to the ECTP Working Group." ECTP SI Project Definition, at 12.

- The *ECTP Working Group* consisted of executive staff representing the Mayor's Office, DoITT, NYPD, FDNY, and OMB. The ECTP Working Group was responsible for oversight of the execution of the program vision and strategic directions, commitment of Program resources, participation in Program reviews, approval of major investments, and escalation of any issues. Gartner, PMO Briefing Document, at 7 (Jan. 27, 2004); ECTP SI Project Definition, at 13.
- The *Program Management Office* ("PMO") was composed of the DoITT ECTP Program Manager, the NYPD Project Lead, the FDNY Project Lead, the DoITT Program Contract Officer, the DoITT Technical Architect, and Gartner, Inc., which served as the ECTP quality assurance manager. The PMO's responsibilities were, among other things, to manage execution of the Program plan (including overall budget, scope, and schedule), offer expertise and support to project teams, and provide independent verification and validation of project deliverables and milestones. Gartner, PMO Briefing Document, at 7 (Jan. 27, 2004).

DoITT was given responsibility for day-to-day Program management. Management of the more than 30 original ECTP projects was organized into four tracks:

- The Communications Infrastructure track focused on the development of call-taking and dispatch communications capabilities. The projects within this track included telephony, radio, logging and recording, ERS/BARS,⁹ and voice alarm.¹⁰
- The Facilities Development track handled the design and development of fully redundant facilities at PSAC 1 and PSAC 2, the relocation of NYPD, FDNY, and EMD call-takers to those facilities, and the renovation of FDNY COs.
- The Applications Systems track focused on technology solutions for consolidation and improvement of emergency dispatch. The projects within this track included CAD and AVL.

⁹ The Emergency Reporting System ("ERS") is the FDNY's voice call boxes that provide a direct voice link for FDNY or NYPD assistance. "BARS" is the box alarm readout system.

¹⁰ Voice alarm is a dispatcher-controlled intercom to all firehouses used as a secondary backup means of communication to the FDNY Starfire CAD.

- Organizational Transformation sought to define business and operational processes required to achieve the Program’s goals and objectives.

“Functional Area Coordination Teams” were assigned to handle daily management of projects within each track. These teams included City employees from DoITT, NYPD, and FDNY, as well as staff from the Program’s systems integrator and quality assurance consultant.

2. Engagement of Systems Integrator and Other Major Contractors

One of the first major tasks was to engage a “systems integrator” to manage the Program.¹¹ At the end of March 2004, the City issued a Project Definition document soliciting bids for an ECTP systems integrator. The solicitation stated that the systems integrator would be responsible “for the overall program activities and ensuring all sub-projects are integrated into one Master plan and meet the City’s needs.” ECTP SI Project Definition, at 22. The solicitation further provided that the systems integrator would manage other Program contractors, including its own subcontractors and third parties contracting directly with the City. *Id.* The solicitation stated that the Program’s scope would be defined through task orders agreed upon with the systems integrator “as [ECTP] progresses.” *Id.*

Although DoITT distributed the solicitation to 109 vendors, it received proposals from only two: iXP Corp. (“iXP”) and HP.¹² Prior to the solicitation, iXP had been serving as the systems integrator in connection with the initial planning phase of ECTP, under a pre-existing contract with the NYPD. iXP’s proposal was the only one to receive the City’s required minimum technical score. Accordingly, in the middle of 2004, the evaluation committee – which was comprised of

¹¹ In the context of ECTP, the systems integrator exercised some level of oversight over the variety of component projects and was tasked with ensuring that all component projects functioned properly when combined together.

¹² In the Award Narrative for the systems integrator contract, the evaluation committee later stated that the receipt of only two bids was not “unexpected” because ECTP is “an extremely complicated and difficult project.” The City of New York, Award Narrative: Hewlett-Packard Company, at 4.

representatives from DoITT, NYPD, FDNY, the Mayor's Office, and the Mayor's Office of the Criminal Justice Coordinator – recommended that iXP be awarded the contract. *See* City of New York, Award Narrative: Hewlett-Packard Company, at 3 (hereinafter “HP Award Narrative”).

Meanwhile, the City also prepared to solicit a contractor to upgrade the City's 911 telephony software. In September 2004, Verizon self-reported to the City that certain of its employees had inappropriately paid for meals and entertainment of City employees who were involved in ECTP-related procurements, including the systems integration contract and the E-911 contract. Verizon also self-reported that it had received a draft solicitation for the E-911 procurement before it had been finalized and publicly distributed. These procurements were halted during DOI's subsequent investigation, which in turn delayed the progress of ECTP.

DOI's investigation ultimately found that Verizon, and to a lesser extent iXP, had improperly provided expensive meals and entertainment to City employees who had a role in pending procurements involving both companies. DOI also concluded that an iXP employee had shared information about the E-911 procurement with Verizon and other potential bidders. DOI's investigation further identified five NYPD and FDNY officials who violated the City's conflict of interest law.

On December 22, 2004, iXP withdrew its bid for the ECTP systems integration contract. Although the City's evaluation team considered issuing a new solicitation for a systems integrator, it ultimately determined that additional vendors would be unlikely to submit proposals. After holding further discussions with HP, the evaluation team appears to have satisfied itself that HP could sufficiently meet the City's requirements. Indeed, it stated in its Award Narrative that, if HP's bid had been scored after these additional discussions, HP's “technical score would have more than met the minimum qualifications.” HP Award Narrative, at 7. The evaluation team

ultimately concluded that it was in the “best interest of the City” to move forward with HP as ECTP’s systems integrator because the lengthy procurement process had already put ECTP behind schedule and “it was . . . critical to engage the [systems integrator] as soon as possible.” *Id.* at 1.

The HP contract provided that the City would pay a “total aggregate amount not to exceed \$380 million” for its services. Agreement for the Emergency Communications Transformation Project Between the City of New York and Hewlett-Packard Company, at 5 (April 2005) (hereinafter “HP Contract”). Due to the delays during the procurement process, by the time HP commenced work in April 2005, target completion dates for ECTP and component projects had slipped.

3. Quality Assurance

Before HP was selected as the systems integrator, Gartner, Inc. (“Gartner”) began as the Project Management and Quality Assurance (“PMQA”) vendor. In a Statement of Work dated December 31, 2003, Gartner described quality assurance as the process of evaluating “Quality of Outcome” (*i.e.*, “I received what I wanted”) and “Quality of Process” (*i.e.*, “I received it when I wanted it, for the amount I expected to pay”). Gartner, Draft Task Order # 23556-002A, at 11 (Dec. 31, 2003). As part of its quality assurance duties, Gartner agreed to “work closely” with the ECTP team, including “[p]rovid[ing] technical expertise and objective analysis” and reporting on project weaknesses and alternatives. *Id.* at 12-13. Among other things, Gartner agreed to monitor the ECTP schedule, document possible project risks, and assist in the administration of vendor contracts and budgets. *Id.* at 9-10.

D. Evolution of the Program

1. HP's Performance as Systems Integrator

HP's performance as the Program's systems integrator was widely criticized as inadequate. Written reports from between 2005 and 2007 consistently found fault with the quality and quantity of HP personnel assigned to manage ECTP. *See, e.g.*, Gartner, Weekly QA Status Report (Mar. 16, 2007) (stating that "HP's lack of response concerning their ability to present integration knowledge may indicate that managing complex Program integration issues is beyond the capability of the current HP team," and that "[t]he City has requested that HP produce resources that demonstrate a firm understanding of SI issues."); DoITT, ECTP Risk Management Review (Apr. 26, 2007) ("HP needs to rapidly improve staff and practices. . . ."). Further, a June 2005 report stated that "SI resources are being billed to the City with little or no visibility into role, responsibility, [or] output; undetermined cost for ongoing activity." Gartner, Executive Risk Report (June 1, 2005).¹³ One source informed DOI that the performance of HP staff was particularly problematic because DoITT's ECTP team was understaffed and relied heavily upon the systems integrator.

HP's inability to deliver satisfactory and timely work product was also documented as a significant challenge to the Program. *See, e.g.*, Gartner, Weekly QA Team Report (Nov. 30, 2006) ("Too frequently, the SI teams are missing promised dates on work items. . . ."); Gartner, ECTP Issue Summary (Mar. 26, 2008) ("Timeliness in the provision of deliverables has been a recognized problem with HP's general performance almost since the inception of the ECTP

¹³ In early 2006, Gartner wrote that nearly a quarter of HP's annual budget for a component project had been "expended with little measurable progress towards significant deliverables." Gartner Draft Memorandum to DoITT (Apr. 20, 2006).

program.”); Gartner, Weekly QA Status Report (Apr. 22, 2009) (“[T]here are a number of items due from HP that are seriously late,” and a deliverable provided was “far short of expectations.”). In a December 2006 assessment of HP’s project management, Gartner highlighted what it called HP’s “ineffective organizational oversight and management control,” “ineffective strategy development and management,” and “inconsistent scope development/alignment.” Gartner, SI Project Management Assessment, at 5 (Dec. 10, 2006).

The City expressed its dissatisfaction with HP in a series of letters to the company in 2007. For instance, in a May 2007 letter to HP, former DoITT Commissioner Cosgrave wrote that HP’s performance was “jeopardizing the project’s success,” and despite a City presentation regarding HP’s performance deficiencies, “HP ha[d] made few, if any real improvements.” Letter from Paul Cosgrave to HP (May 7, 2007). The previous month, in April 2007, Cosgrave had written a letter to Deputy Mayor Edward Skyler requesting that the ECTP systems integration contract be re-bid. Although the City contemplated removing HP from its role as systems integrator in early 2007, the City did not re-bid the contract, and problems with HP’s performance persisted.

In a May 2008 VENDEX Contractor Performance Evaluation, DoITT rated HP’s performance in several areas as “needs improvement” or “unsatisfactory.” DoITT also noted in the 2008 evaluation that “certain projects were halted for lack of performance.” Later evaluations after 2009 noted improvement in HP’s performance as its overall rating in those evaluations was “fair” or “good.” However, additional Gartner reports in 2009 and 2010 noted continued problems with HP’s performance. *See, e.g.*, Gartner, ECTP QA Report (June 1, 2010) (stating that “[t]he effectiveness of HP as the Stage 1 SI is at risk” and that “key tasks that should be managed by HP are being driven by City or Gartner resources”); Gartner, Monthly Contract Report (July 2009)

(stating with respect to a project that HP “ha[d] been passive in resolving problems and taking a leadership role,” leading to a “lack of quality deliverables”).

2. ECTP Stage 1 and Stage 2

In late 2008, as a result of performance issues and delays, the City decided to split the Program into two stages. ECTP Stage 1 was to cover the renovations at PSAC 1, delivering upgraded systems such as E-911 telephony at PSAC 1, and co-locating NYPD and FDNY call-taking and dispatch operations within PSAC 1.¹⁴ ECTP Stage 2 was to include the design and construction of PSAC 2, as well as the installation of 911 technologies at the facility. Additionally, as discussed below, the City created a new entity to manage ECTP and hired a new systems integrator for Stage 2.

3. Creation of OCEC

During Stage 1, the effectiveness of ECTP’s governance was called into question, including by Gartner, which reported a number of governance concerns such as a lack of buy-in among the stakeholder agencies and insufficient executive leadership. In 2010, the City created a new entity – the Mayor’s Office of Citywide Emergency Communications (“OCEC”) – to assume management responsibility for ECTP.

a. The City did not Establish an Independent 911 Agency

The creation of OCEC did not follow the “independent 911 agency” governance model which had been implemented by other municipalities overhauling their 911 systems. For example, when Chicago modernized its emergency communications system in the 1990s, it created a single agency to manage emergency call-taking and dispatch operations, rather than dividing those

¹⁴ Stage 1 was ultimately completed in early 2012, once NYPD, FDNY, and EMS had completed their cutover to VESTA and were co-located at PSAC 1.

functions among police, fire, and EMS. During Stage 1, as early as 2006, Gartner recommended that the City similarly “establish a new independent 911 agency,” which it described as a “critical success factor” for the consolidation of emergency communications in other cities.¹⁵ Gartner Presentation to City, 911 – Building and Running a System That Works, at 12 (May 2, 2006) (hereinafter “Gartner 2006 Presentation”). Gartner informed the City that centralizing decision-making and administration in an independent agency was necessary due to the NYPD and FDNY’s “legitimate competing interests for technology and operations and limited willingness to coordinate and make critical decisions.” *Id.* As Stage 2 of ECTP began, Gartner again recommended that the City create a new, independent 911 agency. *See* Gartner, Program Governance Options and Ability to Achieve ECTP Goals, at 5 (May 24, 2010).

The City never established this “independent 911 agency” to govern the consolidation and management of 911 operations. Instead, throughout Stage 1, personnel from DoITT and other agencies managed the day-to-day operations of ECTP, leaving no clear authority to resolve the competing interests of NYPD and FDNY. According to the Gartner 2006 presentation referenced above, under DoITT’s management of the Program, the two agencies “continu[ed] to invest in duplicative technologies and systems with no integrated vision or direction.” With the creation of OCEC during Stage 2, the City again declined to create an independent 911 agency, although it adopted Gartner’s secondary recommendation, which was to create “a central authority that would report to the Mayor’s Office and have responsibility for ECTP.” Gartner, QA ECTP Closeout Report, at 4 (March 31, 2011).

¹⁵ Other cities that implemented the independent 911 agency model when overhauling their communications systems include Houston, Washington, D.C., Nashville, and Portland.

b. OCEC as Program Manager

The City created OCEC in late 2010. The main objectives in establishing OCEC were to create a “central owner” of PSAC technology planning and 911 support and maintenance, as well as to provide more efficient schedule and budget management. OCEC’s Director was to be appointed by the Mayor and report directly to the Deputy Mayor for Operations. In August 2010, the City appointed Glen “Skip” Funk, a previous Commissioner and Executive Director of Chicago’s Office of Emergency Management and Communications, as OCEC’s first Director. Although OCEC reported directly to City Hall, as a practical matter, OCEC was still considered to be part of DoITT. OCEC’s staff consisted of new employees and DoITT employees who had already been working on ECTP.

One of OCEC’s first major tasks was to resolve ongoing problems with the VESTA telephony software, which are discussed in detail below. At that time, Verizon, as the contractor for the telephony project, and PlantCML, its subcontractor and the creator of the VESTA product, had been long unable to correct operational problems which prevented deployment of the software for call-taking. In September 2010, OCEC established a team to streamline and support the VESTA remediation plan. These efforts were in many respects successful; over approximately the next year, significant problems with the VESTA software were mitigated. By early 2012, the agencies had migrated to the new telephony system.¹⁶

In late 2011, approximately one year after his appointment, Funk resigned from his position as OCEC Director. Funk’s Deputy Director, Bruce Gaskey, then became OCEC’s Director and served in that position until January 2014.¹⁷

¹⁶ The VESTA cutover occurred as follows: FDNY in 2009, NYPD in December 2011, and EMS in February 2012.

¹⁷ DOI has reviewed documents stating that OCEC sought to codify its existence by executive order, both before and after the change in Mayoral administrations in 2014. However, the executive order was never issued.

4. Engagement of Northrop Grumman as Stage 2 Systems Integrator

In February 2009, DoITT issued a new RFP to 20 vendors soliciting bids for a Stage 2 systems integrator. Three vendors submitted responsive bids: HP, Science Applications International Corporation (“SAIC”), and Northrop Grumman Systems Corporation (“NGSC” or “Northrop Grumman”).¹⁸ An evaluation committee, consisting of five voting members from DoITT, NYPD, FDNY, OMB, and the Deputy Mayor’s Office, reviewed the three vendor proposals. The vendors’ overall technical score percentages were as follows: NGSC received 74.9%, SAIC received 66.0%, and HP received 56.4%. As stated in the Award Narrative for the contract, the City awarded NGSC the Stage 2 systems integration contract because it had the highest technical score and the lowest price.

The NGSC contract provided that the City would pay NGSC an amount not to exceed \$285,999,853. *See* Agreement Between the City of New York Department of Information Technology and Telecommunications and Northrop Grumman Sciences Corporation for Systems Integration Services for Stage II of the Emergency Communications Transformation Program (hereinafter “NGSC Contract”). The NGSC Statement of Work (“NGSC SOW”), which was attached to the contract, set forth several Stage 2 projects over which NGSC would have “full responsibility.”¹⁹ These full responsibility projects included networks, logging and recording, FDNY CAD, and several projects related to radio. In addition to the full responsibility projects, the NGSC SOW stated that NGSC would provide “oversight coordination” to projects which were

¹⁸ According to a former Program official, DoITT received five bids in response to the RFP, two of which were deemed unresponsive.

¹⁹ Full responsibility is defined in the NGSC SOW, in relevant part, as “delivery responsibility that includes design, procurement, implementation, test, and transition.” NGSC SOW Section 1.4.

not NGSC's full responsibility,²⁰ the delivery of a Program Management Office ("PMO"), and "additional engineering services to support fulfillment of ECTP goals." NGSC SOW Sections 6.0-7.0.

The NGSC contract differed from the Stage 1 systems integration contract with HP in at least two respects. First, whereas the City attempted to manage the Program's scope during Stage 1 through the use of task orders, the NGSC SOW attempted to articulate the scope for Stage 2. Additionally, whereas much of the pricing under the HP contract was done on a "time and materials" basis, the majority of the pricing under the NGSC contract was set as "firm fixed price."²¹ Second, the NGSC SOW incorporated a systems engineering methodology created by IBM known as the Rational Unified Process ("RUP").²² A witness involved with the negotiations of the Stage 2 systems integration contract explained that the City intended by having NGSC use this methodology during ECTP Stage 2 to remedy the lack of "baseline" information-gathering and planning during Stage 1.

However, a 2011 report by OCEC stated with respect to NGSC's initial work that "Northrop has not demonstrated a clear understanding of ECTP," was "weak in RUP

²⁰ For example, NGSC had oversight responsibility for the construction of PSAC 2, which is being managed by a general contractor.

²¹ Pursuant to the Agreement, "Firm Fixed Price" (FFP) means "clearly defined and agreed upon work effort that is to be provided by the Contractor" and the Contractor is solely responsible for all costs and resulting risk of profit or loss based upon the Contractor's ability to control costs and perform effectively." NGSC Contract, at 5. In contrast, "Time and Materials" (T&M) means "acquiring supplies or services on the basis of (1) direct labor hours at the agreed upon hourly rates and (2) materials." NGSC Contract, at 7. According to an internal contractor report reviewed by DOI, although the City registered the NGSC Contract at \$86 million "FFP" and \$200 million "T&M," the report states that "the majority of T&M is required to be converted to FFP to move forward." See ECTP2 NICE Deep Archive ROM Commitment Review, at 4 (Oct. 25, 2013).

²² Under the RUP methodology, the various projects were divided into distinct phases: the baseline, inception, elaboration, construction, and transition phases. During the initial 90-day "baseline" phase, NGSC was responsible for (1) developing management plans and tools to be utilized throughout the project; (2) gathering information about the existing projects, and (3) conducting stakeholder interviews and identifying new requirements for ECTP.

methodology,” and had a “poor delivery track record.” ECTP Program Review, at 10 (Oct. 19, 2011). A 2012 report noted that NGSC was subject to an action plan “to improve overall performance issues,” but was “taking positive steps towards remediating performance issues.” OCEC Portfolio Review, at 43 (Jan. 19, 2012). In a January 2014 transition plan provided to the Mayor’s Office, however, OCEC commented that NGSC “lacks [a] holistic view of [the] Stage 2 Program and Mission” and that the “[l]evel and quality of SI resources requires rigorous and continued monitoring.” OCEC 2014 Transition and Operational Plan, at 13 (Jan. 2014).

5. Engagement of NASA for Independent Verification and Validation

During ECTP Stage 2, the City did not renew Gartner’s ECTP-related contract for the provision of quality assurance. Instead, the City entered into a three-year contract with the National Aeronautics and Space Administration (“NASA”) to act as the Independent Verification and Validation (“IV&V”) vendor beginning in May 2012. IV&V is a type of project management that focuses on technical analysis of deliverables.

6. PSAC 1 Goes Live; ECTP Stage 2 Goes “Off Track”

After significant delays, PSAC 1 was completed in 2012 with the co-location of the call-taking and dispatch operations of NYPD, FDNY, and EMS, as well as their migration to the new VESTA telephony system. Records reviewed by DOI indicate that PSAC 1 is capable of receiving 50,000 calls per hour, and indicate that during Hurricane Sandy in October 2012, the system handled the high call volume, although callers experienced increased wait times to reach an operator.

ECTP Stage 2 remains ongoing. Throughout 2013, a number of OCEC reports to the Deputy Mayor of Operations – including a December 30, 2013 report issued two days before the end of the prior administration – identified ECTP Stage 2 as being on track for timely completion.

However, on January 30, 2014, in the first OCEC briefing to First Deputy Mayor Anthony Shorris, OCEC reported that the PSAC 2 first call ready date of December 2015 was “at risk” due to, among other issues, the need for remediation of certain radio remote sites, changes impacting PSAC 2 construction, and delays in procurements. ECTP/OCEC Briefing for First Deputy Mayor, at 6 (Jan. 20, 2014). OCEC briefings in February and March 2014 continued to report that the Program was “at risk” of failing to meet the then-current first call date for PSAC 2. OCEC Portfolio Executive Briefing, at 3 (Feb. 27, 2014); OCEC Portfolio Executive Briefing, at 3 (Mar. 27, 2014). In its May 6, 2014 briefing to Deputy Mayor Shorris, OCEC reported that Stage 2 was “off track” and would not meet the December 2015 first call date. OCEC Portfolio Executive Briefing, at 3 (May 6, 2014). OCEC cited several reasons including the unplanned remote radio site remediation work, delays in the approval of change orders and procurements such as engagement of the FDNY CAD vendor, and the rejection of the PSAC 2 network design by the stakeholder agencies. *Id.*

E. 60-Day Suspension of Work and Program Review

On May 18, 2014, Mayor de Blasio issued a halt to “all major expenditures and major system changes” involving ECTP.²³ According to a letter from First Deputy Mayor Shorris, the halt came after the administration “uncovered additional significant and long-standing technical design, systems integration, and project management risks and issues that necessitate immediate corrective action.” According to press reports, Program officials informed First Deputy Mayor Shorris in early May that the project would cost at least an additional \$100 million and that it would not be completed until at least 2018. Nikita Stewart, *New York City Calls Halt to Overhaul of 911 System*, N.Y. Times (May 19, 2014).

²³ During the suspension, OCEC reported directly to Anne Roest, DoITT’s new Commissioner, rather than to the Deputy Mayor. During that time, any new contracts, purchase orders, or work authorizations requiring additional expenditures against existing contracts, as well as system implementation changes, were to be approved by Commissioner Roest.

In the same letter mentioned above, First Deputy Mayor Shorris instructed DoITT, DOI, and the New York City Comptroller's Office to conduct reviews of ECTP. On August 6, 2014, DoITT, DOI, and the Comptroller each issued reports concerning their respective analyses of ECTP.

DoITT's report set forth its findings with respect to "challenges faced by the program in the areas of management, scope, schedule, budget, and vendor management" with a view toward "mak[ing] recommendations on how to correct any deficiencies in the overall management of the program going forward." DoITT, Assessment of Key Requirements and Components of ECTP, at 3 (Aug. 6, 2014) (hereinafter "DoITT Assessment"). Among its key findings, DoITT stated that ECTP governance was inadequate, that the Program's scope was poorly defined, and that vendor management was a "significant and long-standing issue." *Id.* at 5-7. DoITT concluded that "the City will re-establish itself (rather than the Systems Integrator) as the program leader, controlling schedule, implementation strategy, and budget." *Id.* at 28. As a result of DoITT's Program assessment, DoITT Commissioner Roest was assigned responsibility for managing ECTP. The Program assessment also resulted in the addition to ECTP's scope of previously excluded items which DoITT deemed essential to the Program. *See id.* at 15-18. Additionally, DoITT determined that the Program could be completed by 2017. *Id.* at 20.

The Comptroller's report recognized the Program's problems with governance and oversight of consultants. It also concluded that total costs of upgrading the 911 system exceeded ECTP's capital cost estimates insofar as those estimates did not account for particular contracts, expense budget items, and pre-ECTP expenditures. Office of the Comptroller, A Review of the Management and Fiscal Controls Over the City's Upgrade to its Emergency 911 System (Aug. 5, 2014).

DOI's preliminary report contained three initial findings: (1) ECTP struggled with insufficiently clear lines of authority and ineffective governance; (2) ECTP suffered from a lack of preliminary advanced planning with respect to Program specifications and objectives; and (3) ECTP does not have, nor has it ever had, an integrity monitor. DOI's initial recommendations included assigning a single individual with the power to make final decisions to lead ECTP, drafting a well-defined scope for the Program, and hiring an integrity monitor. DOI stated that it would conduct a full review of the Program. Letter from DOI Commissioner Mark G. Peters to Mayor Bill de Blasio (Aug. 6, 2014).

The principal findings of DOI's full seven-month investigation are now set forth below.

FINDINGS AND RECOMMENDATIONS

I. ECTP Suffered from a Lack of Program Vision and Planning.

A. The City Failed to Adequately Define the Program's Scope and Direction

The City failed in a number of respects to adequately plan ECTP, particularly during the Program's early months and years. Fundamentally, the City did not have a sufficiently clear vision of what it sought to achieve through the Program. According to multiple sources, the original Program management team – ostensibly led by DoITT – lacked the resources and experience to manage a project of this size and scope. Exacerbating these problems further, the urgent pressure to begin working during the earliest stages of ECTP left insufficient time for Program planning. Although City officials may have had a high-level outline for this emergency communications upgrade, they did not invest time at the beginning of the Program to develop a concrete set of well-defined objectives or a realistic projection of how long it would take to achieve such objectives.²⁴

²⁴ DOI has been informed that current Program management takes the view that ECTP should be divided into and managed as smaller portions, rather than as one extremely large project.

One former Program official stated that a large-scale project like ECTP ordinarily would involve at least a year of initial Program planning to, among other things, gain consensus among stakeholders and clearly define roles and responsibilities. According to the Project Management Institute's *A Guide to the Project Management Body of Knowledge* (hereinafter "PMBOK"), it is important to create a "common understanding of the project scope among project stakeholders." PMBOK, at 123 (5th ed. 2013). Nevertheless, in both the original ECTP systems integrator solicitation – which was distributed in March 2004 – and the HP contract – which was registered by the Comptroller in July 2005 – the City failed to adequately articulate ECTP's long-term goals and objectives. Rather than do so, as indicated by the HP contract and corroborated by witnesses interviewed by DOI, the City essentially gave the responsibility of defining the Program and creating Program requirements to HP.

More specifically, the HP systems integrator contract indicated that ECTP would be managed through a series of task orders that would define project scope as the Program unfolded. Similarly, the contract stated that HP's role on each project – from "monitor[ing]" and "consult[ing]" to "manag[ing]" and "own[ing]" a project – would be established in subsequently-executed task orders. HP Contract, at 7. The HP contract set forth the work to be performed only during the first 120 days, an initial planning and preparation period that was described in "Task Order 0." *Id.* at 5 ("Upon entering into this Agreement, [HP] is committed to delivering the services in Task Order 0 Appendix 1 and to working in good faith to agree upon additional Task Orders for the delivery of the sub-projects and components of ECTP described in Task Order 0.") Task Order 0 contained only "a high level description of the parties' current understanding of the services, sub-projects and components needed to be undertaken as part of the overall ECTP project" and contemplated that "negotiations on future Task Orders [would be] ongoing" while HP

began work during the initial 120 days. *Id.* at 4. Task Order 0 provided that “HP will work with DoITT to develop 1) the detailed requirements of . . . 30 subtasks, 2) detailed project plans for each of these subtasks, 3) and a detailed project schedule that factors in dependencies, risks, and resources.” HP Task Order 0, at 5 (April 1, 2005). As such, there were essentially no long-term timetables or specific project deliverables set forth in the HP contract or the initial task order.²⁵

DOI determined based on its review of the HP contract and task orders that by the end of HP’s engagement on ECTP, its work had been set forth in 29 separate Task Orders and approximately 550 Task Order Amendments. Of the 29 Task Orders, 11 were amended more than 20 times; four were amended more than 50 times; and one was amended more than 90 times. These Task Order Amendments were used to manage everything from large changes to mundane ones. For example, a Task Order Amendment for \$4,995,000 was executed for HP to “provide consulting services during the construction of PSAC1 by reviewing and validating” all of the tasks – including electrical, HVAC, and cable installation, site access and security surveillance, audio/visual systems, console furniture, and floor space layout – performed by various contractors. TOA 1.1-09. Two Task Order Amendments relating to implementation of logging and recording solutions for NYPD and FDNY exceeded \$13 million. TOA 3.3-01; TOA 3.3-07. Another Task Order Amendment for the amount of \$14,190 was executed to “increase the hours of Air Conditioning [at the SIMO office] for an extra hour each business day for the month of June 2010.” TOA 1.0-39.²⁶

DOI interviewed witnesses who indicated that the task-order approach to defining the

²⁵ Task Order 0 set forth some general planning documents as deliverables, including a Project Management Plan, the Integrated Master Schedule, an Integrated Risk Management Plan, and a Procurement Plan.

²⁶ Forty one task order amendments were for less than \$5,000 and four task order amendments were for less than \$100.

Program was flawed. According to the HP contract, the use of task orders was “intended to accord the City flexibility to specify particular services and equipment . . . as the need for such services and equipment arises.” HP Contract, at 5. The HP Award Narrative similarly stated that the use of task orders allowed ongoing monitoring of HP’s performance, and enabled the City to “renegotiate[e] throughout the course of the contract, both from a performance and financial perspective.” HP Award Narrative, at 7. Contrary to these stated benefits, however, several current and former Program officials expressed to DOI that the City did not employ an adequate approach for defining Program objectives.²⁷

Witnesses and records also indicated that the lack of Program definition resulted in frequent changes to the scope of work. As Gartner pointed out in a May 2009 presentation, the “ad hoc method to implementation and change” resulted in “changes that occur very late in the process.” Gartner, ECTP Planning—Lessons Learned, at 4 (May 2009).²⁸ This observation was confirmed by witnesses who noted frequent changes to Program scope, as well as by the approximately 550 task order amendments. *See, e.g.*, TOA 1.1-08 (January 2008: although assumed “only one Demarc room would be required . . . [a]fter several floorplan revisions, it was determined that two Demarc rooms” were needed); TOA 1.1-11 (February 2008: eliminating a previously-approved scope of work for cabling because it was subsequently determined that the work would be performed under existing DoITT contracts); TOA 1.6-07 (July 2008: adding scope in amount of \$1,324,589.75 “to meet new customer directed schedule and technical performance requirements”); TOA 3.6-24 (January 2010: de-scoping remaining cutover tasks; adding new

²⁷ One Program official interviewed by DOI expressed the view that detailed advance planning would have been unwise, as it would have limited the Program’s flexibility to change course when necessary.

²⁸ *See also* ECTP DoITT Gartner Weekly Meeting Minutes (Sept. 8, 2006) (“Gartner is concerned about scopebuilding ad-hoc work, small projects, etc”); Gartner, Weekly Executive Status Report (Mar. 16, 2007) (“no control or oversight of plans and requirements to ensure that projects, equipment and procurements are not being over-scoped.”); Minutes of ECTP Working Group Meeting (June, 25, 2007) (“requirements for 911 project continue to change”).

scope to implement StarFire legacy network equipment changes at 1 Metrotech); TOA 2.3-01 (February 5, 2010: de-scoping task to compare various geofile models, including one being developed under another Task Order, because they were not similar enough for comparison); TOA 3.3-50, 3.3-51 and 3.3-53 (June-July 2012: de-scoping various FDNY logging and recording tasks, including activities at Brooklyn CO because of delay in space availability); TOA 3.6-06A (declaring that the previous task order 3.6-06, a highly detailed scope of work for construction of back-up sites for FDNY Starfire CAD operations, had been an error and was void).

DOI was informed by witnesses that project changes during Stage 1 were routinely executed without an assessment of how they would impact the overall Program schedule or budget. Witnesses attributed this deficiency, at least in part, to the lack of project baselines²⁹ and adequate change control.³⁰ Without establishing baselines for the component projects, one witness explained that the Program struggled to determine the impacts of changes to deadlines, deliverables, and costs. This witness further explained that Stage 1 lacked a group dedicated to managing change control or a formal process for enacting changes. Consistent with these witness statements, the lack of Program definition prompted Gartner in its May 2009 presentation to note that “[t]he Program contains high level strategies only . . . so resulting lack of detail allows for a broad application of approaches that are largely governed at the lower levels of the organizations and are not necessarily aligned with primary objectives (function, scope, budget, etc.).” Gartner, ECTP Planning--Lessons Learned, at 5 (May 2009). One source informed DOI that confusion about the scope of ECTP persisted well into Stage 2 of the Program.

²⁹ “Baselining,” a term used in project management, is defined as “the approved version of a work product” – a budget, schedule model, or scope statement and work breakdown structure – “that can be changed only through formal change control procedures and is used as a basis for comparison” to actual results. PMBOK, at 529, 534, 561, 562.

³⁰ “Change control” refers to the approval process for modifications to the scope of work, deliverables, or baselines. *See* PMBOK, at 530.

B. The City Did Not Follow Procurement Selection Criteria in Selecting HP Despite its Failure to Obtain the Minimum Technical Score

Although the City established selection criteria for its procurement of a systems integrator, it did not follow that criteria in selecting HP, which did not meet the minimum technical score set by the City.

The rules of the New York City Procurement Policy Board (“PPB”) govern the procurement of goods, services and construction by the City. The PPB rules are intended to “safeguard the integrity of the procurement system and protect against corruption, waste, fraud and abuse.” PPB Rules Introduction. A contracting agency is required to make a responsibility determination regarding a contractor’s ability to perform the contractual requirements and its business integrity. *Id.* §§ 2-08(a)(1), (b)(1). The PPB rules also provide that an evaluation committee comprised of “no fewer than three persons with knowledge, expertise, and experience sufficient to make a fair and reasonable evaluation” are required to review proposals. *Id.* § 3-03(g)(1). A contract award is made “to the responsible proposer whose proposal represents the best value to the City by optimizing quality, cost and efficiency and therefore is determined to be the most advantageous to the City, taking into consideration the price and such other factors or criteria that are set forth in the RFP.” *Id.* § 3-03(g).

The solicitation for the ECTP systems integrator stated that approximately two-thirds of a vendor’s total score would be based on the merit of their technical proposal and approximately one-third of a vendor’s total score would be based on its price proposal. Moreover, the solicitation provided that “[p]roposals will first be scored on their technical merit. Only those proposals that are determined to be technically viable will receive further consideration. To receive further consideration, a proposal’s technical score must achieve a minimum of 70% of the technical points.” ECTP SI Project Definition, at 53.

HP did not meet the minimum technical score of 70% in either of two rounds of evaluation. Based on the technical scores and price proposals,³¹ the evaluation committee recommended that the contract be awarded to iXP. However, as discussed above, on December 22, 2004, iXP withdrew its proposal, leaving HP as the sole bidder for the contract. The Award Narrative explained that “[u]pon further discussions with HP, and in depth conversations of how they have or would address their weaknesses, the evaluation committee found that HP sufficiently met the City’s requirements of the solicitation, notwithstanding the low scores, and recommended DoITT move forward with an award.” HP Award Narrative, at 5.

Despite HP’s failure to meet the minimum technical score, the City awarded the contract to HP. Among its reasons for awarding the contract to HP despite its technical score, the Award Narrative cited HP’s experience in developing a new CAD system for NYPD prior to ECTP and NYPD’s “outstanding recommendation[.]” of HP. HP Award Narrative, at 5. However, as the Comptroller’s Office noted in a 2012 report,³² NYPD Vendex contractor performance evaluations – completed before the evaluation committee decided to award HP the contract – contained several poor and unsatisfactory ratings for HP’s quality and timeliness of performance.

C. ECTP’s Original Schedule Was Unrealistic and the City Continually Failed to Meet New Deadlines Due to Planning, Staffing, and Performance Deficiencies

ECTP’s original completion deadline was September 2007. Now, more than seven years after that original deadline, work on the Program remains active and ongoing. Multiple sources informed DOI that the Program was all but destined to miss its original deadlines because the

³¹ In the first round, HP received a technical score of 63.23% and cost score of 39.14%, whereas iXP received scores of 74.00% and 77.14% respectively. In the second round, HP received a technical score of 66.62% and a cost score of 54.29%, whereas iXP’s scores were 73.38% and 72.86% respectively.

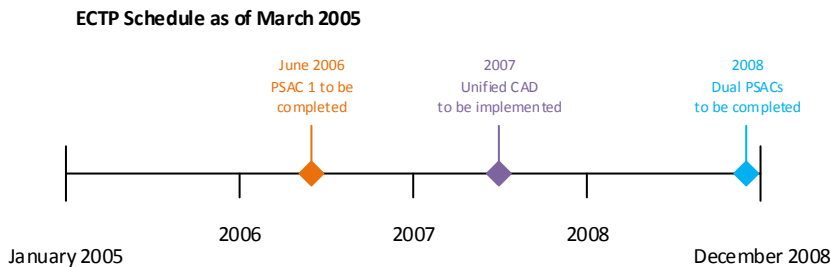
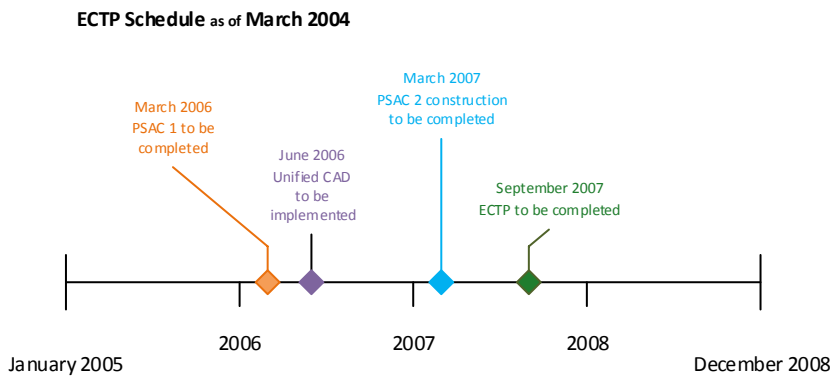
³² See Office of the Comptroller, Audit Report on the HP System Integration Contract Expenditures Associated with the Emergency Communications Transformation Program, at 12 (May 30, 2012).

initial schedule was unrealistic and staffing was insufficient. Furthermore, the City has continually failed to meet new deadlines due to persistent problems with planning, performance, and staffing.

1. Program Delays

ECTP has experienced a series of Program delays. Figure B below sets forth timelines depicting key deadlines at various points in time during Stage 1. Figure C below sets forth timelines depicting key deadlines at various points in time during Stage 2.

Figure B
ECTP Completion Dates Over Time: Stage 1



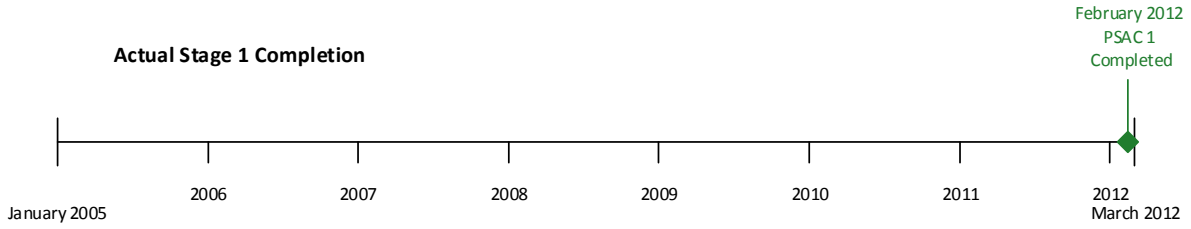
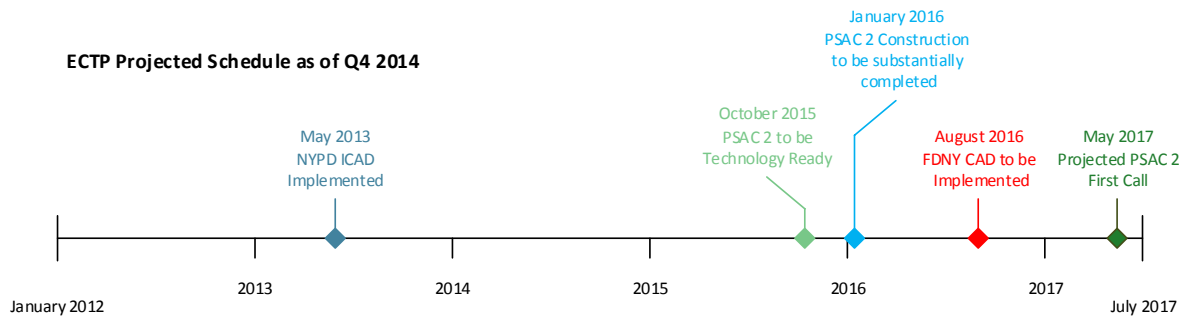
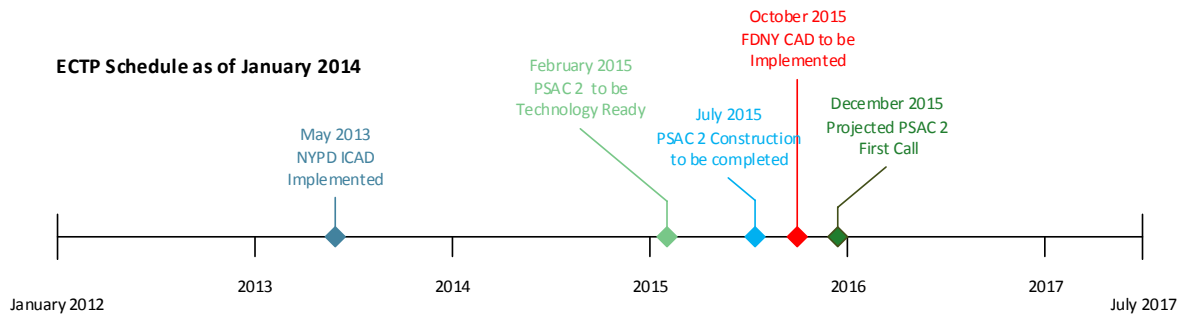
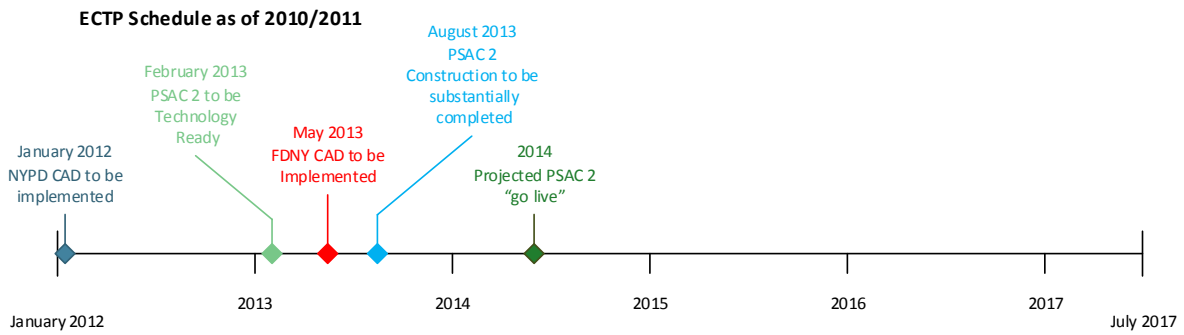


Figure C
ECTP Completion Dates Over Time: Stage 2



When ECTP first got underway in 2004, the proposed schedule provided for ECTP's completion by September 2007.³³ By the time that HP began work under its systems integrator contract in the spring of 2005, however, these original deadlines had already slipped. Records from that time indicate that PSAC 1 was to be operational by the summer of 2006 and that PSAC 2 was to be operational by December 2008.

By the end of 2005, the schedule had again slipped. Schedules from late 2005 indicate that PSAC 1 was to be completed by late 2007 or early 2008 and construction on PSAC 2 was to end in December 2009.³⁴ Schedules from late 2006 reflect further delays: at that time, PSAC 1 was to be completed by June 2009, construction on PSAC2 was to be completed in August 2010, and PSAC2 was to be completed, in its entirety, by July 2011.

On April 13, 2007, in a memo to the ECTP Working Group, Deputy Mayor Skyler declared that "we have not made sufficient progress in achieving ECTP's main objectives" and that the group had "agreed" to "goals and milestones that must be achieved by the end of 2009."³⁵ Memorandum of Deputy Mayor Skyler to ECTP Working Group, at 1 (Apr. 13, 2007). Specifically, the memo stated that "NYPD will move into the new PSAC 1 by March 1, 2008," that "FDNY and EMS will move into PSAC 1 by March 1, 2009, by which time the NYPD, FDNY and EMS call-taking positions will be unified and all CAD systems will be integrated," and that

³³ DOI reviewed various schedules and records relating to Program deadlines. The information contained in Figures B and C is based on DOI's review of ECTP records and witness interviews. The source for the "ECTP Schedule as of March 2004" is the original ECTP Systems Integration solicitation. The source for the "ECTP Schedule as of March 2005" is the HP Statement of Work. The sources for the Stage 2 Schedule as of 2010/2011 include, among others, the Northrop Grumman Statement of Work and Attachment Schedule. The source for the Stage 2 schedule as of January 2014 is the OCEC 2014 Transition and Operational Plan. The projected Stage 2 schedule as of Q4 2014 includes actual completion dates noted in the 2014 Transition and Operational Plan, as well as projected completion dates provided during witness interviews.

³⁴ A number of the schedules reviewed by DOI were only minimally comparable as they followed different formats and did not include the same projects.

³⁵ At this time, former Deputy Mayor Holloway served as Chief of Staff to Skyler.

“[w]e will break ground on PSAC 2 by July 1, 2009.” *Id.* at 2.

These deadlines were not met. Records show that FDNY did not move into PSAC 1 until September 2009; EMD did not migrate to PSAC 1 until June 2010; and NYPD did not move to the third floor of PSAC 1 until December 2011. As discussed further below, a major reason for the delay was recurring operational problems with VESTA, the key software behind the upgrade of the telephony systems. As of February 2012, NYPD, FDNY, and EMS had all migrated to VESTA. In addition to PSAC 1 delays, construction on PSAC 2 did not commence until approximately March 2010.

Completion of an operational PSAC 2 became the primary objective of ECTP Stage 2. Early Stage 2 schedules indicate that PSAC 2 construction was to be completed by the summer of 2013 and that the first call would be taken at PSAC 2 in 2014. These deadlines later slipped to July 2015 for completion of PSAC 2 construction and December 2015 for first call. Currently, as DoITT found in its August 2014 Program Assessment Report, the December 2015 first-call date “is not a viable completion date.” DoITT Assessment, at 6. DoITT wrote that while most components of ECTP will be completed in 2016, completion of Stage 2 – first call at PSAC 2 – will not be completed until 2017. *Id.*

2. Unrealistic Expectations

The City engaged in limited strategic planning at the outset of ECTP in the interest of delivering the Program’s main objectives on an “aggressive” timetable.³⁶ An official who worked on the Program in its early years informed DOI that the short deadlines for completing ECTP

³⁶ Witness statements and Program records reflect the belief that the original schedule was “aggressive.” For example, less than six months after Gartner was engaged to work on ECTP, in a letter requesting a change order to its City contract, Gartner noted that “[t]he Mayor has requested aggressive timeframes for the completion of key project milestones.” Gartner Letter, at 1 (June 18, 2004).

created a sense of urgency to engage a systems integrator and commence work rather than conduct sufficient Program planning at the beginning. Witness testimony indicates that the tight deadlines contributed to insufficient definition of the Program’s scope, a process which project management authority states is “critical to project success.” PMBOK, at 120-121.

According to another witness, the City looked to the largely successful development of the City’s 311 system in setting an aggressive schedule.³⁷ However, the witness informed DOI that the 311 project was a poor analogy, as the main ECTP stakeholder agencies – NYPD and FDNY – had more complicated sets of requirements than the agencies which had been involved in 311. Another Program official stated that it was no surprise that the original deadlines were not met because so many variables had yet to be determined. For example, the witness noted that because PSAC 2 did not have a definite location or clear requirements during the early days of ECTP, and given the time-consuming process of building construction, there was a general acknowledgment even among executives that the original deadlines for PSAC 2 were unrealistic.

The City also appears to have expected that it could rely on hiring a systems integrator to deliver Program objectives in a timely fashion. In the view of one former Program official, the City believed that it could simply hire an outside contractor to manage and deliver the new system, rather than being more actively involved in managing the process itself.

The limited strategic planning that occurred during the early phases of the Program left the City ill-prepared to tackle the Program in a coordinated, systematic, and efficient manner. This lack of planning may have also left Program leadership without a full appreciation of the size and complexity of the work it was undertaking.

³⁷ 311 is a New York City communications system that New York City residents can reach by telephone or Internet to access City services, obtain information, or file complaints. The 311 project was another large technology project involving the coordination of multiple agencies.

3. Inadequate Staffing

Furthermore, multiple sources expressed to DOI that the City underestimated the staff that would be needed to manage ECTP. Program records revealed that only three DoITT employees were originally tasked with managing the Program. By early 2008, four years into the Program, there were still only seven DoITT employees assigned to manage ECTP.³⁸ As a result, a 2009 DoITT report noted that the City “had to manage program delays and budget with insufficient staff.” DoITT, ECTP Progress Report, at 6 (July 2009). Although the number of authorized employees was doubled to approximately fourteen by late 2008, Program personnel still expressed the view that the team was “under-staffed.”³⁹ *Id.* The small team at DoITT meant that the City was heavily reliant upon its systems integrator, HP, which for years provided service that was widely criticized as inadequate (*see generally* factual background section II.D above).

Gartner repeatedly warned the City that it needed to hire additional ECTP staff. Gartner, Draft Executive Risk Report, at 2 (Dec. 10, 2004) (“Several key positions within the DoITT team supporting the PMO remain unfilled; key responsibilities are potentially being unaddressed.”); Gartner, Draft Executive Risk Report, at 2, 10 (May 20, 2005) (stating that “[c]urrent resources are overloaded,” and noting the “Insufficient Project Management Resources.”). A Gartner witness indicated that the staffing levels left gaps in project management and technological roles.

By January 2011, once OCEC was formed, the staff assigned to manage ECTP appears to have increased significantly. According to the December 2013 OCEC organizational chart, OCEC

³⁸ According to an early 2006 organizational chart, several of these few DoITT positions were unfilled.

³⁹ Although in June 2006 Program staff made a proposal for increasing the number of DoITT employees assigned to ECTP, additional DoITT resources were not assigned until 2008. In or around March 2008, City Hall and OMB authorized the hiring of a Director of Administration, a Contracts Manager, a Contracts Analyst, an administrative professional, a Network Project Manager, an Infrastructure Project Manager, and a Facilities Project Manager. According to the ECTP organizational chart dated June 11, 2009, the full-time ECTP staff then grew to approximately fifteen.

had more than fifty staff positions. At that time, however, approximately twenty positions were listed as “vacant.”

4. Chronic Software Problems Significantly Delayed the Telephony Upgrade and ECTP as a Whole

As noted above, the City contracted with Verizon to upgrade the City’s 911 telephony system using a product called “VESTA.” The VESTA software was developed by a company named PlantCML, later known as Cassidian, which worked under Verizon as an ECTP subcontractor. The VESTA system was already in use by other cities as a “Commercial Off the Shelf” (“COTS”) product. However, VESTA was to be modified and enhanced as part of ECTP in order to meet the unique needs of New York City, including its high call volume.⁴⁰

Problems with the VESTA software, many of which have been well documented, led to major delays in the upgrade of the City’s telephony system and ECTP as a whole:

- The original delivery date for the VESTA system was **June 2007**.
- The VESTA system delivery date was extended to **early 2008** due to issues with desktop layout and testing.
- In **April 2008**, Verizon had to replace 650 defective switches needed to log onto VESTA workstations.
- In **June 2008**, a series of software bugs were identified that took five months to fix. Tests run during late 2008 and early 2009 continued to reveal software defects, and the project continued to be delayed.⁴¹

⁴⁰ The key elements of the Version 3.0 VESTA software package were: (1) VESTA DMS 3.0, which displays the caller’s phone number (“Automatic Number Identification,” or “ANI”) and location information (“Automatic Location Identification,” or “ALI”); (2) VESTA View, used by administrators for call management; and (3) MagIC, an application which records and reports on call-taking activity.

⁴¹ In December 2008, Verizon agreed in a settlement with the City to provide a \$5 million dollar reduction in costs as restitution for the VESTA delays.

- Between **January and August 2009**, VESTA was subjected to seven network large system tests (“NLSTs”). VESTA failed all seven NLSTs, suffering from critical errors that prevented deployment for call-taking.

Thus, by August 2009, VESTA was more than two years late.

Accordingly, in late August 2009, the City convened a “Tiger Team” – which consisted of employees from Gartner, HP, NYPD, and DoITT – to review the ongoing VESTA software problems and recommend solutions. In a March 2010 report, the Tiger Team concluded that “the vast majority of failures can be traced back to the methodology used to build and test the VESTA system.” The City of New York, Tiger Team Report: Verizon/PlantCML Vesta System Stability, at 8 (Mar. 17, 2010).⁴² The report stated that “as Verizon should have known from its many years of providing support for New York City’s 911 system, the city has much greater call volume and redundancy requirements than any other city in the country.” *Id.* at 8. Moreover, the Tiger Team found that the pre-existing VESTA COTS product had defects prior to enhancements made for the City, and that Plant CML often began fixing defects based on incorrect theories as to the cause of the defect without properly considering all potential causes.⁴³

Through the remainder of 2010 and the first half of 2011, employees from the City and Gartner worked with Verizon and PlantCML to correct the VESTA defects. On June 9, 2011, the

⁴² In the meantime, in a letter to Verizon dated February 17, 2010, then-Deputy Mayor Edward Skyler set forth a variety of concerns about Verizon’s ability to meet its contractual obligations. In the letter, then-Deputy Mayor Skyler emphasized that the software was more than two years late. In a response letter dated March 19, 2010, Verizon acknowledged it was partly at fault for the delays and noted that it had granted the City credits toward the amount owed to the company. However, Verizon wrote that it was not the cause of all delays, some of which it attributed to new requirements imposed by the City.

⁴³ The Tiger Team also found that there were communication problems between field engineers and the development team, in addition to changes being applied to the system without proper approval. Furthermore, the Tiger Team indicated that it encountered resistance to requests for certain software specifications that they needed to conduct a full review of the system. The City of New York, Tiger Team Report: Verizon/PlantCML Vesta System Stability, at 8 (Mar. 17, 2010).

eighth NLST was successfully completed. NYPD, FDNY, and EMS had each migrated to VESTA as of February 2012. In 2013, as a result of the VESTA software defects, Verizon agreed to settle any disputes with the City by paying the City \$50 million dollars.

D. ECTP’s Budget Increased by More Than \$650 Million Because the City Decided to Construct a New PSAC 2 Facility, Rather Than Renovate an Existing Building, and Hired a Second Systems Integrator

As noted above, ECTP’s original capital budget was \$1.345 billion, but increased to \$2.031 billion during the Program. Several ECTP records, including OCEC’s 2014 Transition and Operational Plan, maintained that the change in the budget was attributable to the decision to construct a new PSAC 2 building:

ECTP budget increased in 2009, not as a result of overspending, but rather as a direct result of a major change in planned PSAC2 scope; the original budget envisioned retrofitting an existing building while the scope change called for a major land acquisition, complete construction of a 10-story building, and technical outfitting of an entirely new state of art facility in the Bronx.

OCEC Transition and Operational Plan, at 20.

While the decision to construct a new PSAC 2 building was a main driver of the over \$650 million increase to the ECTP budget, City budget documents confirm that the \$285 million contract to hire NGSC as the new systems integrator during ECTP Stage 2 was also a substantial factor in rising cost estimates. According to a “DoITT Capital Cost Estimate” for ECTP created in 2012, “the additional increase was due to the increase in the estimated costs for PSAC 2 building construction and \$277 million for ‘PSAC 2 Systems Integrator (SI)’ services, which were not specifically included in the 2004 estimates.”

1. PSAC 2 Site Selection and Construction

a. Changes in Construction Plans Resulted in Increased PSAC 2 Costs

The City originally considered three sites for PSAC 2: 1200 Waters Place in the Bronx, 30-30 Northern Boulevard in Queens, and a third site in Queens.⁴⁴ The City initially selected the Northern Boulevard site, and planned to renovate the existing building on that site. However, in early 2005, the City abandoned plans to use the Northern Boulevard site due to security reasons, as well as the City's discovery that the site was located in hurricane and 100-year flood zones.

In February 2005, the City selected the Bronx location of 1200 Waters Place for the development of PSAC 2. Unlike the previous Queens location, 1200 Waters Place was privately owned, undeveloped land which would require the City to acquire the property and construct a new building on the site. In 2007, prior to the acquisition of the property, the City entered a contract with Skidmore, Owings, and Merrill Architects ("SOM") to design PSAC 2 for the 1200 Waters Place site. It was not until years later, however, after negotiations with the owner stalled and the City commenced eminent domain proceedings, that the City purchased the site for approximately \$46 million.

When the ECTP budget was revised in 2009, cost estimates indicated that the construction of a new PSAC 2 facility would add hundreds of millions of dollars in costs to ECTP.

⁴⁴ DOI reviewed records indicating that the City considered at least nine additional sites for PSAC2. Many of these potential sites were ruled out because they failed to meet one or more of the site selection criteria, such as access to public transportation, proximity to main arterial roadways, available utilities, the location of technologies, radio propagation, and security requirements.

b. Initiation of “Value Engineering” Process After Construction Began

Construction on PSAC 2 commenced in 2010.⁴⁵ According to records reviewed by DOI, PSAC 2 was expected at that time to be “room ready” for installation of technology by January 2013 and completed by the end of 2013.

However, according to records and witnesses, City Hall ordered a stop to construction in February 2011 to seek cost-savings through “value engineering.”⁴⁶ At that point, the design of PSAC 2 had been completed and work on the building’s foundation was already underway. DOI interviewed a senior City official involved with ECTP who stated that best practice on a building project like PSAC 2 would have been to conduct value engineering during the early planning phases, not after construction had commenced.⁴⁷

The value engineering process involved, among other things, consideration of redesign options for PSAC 2. One proposal under consideration was to reduce the size of PSAC 2 from its original ten-story design⁴⁸ in order to reduce costs. A September 2011 DDC document titled “PSAC II Options for Proceeding” set forth a schedule and cost comparison between two options: Option 1, a 10-story building with a redesign of the building interior and Option 2, a 7-story

⁴⁵ PSAC2 has a multitude of contractors and subcontractors involved in the development of the site, such as SOM; the General Contractor, Tishman Speyer; the Mechanical and Electrical Consulting Engineers, Jaros, Baum & Bolles (JB&B); and for architectural drawings, SMW Consulting Engineers (DDC Contractor). Gardiner & Theobald (G&T) are cost consultants. Approximately forty to fifty sub-contractors worked at PSAC2 under the direction of Tishman Speyer.

⁴⁶ Value engineering is an “approach used to optimize project life cycle costs, save time, increase profits, improve quality, expand market share, solve problems, and/or use resources more effectively” PMBOK, at 566.

⁴⁷ In fact, before construction on PSAC 2 began, the City had previously pursued value engineering. For example, records indicate that value engineering in 2008 generated approximately \$200 million in savings from the original cost estimate.

⁴⁸ Given the size of the equipment to be installed in the building, the actual height of PSAC 2 is the equivalent of a building more than twenty stories tall.

building with a full building redesign, which was estimated would cost approximately \$30 million less than Option 1.

Witnesses confirmed that the value engineering ultimately did not result in substantial alterations to the building design, as the City decided in September 2011 – approximately seven months after the halt to construction – to proceed with a 10-story building design. Rather, according to witnesses and records, the City claimed approximately \$50 million in savings unrelated to the building design: approximately \$40 million in savings on the project contingency and bids due to market conditions and approximately \$10 million in reduced purchases of equipment and materials, such as emergency generators and cooling towers, as well as other measures such as the elimination of double shifts for workers. A witness also informed DOI that the City claimed approximately \$50 million in additional technology savings as a result of value engineering.

However, DOI interviewed witnesses who noted that the value engineering process itself generated costs. Some of those witnesses questioned whether the City actually realized the claimed savings. For example, as a result of the decision to halt work and pursue value engineering, an official involved with the construction of PSAC 2 stated that the steel for the building – which was going to be purchased in one bid – was purchased in two separate bids: one bid for the construction of the foundation which had been ongoing and another bid for the remainder of the building. This witness said that the City likely incurred higher costs by purchasing steel in two separate bids rather than a single bid. Furthermore, the witness cited other costs incident to the value engineering such as additional design drawings. Moreover, the witness stated that the construction delays attendant to the value engineering impacted the schedule.

2. The Engagement of a Second Systems Integrator Increased Program Costs

The City's engagement of Northrop Grumman as the systems integrator for Stage 2 was an additional cost to the Program.

According to HP's systems integration contract with the City, ECTP's main objective was to transform the City's system for processing 911 calls "through a series of intermediate phases that always maintain and progressively improve" that system, ultimately locating call takers in "two fully-redundant and backed-up [PSACs] equipped with state-of-the-art hardware and software communications systems." HP Contract, at 4.⁴⁹ The HP Statement of Work similarly indicated that the systems integrator was responsible for completion of several stages, including:

- Stage 1 ("Co-location"): Considered complete when FDNY operated from PSAC1 and the third floor at PSAC 1 was outfitted for NYPD.
- Stage 2 ("NYPD CAD"): Considered complete when NYPD operated from PSAC1 third floor with a new CAD system.
- Stage 3 ("Unified Operations and CAD"): Considered complete when NYPD and FDNY operate from PSAC1 third floor with a Unified CAD; and
- Stage 4 ("Dual PSAC"): Considered complete when operations were live at redundant PSAC 1 and PSAC 2.

Though HP remained systems integrator with respect to co-location of NYPD and FDNY at PSAC 1, HP did not deliver a unified CAD system or an operational PSAC 2.

Despite HP's failure to deliver on essential Program components, the City's payments to HP totaled approximately \$327 million, the majority of the maximum contract amount of \$380 million. As discussed further below, the City ultimately removed the CAD project from HP's

⁴⁹ The original ECTP solicitation provided that the "System Integrator will be responsible, in concert with the stakeholders, for the functional, technical and operational plans as well as the implementation, integration, acceptance and cutover of PSAC2." ECTP SI Project Definition, at 62.

management, and NYPD contracted directly with Intergraph to develop its new CAD system. Further, the City ultimately hired Northrop Grumman as systems integrator for Stage 2, which was to include delivery of an operational PSAC 2. Thus, the City incurred additional costs funding projects that it had originally anticipated HP would complete.⁵⁰

E. There was Insufficient Investigation of Radio Remote Sites Which Required Significant Unanticipated Remediation Work

One of the goals of ECTP has been to upgrade the radio system used by dispatchers to communicate with NYPD, FDNY, and EMS responders in the field.⁵¹ City employees involved with ECTP explained to DOI that both the NYPD and FDNY radio systems rely on receivers, transmitters, and other equipment installed at hundreds of radio remote sites throughout the five boroughs. In addition to installing and upgrading the radio equipment at the PSACs, the ECTP Stage 2 radio project included necessary upgrades to equipment at certain key remote site locations.⁵² NGSC had responsibility for delivery of the Stage 2 radio project, and Motorola, a longstanding provider of radio equipment and services for the City, was NGSC's subcontractor on the project.

⁵⁰ Records and schedules from early in ECTP demonstrate that PSAC 2 was included in the work that the City originally expected HP to perform as the systems integrator. For example, in addition to the discussion above, the HP SOW stated that the "scope of the ECTP program consists of [s]ystem [i]ntegration efforts required to implement NYC's vision of a *dual* E-9-1-1 emergency call center operation." HP SOW, at 7 (emphasis added). Further, HP's Integrated Transition Plan, dated March 2005, contains numerous references indicating that systems integration work on PSAC 2 was within the scope of services HP was expected to provide as the systems integrator. *See, e.g.*, Integrated Transition Plan for ECTP, at 71-73 (stating that the project scope for PSAC 2 was to "[d]esign, plan and build fully operational call center for Emergency Services," and that PSAC 2 would at that time be ready for operations in December 2008).

⁵¹ ECTP Stage 1 task orders included work to upgrade the PSAC 1 technology and training the dispatch operators; implementing FDNY channel 16 voice radio; and designing and procuring the PSAC1 radio console furniture. In the NGSC SOW, the Stage 2 radio project is divided among five individual subprojects: (1) NYPD radio console; (2) FDNY radio console; (3) NYPD ECS; (4) FDNY ECS; and (5) NYPD Brooklyn Hub.

⁵² Witnesses explained that the remote sites to receive upgrades to equipment were at approximately 15 physically remote locations, which may contain more than one "site." For example, the equipment room and the roof of a single facility are considered separate "sites."

DOI interviewed several City officials who stated that the NGSC Stage 2 systems integration contract included an assumption that the existing remote sites would be “white space ready.” This means that the sites were assumed to have sufficient space to accommodate the installation of new equipment, and would not require any electrical, structural, or other physical modifications.⁵³ Because the contract assumed the remote sites would be ready for installation of equipment, the original scope of work did not include any remediation work on the remote sites.

However, City officials informed DOI that the radio remote sites were not white space ready and would require significant unplanned remediation work before installing new equipment.⁵⁴ As discussed above, this remediation work was one among several reasons that led OCEC to report to City Hall in May 2014 that ECTP Stage 2 was “off track” and that prompted the Mayor the same month to stop work on the Program pending a 60-day review. Various witnesses and records provided estimates that the remediation work would result in delays of at least several months and up to three years.

DOI found based on its interviews and review of records that the City not only failed to appreciate the need for remediation work during the planning phases of Stage 2, but also during the project, failed to fully identify the issue for an extended period of time. For example, one witness said that the assumption of white space readiness implied that the agencies were keeping updated information about their sites. But DOI’s review indicates that the agencies lacked

⁵³ For example, the NGSC Contract, Attachment CFEL, states that the City will provide, among other things, adequate wall space to mount any equipment, all facilities modifications and services (such as power cabling to equipment racks and electrical convenience outlets), and any structural modifications necessary for rack stabilization. Moreover, an October 2013 change order added an express provision to the NGSC SOW providing that the City would be responsible for providing white space at the radio remote sites.

⁵⁴ The “remediation” work involves, for example, conducting floor loading studies to ensure that the added weight of new equipment upgrades will be supported, conducting electrical studies and modifying the system to ensure that it can handle increased power, and taking down facility walls to create additional space for equipment.

important information regarding the layouts of the sites, and that the Program engaged in a protracted process to gather this information and assess the status of the remote sites.

During the radio project's early design phase, which was well underway by January 2012, NGSC was required to gather information about the existing radio remote sites, including rack and floor plan drawings.⁵⁵ The City, in turn, was required to provide NGSC with drawings detailing the structure, wall space, room layout, and the existing antenna and microwave dish locations for "all sites that will house remote equipment." NGSC Contract, Attachment CFEI ("City Furnished Equipment and Items"), at 1-2. According to individuals involved with the radio project, beginning in October 2012, NGSC and OCEC made a series of requests to both NYPD and FDNY for the necessary radio remote site rack and floor plan drawings. Witnesses informed DOI that the agencies were unable to provide the requested information. For instance, an NYPD official provided the following explanation in an email regarding the requests for site layout information: "[w]e do not have the most updated copies as we have several projects on going and we are constantly upgrading most of these locations. We do have a request in to Motorola to update these locations with current floor plan/layouts. Thus, I think it best to go directly through Motorola for their most up to date copies."

It took nearly one year for the City to gather information regarding the status and layout of the remote sites. Due to the absence of information regarding the layout of the radio remote sites, the City engaged Motorola to conduct "as-built" survey drawings of the sites at a cost of \$775,936.29. Reports prepared by City officials in 2013 characterized the execution of the change order for the surveys as a "key decision/dependency" affecting the radio project workstream. *See, e.g.,* OCEC, Radio Status Report, at 1 (June 14, 2013). Nevertheless, the Notice to Proceed for

⁵⁵ NGSC and Motorola needed this information to create a detailed radio project design, which would depict all the locations where the new equipment at the remote sites would be installed.

NGSC and Motorola to conduct the site surveys of the remote sites was not issued until July 12, 2013.

Witnesses informed DOI that when NGSC submitted the as-built drawings of the radio remote sites to the City in early October 2013, OCEC rejected the drawings because the quality of the work by the Motorola subcontractor which created them was poor and incomplete. Nevertheless, an employee involved with the radio project stated to DOI that even based on these inadequate remote site drawings, OCEC had sufficient information to conclude that the radio remote sites were not white space ready. Further, an NGSC internal radio project presentation indicates that “preliminary results” of the site surveys were communicated to “OCEC/agencies” from September through December of 2013. NGSC, ECTP-2 Radio, at 21 (Aug. 21, 2014). Additionally, an internal NGSC email exchanged between the radio project managers reflects that in October 2013, NGSC and Motorola were preparing reports on the status of NYPD and FDNY remote sites that would require “special installation attention” by the City. DOI interviewed former Deputy Mayor Holloway and former OCEC Director Gaskey who both stated that they were aware of the need for remote site remediation by late 2013 and believed that the remediation could be managed within the schedule at the time.

During its review, DOI inquired as to when Motorola, which provided maintenance services at remote site locations separate from its subcontracting role on the ECTP radio project, was aware of the need for remediation work. DOI obtained an October 2012 document provided by Motorola to NGSC indicating that they were then aware at least of the possibility that the remote sites would require remediation. Motorola, ECTP Phase 2, Radio Bridge Effort Proposal, Section 2.2 (Oct. 22, 2012). The document, which proposed pricing assumptions between NGSC and Motorola, provided, in relevant part, that “[Northrop] is aware that there are certain facility

limitations at the borough hubs and remote sites, including space for new microwave frames to fit in, insufficient rise capacity, limited rack space, and DC power loading limitations. These constraints may result in additional changes outside the scope of th[is] proposal and will require a change order to implement.”⁵⁶ *Id.* Further, one City official stated to DOI that it was his understanding that that the City discovered the need for remediation work during the course of investigating the sites, and that Motorola did not previously alert the City that the sites were not ready for technology implementation.

Additionally, while interviewing witnesses regarding the need for remediation of the remote sites, DOI learned of other challenges that contributed to addressing the issue. For example, witnesses noted that the remote sites are necessarily housed at both publicly and privately owned facilities throughout the City. These site owners voluntarily permit the City to use their facilities to support public safety. NYPD does not generally pay to use these sites or have lease agreements with the owners. A City official familiar with the radio project stated that the same is true for certain facilities used by FDNY. Due to the arrangements at the remote site locations, a NYPD witness stated that NYPD did not permit unescorted visitors to the remote sites, including for purposes of preparing the as-built drawings.

In January 2014, approximately two years after the radio project was initiated, the radio team gave a presentation to OCEC management reporting that the remediation work at remote sites would cost the City an estimated \$7 million to \$10 million and delay the project between at least 9 to 13 months. At a meeting between NYPD and OCEC officials in May 2014, OCEC staff

⁵⁶ Additionally, DOI interviewed an NYPD official who explained that there is a “core” team of Motorola employees responsible for maintenance of the existing equipment at the remote sites independent of ECTP and a separate Motorola team assigned to work on ECTP. When asked whether the Motorola “core” team shared information about the remote sites with the Motorola ECTP team, the NYPD official stated that it was his belief that “Motorola would have been sharing that information across boundaries,” adding that he did not know if this was done “in the beginning.”

estimated that the Program schedule would be pushed to 2018 – more than two years beyond the then-current schedule – and that remote site remediation was one of the main reasons for the delays. In its August 2014 assessment, DoITT determined that “the remediation could be managed incrementally and concurrently outside of the program schedule, thereby not impacting the delivery of the program’s remaining components,” including a new, anticipated PSAC 2 first-call date in 2017. DoITT Assessment, at 20.

In sum, the failure to have radio remote sites ready to receive equipment was not only foreseeable, but was also noted by a contractor two years ago. However, due to a dysfunctional management system, the problem was not initially identified and then appears to have been neglected, resulting in further delays.

Recommendations

Recommendation # 1: ECTP’s scope and direction going forward should be well-defined in a written plan that should be drafted and agreed upon by all stakeholders. Future large-scale technology projects managed by the City should be undertaken only after careful planning and deliberation.

According to DoITT’s August 2014 ECTP assessment and other information provided to DOI, DoITT has made several reforms in Program management that may help in achieving these objectives. For example, the DoITT assessment states that the agency has attempted to divide the Program into more manageable portions, with each portion having its own project definition and work plan. DoITT Assessment, at 28. Furthermore, DOI has been informed that there has been a significant recent effort to define the Program’s scope, including eliminating previously-included work that is not genuinely necessary for the completion of ECTP. Similarly, DoITT has stated that it made a renewed effort to identify all relevant ECTP tasks and account for them in a master schedule, a process that had not previously been performed adequately. DoITT Assessment, at 20.

II. Program Governance was Ineffective.

A. There was No Accepted Central Decision-Making Authority on the Program

For a number of years, ECTP lacked a strong, central decision-making authority that was accepted by the stakeholder agencies. At the Program's outset, DoITT was the Program manager for the City. As discussed above, the original governance structure included several layers of executive oversight – the Executive Sponsors, ECTP Task Force, ECTP Working Group, and Program Management Office – with participation of high-level officials from the Mayor's Office, DoITT, NYPD, FDNY, and other agencies. Despite this governance structure, witness interviews and records demonstrate that ECTP has suffered from a number of fundamental management failures. Consequently, the Program has struggled to resolve several critical challenges, including the need to overcome longstanding divisions between NYPD and FDNY in order to consolidate 911 operations.

In its risk reports from 2004 through 2011, Gartner identified a number of these management failures. These problems included difficulties in inter-agency coordination (*e.g.*, “lack of demonstrated Program ‘ownership’,” “lack of buy-in,” “difficulty generating consensus,” “inconsistent program message,” “risk to stakeholder buy-in as participants . . . perceive lack of value and resolution of key issues”), the absence of quick and decisive action by executives (*e.g.*, “Executive decisions are not being addressed effectively or in some cases decisively, creating program delays and potentially jeopardizing action on critical Program components,” “lack of belief in leadership,” “little or no participation by City Hall representatives”), and lack of definition of the long-term plan for administering the City's emergency communications system (*e.g.*, “No defined structure of future administration of Emergency Communications operations; result is lack of unified effort/decision-making among agency stakeholders (agencies focused on Department-

specific agendas”); “no plan or scope in place to manage the new operation at PSAC 1”). Gartner, Draft Executive Risk Report (Dec. 10, 2004); Gartner, ECTP Executive Risk Report (April 2007); Gartner, ECTP Executive Risk Report (Feb. 2009); Gartner, ECTP Executive Risk Report (March 2011). DOI interviewed several witnesses who stated that NYPD and FDNY resisted management of their emergency communications upgrades by an outside agency.⁵⁷

Given the challenges involved with governing the consolidation of 911 operations, Gartner recommended as early as 2006 that the City create an “independent 911 agency” responsible for the modernization and management of emergency communications, as was done in other cities. As discussed above, Gartner informed the City that a single 911 agency was needed due to the NYPD and FDNY’s “legitimate competing interests for technology and operations” and “limited willingness to coordinate and make critical decisions.” City of New York, 911—Building and Running a System that Works, at 12 (May 2, 2006). Similarly, when Gartner reiterated this recommendation in 2011, it noted that “by taking the agencies out of the planning and management role this approach greatly reduces the risk associated with efforts to maintain the status quo that can cause friction, sub-optimize operational processes, and extend schedules and budgets.” Gartner QA Team, Gartner QA ECTP Closeout Report, at 4 (March 31, 2011). However, the City did not create an independent 911 agency, opting instead to have DoITT, and later OCEC, serve as the City’s Program manager and have NYPD and FDNY individually maintain control over operations. Former Deputy Mayor Holloway explained to DOI that while City officials discussed the creation of a separate 911 agency in connection with a 2006 Program review, they considered the creation of a separate agency to be a significant, unnecessary undertaking and decided to focus on working toward completion of the Program. After that review, in a March 2009 Gartner

⁵⁷ DOI has also been informed that the agencies would often take a significant amount of time to make decisions; if Program management was forced to wait for official agency concurrence, progress would be delayed.

presentation, Gartner stated with respect to the management structure that the “ownership model is segregated,” leading to a “lack of accountability” and “finger-pointing among agencies.” Gartner, ECTP Service Management Risk Summary, at 2 (March 2009).⁵⁸

DoITT did not have a clear mandate to lead daily operations of the Program. In its *Lessons Learned* document, Gartner stated that “DoITT’s role with regard to technology decisions and management is not clear,” and that “project stakeholders” did not support DoITT’s role. Gartner, ECTP Planning—Lessons Learned, at 6 (May 2009). As a result, “DoITT and stakeholder agencies battle over approaches without a clear approach to making decisions, elongate schedules and increase costs.” HP similarly noted in another report that “differences in agency organizational structures and cultures” perpetuated the agencies’ “high levels of resistance” to the Program. HP, Program Review, at 71 (Aug. 7, 2006). Multiple interviewees recognized that OCEC, ostensibly a central authority created to help lead the Program, also lacked the mandate to lead and, much like the previous DoITT management team, encountered resistance from NYPD and FDNY.⁵⁹

In the initial years of the Program, ECTP also lacked support from City Hall needed to provide Program direction and promote interagency cooperation. Bluntly, the most senior members of the Administration simply failed to pay attention. For example, in a series of monthly reports from at least December 2004 through 2006, Gartner repeatedly identified the “lack of executive sponsorship participation” as a high risk for the Program. See Gartner, *Executive Risk Report* (Dec. 1, 2006). Gartner stated that “a majority of City Hall meetings have been cancelled regularly since 6/05.” Gartner, Draft QA Risk Report (July 7, 2006); Gartner, Draft QA Risk

⁵⁸ DOI does not offer the opinion that a single 911 agency is the only effective method of managing emergency communications or operations. However, it was one proposed method of solving the persistent challenges of inter-agency coordination described herein.

⁵⁹ Representatives from both agencies have explained to DOI that, in previous years, they have not felt adequately consulted by ECTP managers as to their views or requirements. This feeling of alienation at the two key stakeholder agencies appears to have further undermined DoITT and OCEC as Program leaders.

Report (Oct. 15, 2006). A July 2006 report by Gartner reflected DoITT's confirmation that "All City Hall meetings have been cancelled eliminating formal communication between executive sponsor and the Program." Gartner, Draft QA Risk Report, at 2-3 (July 14, 2006). Gartner noted that the lack of Executive Sponsor participation resulted in, among other things, "difficulty generating consensus," a "lack of buy-in" to a unified ECTP vision, and "agencies maintaining [a] hard-line on their current operational practices without a need to be flexible for the sake of a 'unified' [] vision." *Id.*

Gartner also reported on inadequate program management processes. In 2009, several years into the Program, Gartner stated that ECTP decision-making was not guided by any "defined strategy, budget or schedule." As a result, Gartner noted that conflicts among competing agendas generated changes to plans that would "occur very late in the process." Gartner, ECTP Planning—Lessons Learned, at 4 (May 2009). With respect to change management in particular, witnesses described the process for consideration and approval of changes to scope and requirements as "ad hoc," prolonged, and ineffective at evaluating how changes to individual project schedules, budgets, or requirements might impact the overall Program. Among other things, Gartner specifically pointed to changes concerning facility floor layout, bullet-proofing, and the cabling plan at PSAC 1 as examples of this dysfunction. Gartner also pointed out that "no central [Program Management Office] exists in support of ECTP to provide standard [p]rogram [m]anagement processes and manage compliance among vendors and stakeholders." Gartner, ECTP Planning—Lessons Learned, at 7 (May 2009).

B. Stakeholder Agencies Historically Resisted Shared Solutions in the Absence of an Effective Centralized Authority

Without an effective, central authority to make final decisions and direct the necessary collaboration between the stakeholders, the NYPD and FDNY resisted joint solutions that would

have required the agencies to share technology, equipment, and physical space. In 2011, a high-level Program official reported to City Hall on the implications of this resistance:

The original vision of ECTP was consolidation in common locations, common technologies, and platforms, and networks. That vision has evolved into an approach whereby Agencies are determined to design, build, and deploy systems independently of each other. At the end of the day, except for being physically located on the same operations floor, there will be virtually no areas of consolidation to point to as a justification for ECTP. Virtually everything is being developed and deployed independent to each Agency.

Report at 18.

In short, ECTP lacked an effective leader to make executive decisions that were in the best interests of the Program as a whole, even when the individual stakeholder agencies disagreed with that course of action. Complicating this matter further, DOI has also been informed that the NYPD and FDNY's Program teams did not feel sufficiently included in the OCEC decision-making process, and that individuals at these key stakeholder agencies did not believe their objectives and priorities were seriously considered by OCEC. As the ultimate "customers" of this technology, the full engagement and participation of these agencies was critical. These sentiments appear to have undermined the ability of the key players to work together during recent years, although the various stakeholders report some recent improvement.

We discuss further below several specific examples of this governance failure.

- 1. Lack of Agency Coordination and Leadership Led to Inefficiencies and Delays in CAD Upgrades.**

A computer-aided dispatch system is a tool used by 911 call-takers and dispatchers to electronically enter and manage the information they receive in connection with a 911 call. At the beginning of ECTP, the NYPD, FDNY, and EMS each used separate CAD systems. One of the original goals of ECTP was to streamline operations by creating a "unified CAD" system to consolidate the disparate systems of the three agencies. *See* ECTP SI Project Definition, at 14

("The City of New York is currently developing a Unified CAD system encompassing the requirements of NYPD, Fire, and EMD."). However, rather than create a unified CAD system, NYPD and FDNY were permitted to proceed with their own individual system replacements, which involved separate agency CAD projects and vendor selection processes. DOI interviewed witnesses who described the agencies as resistant to outside management of their CAD upgrades and interested in maintaining their existing operational practices in developing separate CAD systems.

While NYPD completed its ICAD upgrade in 2013, FDNY still to this date does not have a new CAD system in place. One result of the FDNY CAD delays is the cumbersome system for ambulance dispatch detailed in DOI's report earlier this year. DOI, *Investigation into Significant Delay in Dispatching an Ambulance to a Queens Fatal Fire in April 2014 and Overall Systemic Flaws of Dispatch System* (Oct. 2014) (hereinafter "DOI October 2014 Report").⁶⁰ DOI has been informed that upon completion of the new CAD system for FDNY and EMS (also known as "FDCAD"), the NYPD's ICAD and FDCAD systems will communicate with one another. Ten years since the beginning of ECTP, however, the agencies continue to use three separate systems.⁶¹

We discuss further below the history behind the CAD upgrades and the failure to develop a single, unified system.

⁶⁰ DOI also issued a 2013 report regarding the emergency response to the June 4, 2013 incident in which four-year-old Ariel Russo was killed after being struck by a vehicle operated by an unlicensed teen driver. *See* DOI Report Regarding the Emergency Response to Accident Involving Ariel Russo and the City's 911 System (Dec. 2013). In that investigation, DOI found the four-minute delay in emergency call response was the result of human error. Specifically, an EMS dispatcher and supervisor failed to act on information regarding the incident for four minutes, despite the fact that the information was visible on their workstation screens. In the report, DOI also examined four EMSCAD "outages" experienced from May to July 2013, concluding that no outages or other technical problems played a role in the delayed response on June 4, 2013.

⁶¹ As noted in DOI's October 2014 report regarding the fire in the Rockaway neighborhood of Queens, FDNY has been pursuing interim solutions intended to improve its current system until the new FDCAD system is available. DOI October 2014 Report at 3.

a. Development of Separate CAD Systems

NYPD and FDNY attempted unsuccessfully to upgrade their aging CAD systems before ECTP.⁶² When ECTP began, NYPD's efforts to modernize its CAD system were ongoing. In 2002, the NYPD engaged Compaq to serve as systems integrator, with Printrak International, a subsidiary of Motorola, as a subcontractor, to manage the agency's upgrade to a "Printrak" CAD system. HP later acquired Compaq. At the beginning of ECTP, FDNY separately contracted with iXP for "integration services, project management, and hardware for a new computer aided dispatch ("CAD") system." Agreement Between the City of New York Acting Through the Fire Department of the City of New York and iXP Corporation to Furnish a New CAD System for FDNY and EMS, at 3 (March 25, 2004) (hereinafter "iXP CAD Contract"). Given the plan to upgrade NYPD to the Motorola Printrak CAD system, FDNY also considered utilizing the Printrak product. Records indicate that the ultimate goal was to have NYPD, FDNY, and EMS share a common CAD platform, which became known as the "WINGS" project.

However, the Printrak system did not meet the City's needs. According to one NYPD witness, the Printrak system was not equipped to handle New York City's large call volumes.⁶³ Although the City directed HP to use Intergraph Corporation for development of the CAD system, HP proposed the use of a different CAD product developed by Motorola and Microsoft Corporation. In 2008, after the City had rejected use of this product, HP's CAD contract was terminated and HP agreed to return \$33 million to the City.

⁶² For example, in 1994, the NYPD entered into a contract with Systemhouse, Inc. ("Systemhouse") for systems integration services including a planned CAD upgrade. However, Systemhouse did not successfully complete the work on a new CAD system.

⁶³ An FDNY official reported in a memorandum that WINGS would fail to meet 373 of the FDNY's more than 500 requirements, and recommended that FDNY "once and for all reject WINGS and demand a CAD system custom built to our specifications." FDNY Memorandum Regarding WINGS CAD (July 21, 2005).

NYPD and FDNY CAD upgrades were pursued on different tracks. Rather than develop a single, unified CAD system, the City decided to proceed with separate agency upgrades resulting in two systems that would ultimately communicate with one another. This shift is reflected in the statements of witnesses, as well as Program records, including Deputy Mayor Skyler’s April 2007 memorandum, where he stated that the Program would “integrate the NYPD, FDNY, and EMS [CAD] systems to the extent necessary to ensure that these systems communicate with each other.”

In 2008, the NYPD entered into a contract with Intergraph, ultimately leading to the development of the ICAD system. The Intergraph contract, though originally for approximately \$53 million, grew to approximately \$88 million. One witness explained that the added costs related to additional mobile data, maintenance, and equipment-related costs. A number of witnesses have informed DOI that the NYPD’s ICAD system is highly customized, making maintenance and upgrades more challenging than they would be for a commercial off-the-shelf (“COTS”) product. Witnesses also informed DOI that at least some of this customization aimed to conform the ICAD system to NYPD’s existing operational practices.

Meanwhile, progress on FDCAD proceeded slowly. In or about February 2006, the FDNY and DoITT issued a RFI seeking a vendor to design and install a combined FDNY CAD system and received responses from Intergraph, Tiburon, Tritech, and NGSC. However, the City still had not selected a FDCAD vendor in late 2012 or early 2013 when Tiburon – one of two finalists, along with Intergraph – withdrew itself from consideration.⁶⁴ It was not until March 2014 that DoITT gave notice of the City’s intent to enter into sole source negotiations with Intergraph for

⁶⁴ One witness suggested to DOI that Tiburon withdrew itself because FDNY was likely to favor Intergraph, the vendor that NYPD had already chosen to perform its CAD upgrade.

FDCAD.⁶⁵ Unlike NYPD's ICAD system, FDCAD is expected to contain relatively modest customizations, making it closer to a "COTS" product, which witnesses said should be easier to manage and maintain.

In May 2013 – at least six years behind the original schedule that contemplated a fully unified CAD by June 2006 – the NYPD rolled out its ICAD system. FDCAD remains under development. Immediately prior to the Program review in May 2014, records showed that July 17, 2015 was the date for installation of FDCAD in PSAC1. However, by June 2014, documents showed that the estimated completion date had slipped to August 31, 2016. Similarly, DoITT's August 2014 Program Assessment indicated that FDCAD would be completed in 2016.⁶⁶

b. The Development of Separate CAD Systems, Rather Than a Unified CAD System, Created Unnecessary Inefficiencies

DOI interviewed a witness involved with ECTP at its inception who stated that the City from the beginning failed to define what a "unified CAD" would be and took a "50,000 feet" view of this goal. Gartner reports from 2004 and 2005 identified the risk that the City had "no existing unified CAD strategy." Even after the City considered alternative options, Gartner noted that it made "little progress" in "defining the eventual system." *See, e.g.*, Gartner, Executive Risk Report (Dec. 1, 2005). A March 2005 Gartner risk assessment noted that "[t]here is currently no strategy that represents long-term, Citywide goals for CAD," which presented a "risk to engaging in project

⁶⁵ As discussed further below in Section III, witnesses informed DOI that OCEC ultimately decided to "de-scope" FDCAD as one of NGSC's full responsibility projects in order to contract with Intergraph directly and thereby manage the project more efficiently.

⁶⁶ During the years that FDCAD has been under development, the FDNY invested funds and engaged in various efforts to support and maintain its legacy CAD systems, known as the "Stay Alive" projects. The Office of Management and Budget continued to allocate capital funds to the "Stay Alive" projects until 2012. Pursuant to Comptroller's Directive No. 10, a "project's useful life, for City purposes, must be at least five years for the expenditure to be classified as a Capital Project." By 2012, FDCAD was no longer eligible for capital funding because it was projected to be completed in less than five years.

activity that may not be aligned with overall strategy” and “[p]otential for decreased stakeholder support.” These Gartner reports were prescient: inconsistent with ECTP’s stated goal of achieving the consolidated solution of a unified CAD, NYPD and FDNY proceeded with the development of separate CAD systems.

Multiple witnesses stated to DOI that NYPD sought to manage its ICAD upgrade with limited Program oversight and maintain control over the development process. Gartner reported in 2006 that “[t]he NYPD CAD project is not integrated into ECTP limiting the Program’s ability to plan holistically around issues such as . . . Integrated CAD.” Gartner, Weekly Executive Status Report (Oct. 6, 2006). Similarly, as stated in a 2011 report by a high-level Program official to City Hall, “NYPD was given full oversight of their CAD migration initiative.” Report, at 18. The official wrote that “[t]he NYPD CAD project (Intergraph I/CAD) has not been coordinated with FDNY Fire or FDNY EMS” *Id.*⁶⁷

OCEC witnesses and records indicated that after the deployment of FDCAD, unification of the NYPD and FDNY CAD systems has again been proposed as a possible long-term ECTP goal.⁶⁸ DOI reviewed records that suggest the agencies have still not committed to a single, unified system. In early 2014, Deputy Mayor Shorris met with the stakeholder agencies and sought to discuss ECTP’s original objectives, including a single, unified CAD system. Emails and records reviewed by DOI suggest that the agencies have not agreed to pursue a unified CAD:

- According to the minutes of a March 31, 2014 Executive Sponsor Board meeting, NYPD “raised a concern about the third objective – for implementation of a single [CAD] system for all operations – as the NYPD has already implemented their own I/CAD and [NYPD] understands FDNY is pursuing a separate CAD.”

⁶⁷ We acknowledge that the NYPD required certain customization in its CAD system. However, that need does not trump the possibility of better coordination.

⁶⁸ OCEC’s “2014 Transition and Operational Plan,” which was provided to the Mayor’s Office, stated that the development of a vision for “a single, integrated CAD system in the future should start to be addressed in the next 6 to 12 months, if the City plans to migrate in the next 2-3 years.”

- In a March 28, 2014 email that appears to have been written in preparation for the Executive Sponsor Board meeting, a high-level NYPD employee wrote that “NYPD is not aware of a plan to implement a single CAD system for all Operations. NYPD’s understanding is that there will be an NYPD version and a consolidation of the current disparate FDNY and EMS CAD systems into a single system.”
- A NYPD presentation entitled “ECTP, PSAC1, PSAC2, Brief,” which appears to have been given in March 2014, included the following statement regarding FDCAD risks: “‘Unified’ CAD (to what extent are we integrating?).”

If the City ultimately achieves a unified CAD system, it will have taken a circuitous route to this goal by proceeding with the development of separate systems. Witnesses explained to DOI that the City’s CAD upgrades are likely to have proceeded more efficiently and expeditiously if they had been managed by a single team and governed by a single plan. Further, witnesses stated that a unified CAD system would have eliminated the need for middleware and interfaces to link the separate systems, multiple engagements of the same vendor (*i.e.*, Intergraph), and separate maintenance contracts. Records reviewed by DOI provide that the interfaces to connect NYPD’s ICAD system with FDNY’s and EMS’s legacy systems cost approximately \$11 million. Had the City developed a unified CAD system as originally planned, it is not clear that these costs for an interface between NYPD’s ICAD system and FDNY’s and EMS’s legacy systems would have been necessary. One witness also estimated that a unified CAD system would have saved the city millions of dollars per year in maintenance costs. As a consequence of the decision to create separate CAD systems, the NYPD’s and FDNY’s upgrades have been managed on different tracks, with the NYPD upgrade completed in May 2013 and the FDNY’s upgrade still not scheduled to be completed for several more years. This delay has had serious – potentially life threatening – consequences as detailed in DOI’s prior report. *See* DOI October 2014 Report.

2. Separate Networks

Another goal of ECTP has been the design and construction of an upgraded network infrastructure to provide data transport capabilities and security for 911 telephone calls and other applications. HP's IT Infrastructure task order, dated November 1, 2005, stated that the "new network will support PSAC1, PSAC2, five Fire Department Communications Offices (Queens, Bronx, Manhattan, Brooklyn, and Staten Island), 9 MetroTech, and the EMD Center in 1 Metrotech." HP Task Order 1.2, Attachment A, pg. 4 (Nov. 1, 2005). During Stage 1, four separate network infrastructures were built at PSAC1 for NYPD and FDNY. However, as PSAC2 was not ultimately completed during Stage 1, the development of a network for PSAC2 was deferred to Stage 2.⁶⁹

Similar to Stage 1, the original plan for Stage 2 as described in NGSC's original Statement of Work contemplated the creation of "separate [n]etworks" for NYPD and FDNY. The initial phases of the Stage 2 networks project thus focused on designing separate networks. In or around August 2012, however, City Hall changed this plan and directed the creation of a single physical network ("SPN") to be used by both agencies.⁷⁰ Rather than maintain physical separation between NYPD and FDNY, the SPN would utilize shared network hardware for both agencies with "virtual

⁶⁹ NGSC's Statement of Work for ECTP Stage 2 provided for "Local-area Network (LAN) connectivity within PSAC2, and Wide-area Network (WAN) connectivity between PSAC2 and other ECTP sites." NGSC SOW Section 5.1.1.

⁷⁰ OCEC made an "ECTP Network Presentation," dated July 31, 2012, to Deputy Mayor Holloway, recommending convergence to a single network at PSAC 2. An ECTP Stage 2 risk log maintained by OCEC included the following notation reflecting that this recommendation was adopted: "8/28/12—decision made by City executives to converge networks." NGSC's "ECTP2 Monthly Report" for August 2012 similarly referenced the "[d]ecision reached to proceed with the design of a single physical network infrastructure." NGSC, ECTP2 Monthly Report, at 7 (Aug. 2012). As described in minutes of an ECTP Stage 2 Network Team Meeting with Agencies, "[t]he ECTP2 Single Physical Network (SPN) was a term adopted by OCEC management and City Hall to describe the Converged Network Design developed for PSAC2. NGSC was directed to use this terminology for identifying the network." Minutes of ECTP2 Network Team Meeting with Agencies, at 3 (March 27, 2013). Change Order 26 to NGSC's SOW provided for a "modif[ied] design approach by moving from 2 separate agency networks, (NYPD and FDNY), to an ECTP2 Single Physical Network (also known as the ECTP2 SPN)."

separation” between their networks. Former high-level Program officials and OCEC employees explained to DOI that the purpose of building the SPN was operational and managerial efficiency: the SPN would have consolidated operations into one network, saved on the costs of duplicative equipment purchases required for separate agency networks, and allowed centralized management of network services.

Although work on the SPN design commenced in late 2012 and continued through early 2014,⁷¹ multiple witnesses and records informed DOI that NYPD and FDNY employees regularly voiced their dissatisfaction with the SPN design. For example, the minutes of an August 7, 2013 Network Working Group Meeting noted that “[a]gencies mentioned that the current SPN design do not meet their operational requirements and will be rejected by them.” Network Working Group Weekly Meeting Minutes (Aug. 7, 2013). In interviews with DOI, personnel from NYPD and FDNY, as well as other witnesses, discussed reasons for the agencies’ opposition to the SPN:

- When asked if some NYPD requirements were incompatible with having a SPN, a NYPD witness stated, “Yes, absolutely. One of our requirements was to have a distinct network.” Similarly, a FDNY witness stated that FDNY had objections to the SPN design because it did not include approximately 50% of FDNY’s requirements.
- The NYPD witness indicated that NYPD did not want to share equipment with FDNY, noting “that’s what distinct means.” Networks project records further confirm that the FDNY expressed “[c]oncern regarding sharing of physical assets with another separate agency: governance, maintenance, and misconfiguration.”⁷²
- Other witnesses explained that another of the agencies’ grievances related to network management. The SPN design included a centralized management layer which OCEC would have managed. Witnesses stated that NYPD and FDNY did not want to cede management and control over their own networks. The NYPD and FDNY witnesses also stated that the agencies had different requirements and IT protocols that could not simultaneously be accommodated in a single physical network. For instance, FDNY uses

⁷¹ Networks project meeting minutes demonstrate that NGSC, OCEC, NYPD, and FDNY personnel frequently met on a weekly basis regarding the network.

⁷² The networks project’s “Master Action Tracker,” a document listing issues warranting a response or action, referenced this concern.

Citynet, the internal data network hosted by DoITT, for services including email, and wanted email access to the ECTP network. NYPD, by contrast, does not use Citynet, and did not want Internet or wireless access to the ECTP network.

The agencies never fully accepted the SPN design.⁷³ In 2014, despite that the networks project worked toward the design of a SPN for nearly two years, witnesses confirmed that the project returned to the original plan of creating separate networks for the agencies. Although NGSC's original Stage 2 schedule provided that the final PSAC 2 network design would be completed by March 2012, the network design has yet to be completed more than two years later.

3. Separate Facilities

In addition to challenges with consolidation of technology solutions, the NYPD and FDNY have at times resisted sharing physical space, resulting in changes to Program plans and additional costs. For example, PSAC 2 was designed to include a radio room to be shared by NYPD and FDNY for placement of radio equipment. Emails from June 2012 reflect NYPD's request for a separate radio room "strictly for NYPD personnel" where "no outside agencies will have access." In those emails, NYPD informed DDC and OCEC that it required the separate room for, among other reasons, security and noise reduction. DOI interviewed witnesses, including NYPD employees, who stated that one of the NYPD's major rationales for the separate room was that personnel needed to hear the "clicks" of radio equipment in order to monitor its performance, and that noise levels in the data center – where the shared radio room was planned to be located – would inhibit hearing the clicks.

⁷³ Witnesses explained that there were various redesign efforts after the original SPN design, including an "optimized design" that, among other things, utilized a main router with different switches, blades, and cables for each agency. This "optimized design" was ultimately rejected because, among other reasons, agencies continued to object to the design including the existence of a shared management layer. Furthermore, NGSC quoted the City a price of \$54 million to implement the design, which exceeded the approximately \$17 million budget for networks set forth in OCEC records.

Multiple witnesses have informed DOI that former NYPD Chief Charles Dowd, in consultation with former OCEC Director Bruce Gaskey, determined that a separate radio room was unnecessary,⁷⁴ explaining that next generation radio equipment would include the capacity for digital monitoring, thereby rendering the manual listening for clicks obsolete. Former Deputy Mayor Holloway confirmed that a separate radio room was not included in the project scope for this reason. In 2014, however, the issue was revisited when NYPD renewed its request for a separate radio room, again citing, among other things, the need to hear the clicks. The NYPD's request has since been granted, and the Program is once again planning to construct a separate NYPD radio room at PSAC 2. In an interview with DOI, a Program official estimated that the cost of building the separate radio room at this stage of construction would be approximately \$6 million to \$10 million.⁷⁵

DOI has been informed that the decision to create a separate radio room was a practical one driven by the City's current technological capabilities and need to keep the overall Program on track.

4. The City did not Sufficiently Identify the Program Benefits of Consolidation

The City's ineffective governance is illustrated by its past failures to articulate a Program vision that would engage agency stakeholders in promoting the goals of consolidating and streamlining operations. According to a former ECTP program manager for Gartner, an example of this failure was the City's rejection of Gartner's requests that it formulate a "business case,"

⁷⁴ DOI also interviewed a witness who stated that NYPD was advised to submit a change request for the separate radio room, but did not do so.

⁷⁵ Several witnesses have suggested to DOI that the NYPD's method of monitoring its radio channels is antiquated, and that more modern methods of doing this work would not require technicians to rely on hearing such "clicking" sounds.

which would have helped to “make[] the goals and objectives for everyone [on the project] clear” and provide a way to “measure success or failure.” A business case identifies the benefits and justification for a project.⁷⁶ The witness explained that a business case is part of the process of defining a project, including an outline of the current conditions, alternative options, the selected option for accomplishing objectives, and different program elements for achieving project goals.

Despite repeated calls by Gartner for the City to develop a business case for ECTP, the City did not adopt Gartner’s recommendations. For example, in September 2006, the City held a meeting with officials from other municipalities to discuss strategies for consolidation efforts and learn from the experience of other cities which already had overhauled their emergency communication systems. In a September 22, 2006 memorandum, Gartner noted concerns raised by the City at the meeting, including that “agencies feel that existing communications operations is efficient and that changes only create unnecessary risk.” Gartner, Panel Discussion—Recommended Next Steps, at 2 (Sep. 22, 2006). Based on the discussions at the meeting, Gartner concluded in the memorandum that “[s]takeholders are not clear on the benefits of consolidating emergency communications.” Gartner’s recommendation was for the City to “develop [a] business case.” *Id.*

In a series of reports throughout 2007, Gartner stated that “[n]o documented business case or metrics for improvement exist for the program – causing a risk that the program will not meet stakeholder expectations” and “a risk that component projects will not support a complete, integrated vision.” Gartner, Weekly QA Status Report (Jan. 12, 2007); Gartner, Weekly QA Status Report (Sep. 7, 2007). In one of those reports from August 2007, Gartner noted that “City Hall

⁷⁶ As described in the PMBOK, a business case is “used to establish the validity of the benefits of a selected component lacking sufficient definition and that is used as a basis for authorization of further project management activities.” In other words, a business case is used “to determine whether or not the project is worth the required investment.” PMBOK, at 69.

issued a memo stating that the project will go forward on a specific timeline regardless of the lack of a business case.” See Gartner, Weekly QA Status Report (August 17, 2007).⁷⁷

Gartner repeated its concerns about the lack of a business case at the beginning of ECTP Stage 2. Gartner wrote in risk reports that a business case should “document the drivers for the project” in terms of public safety needs and set forth “anticipated benefits that the project intends to deliver.” Gartner, ECTP Executive QA Stage 2 Risk Report and Readiness Assessment (Aug. 15, 2010). Gartner noted in its reports that this recommendation was “rejected” as “City Hall and DoITT decided to pursue an alternative approach to the recommended mitigation, with the development of a Program Charter and Scope of Work Matrix.” *Id.* In its 2011 “Closeout Report” at the end of its contract, Gartner continued to identify a “[c]learly defined vision” and “goals that align with the justification of the initiative” as critical factors for the success of the Program. Gartner also stated that “quarreling among stakeholder groups” results from the lack of “a clear baseline and objective” and undermines the goals of consolidation. Gartner QA Team, Gartner QA ECTP Closeout Report, at 5 (March 31, 2011).

A Gartner employee formerly assigned to ECTP elaborated that the failure to articulate Program benefits in a business case reinforced NYPD’s and FDNY’s interests in maintaining the status quo for 911 operations and constrained efforts to make operational changes.

Recommendations

Recommendation # 2: The City must appoint a Program Manager empowered by the Mayor to lead large-scale technology projects such as ECTP.

The City should appoint to all large-scale technology projects a Program Manager who

⁷⁷ Three months earlier, in an April 13, 2007 memo, Deputy Mayor Edward Skyler wrote to the ECTP Working Group members that the City “ha[d] not made sufficient progress in achieving ECTP’s main objectives” and proceeded to identify revised deadlines for the agencies to move into PSAC 1 and for the City to commence construction on PSAC 2. Memorandum of Deputy Mayor Skyler to ECTP Working Group, at 1 (Apr. 13, 2007).

must have the political mandate to make final decisions, the technological savvy to ensure that the work is performed properly, and the management skills to bring all of the stakeholders together to work collaboratively. The Program Manager should have the authority to make final determinations regarding technology and other project decisions after receiving input from stakeholder agencies. While one leader must be empowered to ultimately make final decisions in the best interest of the Program, that leader must also adequately involve and consult representatives from the key stakeholder agencies.

For ECTP, the City has appointed DoITT Commissioner Anne Roest to this task. As set forth in its 60-day assessment, DoITT is in the process of making significant changes to Program management and making a renewed effort to engage representatives from the NYPD and FDNY. DOI has been informed that ECTP leadership has now implemented a new Program governance structure, which includes a Steering Committee that meets weekly and is chaired by DoITT Commissioner Roest. The Steering Committee, which includes representatives from a variety of stakeholder organizations, is designed to streamline management decisions and increase transparency within the Program.

Given the historic lack of coordination noted above, DOI urges DoITT to remain mindful of, and seek to avoid repeating, the mistakes of the past. DOI further urges City Hall, at the highest levels, to provide unwavering support to DoITT so it can achieve these goals.

III. The City Placed Excessive Reliance on Outside Consultants

ECTP has involved multiple layers of contractors supervising one another, often with limited City oversight. A number of aspects of ECTP were managed by the systems integrator (*i.e.*, HP or Northrop Grumman), which in turn supervised a project contractor or subcontractor (*e.g.*, Verizon or Motorola), which, in turn, supervised additional subcontractors that performed

more discrete tasks. This level of reliance upon outside contractors resulted in added costs to the City. Specifically, the City at times incurred additional, unnecessary mark-up and labor costs by purchasing goods and services through the systems integrator and its multiple subcontractors. The City also incurred added costs by having the systems integrator, rather than City workers, perform certain managerial and administrative tasks.

A. Procurements Through the Systems Integrator Led to Excessive Costs

DOI has been informed that the City has been overly dependent upon and deferential to its system integrator. Significantly, the City often relied on NGSC for assistance with procurement and other tasks where involvement of the systems integrator was not truly needed. According to multiple sources, NGSC's services at times added limited value at significant cost. With respect to equipment purchases made through its subcontractors, NGSC charged the City not only for its services, but also an eight percent mark-up on such purchases.

At least one Program official informed City Hall in 2011 that NGSC was not needed to oversee Motorola on ECTP's radio project, as Motorola was viewed as capable of performing this work without supervision by another contractor and NGSC "provide[d] little added value." The official added that "[i]t makes no sense to filter Motorola's work through Northrop and accrue added labor and margin costs." Nevertheless, OCEC did not de-scope NGSC from management of the radio projects.

As a result, in late 2013, when the City purchased Motorola radio equipment to be used in connection with its radio upgrade, the City was billed by NGSC a mark-up of approximately \$1.4 million on the equipment purchases.⁷⁸ Although the City had a preexisting, City-wide "requirements" contract with Motorola, and therefore would have had a simple mechanism by

⁷⁸ Payment of 50% of the cost of equipment was due upon order with the remainder due upon delivery.

which to make the purchase, it nevertheless used NGSC as an intermediary in making the purchase, even though NGSC appears to have provided limited value to this purchase process.⁷⁹ Moreover, throughout Stage 2, NGSC charged for its radio project services, which according to several witnesses added limited value.

As part of its 2014 Program Assessment, DoITT concluded that the City incurred increased costs by purchasing equipment through the NGSC contract, rather than contracting directly for the equipment, and said that it will seek “the best value” for remaining procurements. DoITT personnel have informed DOI that the City is now taking steps to minimize its reliance on outside consultants.

B. Procurement of Logging and Recording Deep Archive Storage

Similarly, the multiple layers of consultants and vendors, combined with relatively limited supervision by City employees, may have also led to unnecessarily high markups for the purchase of equipment and services.

As the systems integrator for ECTP Stage 2, NGSC was responsible for the performance of its subcontractors and agreed to “undertake commercially reasonable efforts to secure the best value for the City in its selection of subcontractors and vendors.” NGSC Contract, at 33. Under the NGSC contract, the City agreed to “pay a markup for the procurement of hardware and software throughout the contract term of eight percent (8%) over the actually-paid, discounted cost of the hardware and software,” and NGSC agreed to “make best efforts to purchase HW, SW at lesser of vendor’s discounted prices or GSA Schedule commercial list price.” NGSC Contract, Attachment PRC (“Pricing Schedules”), at 3. The markup includes “any administrative fees that

⁷⁹ In 2011, the aforementioned Program official also recommended to the Deputy Mayor that NGSC’s involvement in the FDCAD project should be scaled back. In the case of FDCAD, Program officials later sought to contract directly with Intergraph.

[NGSC] must pay on a percentage of the purchase price for hardware and software purchases under the GSA.” Agreement, at 3. The contract further provides that the “hardware/software markup will be applied to all purchases of hardware and software,” and that the markup “shall not be applied to the cost of maintenance or support services.” NGSC Contract, Attachment PRC (“Pricing Schedules”), at 3.

DOI’s investigation found that, in practice, these provisions – while well-intentioned – did not adequately protect the City from excessive charges and markups by contractors involved in ECTP equipment procurements. Indeed, DOI identified at least one example where the involvement of multiple levels of contractors created a risk that the City would pay excessive, cumulative markups and other charges for such equipment.

The City recently sought to procure a “deep archive” storage solution for ECTP’s logging and recording project.⁸⁰ Both the FDNY’s and NYPD’s legacy logging and recording systems use technology created by NICE Systems, Inc. (“NICE”). HP, ECTP—Logging and Recording Impact Analysis Report for PSAC 1, at 19 (Dec. 20, 2006). The City’s legacy deep archive system, which uses equipment from EMC Corporation (“EMC”), was to reach its “end of life” in February of 2014. NGSC, Understanding of ECTP Report, Sec. 14, at 14-27 (Sep. 9, 2011). In March 2013, in anticipation of this “end of life” date, NICE, under the supervision of NGSC, distributed a Request for Proposals (“RFP”) to three vendors for a replacement deep archive storage solution. EMC and NetApp, Inc. (“NetApp”) each submitted best and final offers to NICE in the fall of

⁸⁰ Logging and recording is, again, the infrastructure of systems that captures, stores, and analyzes all voice and radio calls related to emergency communications for NYPD, FDNY, and EMD. L&R provides both: (1) immediate and backup access to communications and (2) archiving based on the City’s retention and other legal obligations. In the simplest terms, L&R operates in the following manner. Data is collected from radio transmissions and voice calls. That data is stored locally in a core server at the location and then, after thirty days, transferred to long-term storage, referred to as “deep archive.” The data in the deep archive can be accessed for litigation or other purposes. NYPD typically retains its data for about six months, with indefinite storage for data related to particular incidents, while FDNY/EMD retains its data for twenty-eight years.

2013. On October 30, 2013, NGSC and NICE made a joint presentation to OCEC comparing the two vendors' rough order of magnitude ("ROM") budget estimates for the project. The ROM listed item-by-item charges for "product," "installation," "migration," "contracted warranty," "onsite support," and other services. The ROM also contained a disclaimer that "[t]he data contained herein is not a contract modification or an offer to sell. It is only an estimate (+/- 20% and is not to be construed as a formal proposal or as a ceiling on any future quote or proposal for the same services."⁸¹ OCEC Presentation, ECTP Deep Archive Storage Recommendation, at 5 (Oct. 30, 2013).

Program officials expressed concern to DOI that the estimates for the deep archive storage solution were unusually high, and questioned the basis for several of the line-item figures.⁸² As part of its ECTP investigation, DOI reviewed, among other things, the proposals and cost estimates that EMC and NetApp submitted to NICE, internal documents from NGSC and NICE concerning charges added to those estimates, and the subsequent deep archive storage solution ROM proposals submitted to the City. The purpose of this inquiry was to determine, among other things, the nature of the contractors' markups and estimates, as well as whether such markups were limited to the eight percent set forth in NGSC's contract with the City.

DOI's analysis showed that, before being presented to the City, the estimates provided by EMC and NetApp were inflated by significant markups added by both NGSC and NICE. NICE first added substantial markups to the ROM estimates it received from NetApp and EMC, and NGSC subsequently added its own markups to the estimates it received from NICE. As reflected

⁸¹ As defined in the NGSC Stage II contract, ROM means "estimated pricing for an accompanying description of work developed by the City or Contractor for a work effort that the City intends to procure under the Agreement. ROMs are used for budgetary purposes and are not contractually binding in nature." NGSC Contract, at 7.

⁸² To date, the City has neither chosen a vendor nor purchased any deep archive storage equipment.

in Figure D below, by the time NICE and NGSC made the joint ROM presentation to the City on October 30, 2013, the combined total markups for each line item were as high as over six hundred percent (600%).

Figure D

Sample of line items listed in 10/30/13 Deep Archive Storage Solution ROM presentation to the City ⁸³	Approximate % increase over NetApp's estimate presented on 9/25/13	Approximate % increase over EMC's estimate presented on 10/10/13
Product (hardware + software)	69.89%	64.91%
Installation	646.64%	138.16%
Migration⁸⁴	142.50%	N/A
Contracted Warranty⁸⁵	71.37%	71.35%

It is not clear that these charges violated the NGSC contract's eight percent markup limitation, as NGSC maintains that its markup on the product itself was limited to eight percent. Nevertheless, in addition to NGSC's eight percent markup to the product itself, NGSC and NICE added significant charges and markups to the other items, including charges for risk and overhead. At least one Program official expressed surprise that NGSC was charging the City for overhead associated with this procurement, given the original \$285 million contract governing NGSC's work on the Program.

Notably, the subcontract between NICE and Northrop Grumman does not contain any equivalent provision limiting markups. In other words, because there were multiple layers of

⁸³ It is unclear whether the contractors determined which line-items to include in the October 30, 2013 ROM presentation, or whether OCEC requested that certain categories be itemized.

⁸⁴ EMC included the cost of migration in the installation estimate.

⁸⁵ The original warranty estimates provided by EMC and NetApp were initially adjusted to reflect same the warranty period duration before the subsequent markups were added.

contractors involved in this procurement, the eight percent limitation in the NGSC contract was effectively nullified. Given the fact that both contractors added such significant charges to their estimates, and the fact that all such charges were not clear from the ROM presented to the City, there was a danger that the City's ECTP managers would have been ill-prepared to negotiate for the best price.

C. The City Also Relied on Consultants to Perform Managerial Tasks That Could Have Been Done by City Workers

DOI has also been informed that the City permitted NGSC to handle certain tasks that City workers should have performed. For example, during Stage 2, the City outsourced management of the ECTP schedule to NGSC.

Throughout much of the Program, there has been some version of a schedule used to track deadlines and project progress. That document has typically been referred to as the "Aggregated Master Schedule" or "Integrated Master Schedule" (the "master schedule"). The complete master schedules typically were lengthy, unwieldy documents containing thousands of lines of detail. The master schedules not only set forth completion dates for large projects, but also included a substantial list of discrete tasks.⁸⁶

DOI was informed that NGSC controlled management of the schedule during Stage 2, but that schedule management could have been handled by City staff at less expense. Delegating schedule management to NGSC reduced City staff's visibility into the schedule and key dependencies. In fact, one source told DOI that City employees did not even have access to the computer program used to manage the schedule, and were required to consult with NGSC to obtain information about the schedule.

⁸⁶ DOI found in its review of the master schedules that they were not maintained in a consistent fashion. They often contained different tasks and information rendering past schedules incomparable in some respects with later ones. DOI spoke with a witness who confirmed that schedules reflected varying items of information over time.

Additionally, as DoITT found in its Program Assessment, “the pre-assessment ECTP schedule was not an IMS.” This is because NGSC did not “align” the schedule with other relevant agency schedules, such as DDC’s schedule for construction of PSAC 2. As a result, the schedule “did not include all relevant ECTP tasks,” thereby creating a further “lack of visibility of schedule dependencies.” DoITT Program Assessment, at 20.

Recommendations

Recommendation # 3: Where possible, the City should establish direct contractual relationships with vendors and avoid layers of subcontracting. The City should also seek to avoid ceding complete responsibility over projects to outside contractors.

DOI found that the City’s excessive reliance on outside consultants resulted in increased Program costs. These costs were incurred, for example, where NGSC added limited value to work performed by a subcontractor, as well as in NGSC’s mark-up costs on equipment purchases made through subcontractors. More fundamentally, some Program insiders have also informed DOI that there was some complacency among City employees when it came to the City’s relationship with these outside contractors. As a result, contractors’ methods of managing the Program were not sufficiently scrutinized or challenged.

After its 2014 Program Assessment, DoITT has taken some measures to reduce the City’s reliance upon and expand the City’s supervision of consultants.⁸⁷ Specifically, DoITT has significantly reduced the scope of work to be performed by Northrop Grumman and the number of its consultants on the Program. Moreover, the City has “de-scoped” NASA – which had been

⁸⁷ DOI has been informed that the Federal Bureau of Investigation (“FBI”) successfully employed a similar strategy during the upgrade of its case management program, Sentinel. According to public reports, after experiencing difficulties with its primary contractor, Lockheed Martin, the FBI significantly decreased the number of outside consultants working on the project.

providing independent validation and verification services – from the Program. In reducing both the total number and layers on consultants on ECTP, DOI has been informed that DoITT sought to increase direct supervision of consultants performing the work.

On future projects, the City should manage contractors directly whenever possible and limit subcontractor relationships in order to minimize costs and enhance the City’s ability to exercise oversight and have visibility with respect to contractor performance.

IV. Evidence that OCEC’s Senior Management Applied Undue Pressure on Employees to Report Positive Information to City Hall Regarding ECTP

In recent years, OCEC provided a monthly “OCEC Portfolio Review” to then Deputy Mayor Holloway, as well as a quarterly report to the Program’s Steering Committee, in advance of monthly meetings with the Deputy Mayor and quarterly meetings with Steering Committee members. The OCEC reports consisted of PowerPoint slides and typically ranged from 90 to 100 pages. They provided, among other items, an executive summary about the status of the Program and project-specific “dashboards” for radio, PSAC 2, networks, and other projects. In these reports, OCEC supplied information regarding Program accomplishments, upcoming decisions and milestones, and project risks and issues. As discussed further below, OCEC also utilized a set of color codes – green, yellow, and red – to evaluate the Program and particular projects in several areas including overall health, scope, schedule, cost, risks, and issues. According to witnesses involved in preparation of these reports, the colors signified the severity of problems or concerns in those areas: green signified no current problem or minimal concern, yellow signified caution or increasing concern, and red signified a serious problem or concern requiring attention.

Multiple witnesses stated to DOI that the creation of these reports was a highly time-consuming process that distracted them from their substantive work on the Program. For instance, two witnesses independently estimated that 25% and 20%, respectively, of work time was devoted

each month to drafting the reports. In describing the drafting process, witnesses explained to DOI that City project managers drafted portions of the report relating to particular projects over which they had responsibility, and contractor employees were involved in drafting components of the report as well.⁸⁸ These drafts were then circulated to mid-level OCEC managers and, in turn, to senior OCEC management, who would meet with mid-level managers regarding the draft report.

Witnesses explained that the assignment of color ratings to identify problems or concerns was a central focus of the drafting process. As an illustration of the focus on the color ratings, one witness stated that employees referred to the OCEC monthly report as “the coloring book.” Witnesses informed DOI that no written guidelines existed for the assignment of color ratings and that the determination of color ratings was a matter of judgment.⁸⁹ Several witnesses also said that projects with red and yellow ratings were more likely to receive attention at meetings with the Deputy Mayor and thus received greater scrutiny by OCEC management.

Significantly, DOI interviewed five City employees who stated that OCEC’s senior management made changes to color ratings or exerted undue pressure on staff to make such changes in order to minimize the severity of problems or concerns reported to City Hall:

- A supervisor stated that he considered the regular directions from OCEC senior management to change reports or ask others to change reports to mean “sanitize” or “soften” negative information in the reports. While the supervisor noted that he was not asked to misrepresent objective facts about the Program, he said that he was encouraged to understate issues of concern and that the reduction in color ratings removed the “urgency” for responding to issues.
- Another supervisor stated that OCEC senior management “created an environment where it was discouraged to report things negatively.” This supervisor described instances where OCEC’s senior management told him at meetings to direct a contractor to change color ratings on its components of the reports from red to yellow or green. According to the

⁸⁸ For example, NASA produced the section of the report on IV&V.

⁸⁹ Nonetheless, witnesses explained that risks and issues were rated using a NGSC model that some colloquially called the “risk and issue cube.” This cube involved rating risks and issues by assigning color ratings to reflect the probability and impact of particular risks and issues.

witness, senior management stated that the negative information in these slides could not be reported to the Deputy Mayor.

- Another manager said that his team typically received telephone calls from OCEC management when his report included red or yellow ratings. This manager explained that OCEC managers would request on these calls that he change ratings from red to yellow or yellow to green, and stated that the requested changes were often designed to “soften” the severity of risks and “improve the spin” in the reports to the Deputy Mayor. The witness acknowledged an occasion when his team lowered a risk from red to yellow because OCEC management asked that the team, in the witness’s words, “tone it down.” The witness also said that his team believed its reporting of a red risk had been correct.
- An employee stated that OCEC senior management applied “pressure” on staff to reduce the severity of color ratings, and that much of the reporting was “not accurate” because it did not reflect the condition of the Program.
- Another employee stated that his reports were at times “re-graded” by OCEC management despite his color rating recommendations, and that other project managers had felt that management “massaged” their reports.

This witness testimony demonstrates a widely-held belief among employees involved in preparing reports that OCEC management sought by reducing the severity of color ratings to present positive information to City Hall about the Program and create the impression that ECTP’s status was better than it actually was.

DOI interviewed former members of OCEC’s management regarding the monthly and quarterly reports. When DOI inquired whether pressure existed to report positive information to City Hall, Bruce Gaskey, OCEC’s former Director, denied the existence of such pressure. DOI asked whether he pressured staff to change color ratings from red to yellow or yellow to green. Mr. Gaskey confirmed that he would direct changes be made to color ratings when he disagreed with ratings in the draft reports of project managers. The witness further stated that sometimes he directed changes be made because the project manager who drafted the report lacked knowledge or insight which he had. Additionally, he said that changes were sometimes necessary because certain project managers were prone to report negative color ratings when, in his view, the

circumstances did not warrant those ratings.⁹⁰ With respect to the amount of time spent on reports, Mr. Gaskey agreed that a lot of time went into creating the reports, noting that he was responsible for establishing the reporting system and sought through reporting to give OCEC credibility.

DOI also interviewed former Deputy Mayor Holloway who stated that he did not have concerns that the reports omitted or minimized negative information and that he believed the information presented in the reports was consistent with the risks and issues that had confronted the Program. While former Deputy Mayor Holloway acknowledged the time required to create such detailed reports, he stated that the reporting was necessary to understand and manage the Program.

OCEC's reports were ostensibly designed to alert City Hall and ECTP's governing entities to issues confronting the Program. The statements of five City employees – who said that OCEC senior management sought to “sanitize,” “soften,” or “spin” negative information by changing color ratings – undermines the credibility of the reporting and calls into question whether reports at times downplayed the severity of problems or concerns. Consistent with the accounts of these employees, DOI also spoke with a contractor representative who said that some members of OCEC management created an environment that discouraged “truth-telling.” Moreover, along with these statements, the current state of the Program produces a lack of confidence in the optimistic color ratings contained in past reports.

For example, OCEC's December 2013 monthly report contained green ratings for the Program's overall health and schedule, as well as the overall health and schedule for several project areas including radio, networks, and FDCAD. However, after the change in Mayoral administration, in its January, February, and March 2014 reports, OCEC rated ECTP Stage 2 as

⁹⁰ DOI interviewed another senior manager with visibility into reporting who made comments that were generally consistent with those of Mr. Gaskey.

“yellow” and “at risk.” By the May 6, 2014 report, OCEC rated Stage 2 “red” and “off-track.” Our investigation revealed that when OCEC reported “green” ratings in December 2013, which indicated that the Program’s health was sound and its schedule on track, OCEC officials were aware of the need for unplanned remediation work at radio remote sites, delays in the FDCAD procurement, issues with agency buy-in to a single physical network, and the aggressive Stage 2 schedule.⁹¹ These areas, among others, were ultimately cited as reasons for the red, off-track rating assigned to the Program by OCEC in its May 2014 report. The abrupt shift from positive to negative reports suggests that through the end of the prior Administration, senior officials failed to heed or to fully appreciate the impact of very real problems that would further delay the Program and ultimately need to be tackled.

Recommendations

Recommendation # 4A: The City should set forth written criteria for any reporting of ratings or metrics intended to measure the progress of the Program or particular projects.

The integrity of OCEC reports has been undermined by the statements of witnesses who described experiencing undue pressure to report positive information to City Hall. Several witnesses also described an absence of clear reporting guidelines which left color ratings subject to manipulation. Ratings and metrics should, whenever possible, be applied based on established criteria to define their meaning and limit the risk of manipulation. DoITT should publish such criteria for any future ECTP progress reports containing ratings or metrics. This criteria should be disseminated to Program staff responsible for drafting the reports.

⁹¹ As discussed above, former Program officials stated to DOI that they believed at the end of 2013 upon their departure that the Program remained on schedule and that the remote sites could be remediated and completed within the then-current Program schedule.

Recommendation # 4B: Reporting should not take so much time and effort as to detract from staff's ability to perform substantive Program work.

Several witnesses, including one involved in designing OCEC's reporting structure, acknowledged that the time and effort expended on monthly reports was significant. While reports are necessary to account for a project's progress and identify potential or actual problems, the need to report must be balanced against the need to engage in substantive Program work. Thus, managers responsible for the design of report content and workflow should seek to balance these considerations in weighing the time and effort required to produce them. We note that the City is simplifying the reporting process and has eliminated the color code system.

V. ECTP Has Lacked an Integrity Monitor

An integrity monitor acts independently to identify programmatic risks of fraud, corruption, waste, and mismanagement. An integrity monitor identifies these risks by conducting audits of invoices and payments for billing irregularities and inappropriate mark-up costs. An integrity monitor also conducts an ongoing review of a program's schedule and budget to address delays and cost overruns.

The City has never assigned an integrity monitor to ECTP. As discussed above, the City engaged Gartner to provide quality assurance from 2004 to 2011, and then engaged NASA to provide independent validation and verification ("IV&V") services from 2011 until the recent termination of its contract. Quality assurance and IV&V are distinct from integrity monitoring. Quality assurance seeks to evaluate whether the product being developed meets specified requirements, while IV&V analyzes technical risks or issues with deliverables. Accordingly,

neither Gartner nor NASA were engaged to provide or actually provided integrity monitoring for the Program, including regular audits of ECTP billings.⁹²

Undertaking any City project with the size and scope of ECTP without an effective integrity monitor disregards well-established best practices and is wholly irresponsible. Had the City retained an integrity monitor at the outset of the Program, that monitor would have undertaken the task of reviewing invoices in real time and would have been able to determine, as the project progressed, whether any fraud or corruption in billing occurred. Because ECTP has not had an integrity monitor in place for the past ten years, the billings of contractors and subcontractors have not been subject to ongoing independent oversight.⁹³

Additionally, an integrity monitor would have identified the project's failure to meet internal deadlines and budgets and allowed the City to address those problems as they occurred and not ten years into the project. Without such an independent integrity monitor, such warning signs went unheeded. Although Gartner filled this role to some extent, Gartner's contract was not renewed to continue into the later stages of the Program.

Recommendations

Recommendation # 5: Retain an independent integrity monitor for large scale technology projects.

Given the size and scope of ECTP, as well as concerns about Program management and spending, it is imperative that an integrity monitor be appointed to ensure that public funds are

⁹² Gartner conducted an assessment that found the HP's billing from November 2005 through June 10, 2006 exceeded what had been budgeted for the work performed by approximately \$1 million. Gartner, Component Project Analysis (August 10, 2006). However, as confirmed by a former Gartner program manager, Gartner did not perform regular audits as audits of ECTP billing was not part of Gartner's scope of work.

⁹³ In December 2014, the City reached a settlement with HP for \$10.6 million dollars to resolve disputes concerning billing for HP's work as the ECTP Stage 1 systems integrator.

being spent appropriately. The assignment of an independent integrity monitor is a well-established best practice for ongoing oversight of major government programs like ECTP. Thus, DOI routinely hires and supervises integrity monitors with expertise in investigations, auditing, and accounting for proactive monitorships of large-scale City projects. Some examples where DOI has assigned and supervised an integrity monitor providing ongoing oversight of City projects include the Rapid Repairs program, the Build It Back program, and the New York City Housing Authority (“NYCHA”) Bond B program for repairs to NYCHA housing developments.

The City should therefore retain an integrity monitor selected by DOI to oversee ECTP. The City has agreed to retain an integrity monitor, and DOI has begun work on the selection process. The assigned integrity monitor will perform regular audits of invoices and payments for billing irregularities, as well as review Program deadlines, costs, and deliverables to detect any management or performance failures.

VI. ECTP Has Not Presented a Clear Picture of the Program’s Total Costs.

DOI conducted a review of the Program’s budget and expenditures for the period of January 2004 through September 2014. DOI analyzed information from a variety of sources, including VENDEX (*i.e.*, the City’s contract management system), contracts, certificates to proceed, budget and financial documents received from City agencies, and information from the City’s Financial Management System (“FMS”). DOI used this information to review the costs of ECTP. DOI did not perform a complete audit of the Program’s budget or expenditures.

In sum, DOI determined that ECTP has not accounted for the total costs of the Program and has therefore understated those costs. ECTP has sought to achieve several objectives and included a number of projects related to the modernization of technologies and consolidation of operations. Although ECTP was not intended to cover all costs relating to improvements of the

911 system, and going forward should not include all 911 costs in future budgeting, it should have accounted for the costs related to ECTP projects or integral to achieving Program objectives. However, as discussed further below, a significant portion of expenditures related to ECTP projects or objectives were omitted from the Program’s accounting of its costs. More specifically, DOI’s analysis found at least \$211.4 million in expenditures that were not reflected as costs of the Program.

A. ECTP’s Capital and Expense Budget

1. Capital Budget

As discussed above, the Program’s current capital budget is \$2.031 billion.⁹⁴ DoITT provided DOI with a list showing 103 ECTP contracts and purchase orders under which capital funds have been expended for the Program, as well as the encumbered and paid amounts for those contracts. In its August 2014 Program Assessment report, DoITT also reported on the Program’s encumbered and paid funds, stating that FMS showed that ECTP had paid \$1.293 billion and encumbered⁹⁵ \$1.655 billion in capital funds. According to updated information provided to DOI by DoITT, as of October 3, 2014, FMS indicated a total encumbered value of \$1,664,067,489 and total paid value of \$1,343,746,403 on those contracts and purchase orders.

2. Expense Budget

In addition to its analysis of Program capital expenditures, DOI sought information regarding the Program’s expense costs. The Program’s expense budget includes, among other

⁹⁴ The Independent Budget Office (“IBO”) describes a capital project as one that “involves the construction, reconstruction, acquisition or installation of a physical public improvement with a value of \$35,000 or more and a ‘useful life’ of at least 5 years.” Additional criteria is explained in more detail in the New York City Comptroller’s Directive 10. Remaining expenses, including those for the annual operation, training and/or maintenance of a project would be charged to the annual operating or “expense” budget.

⁹⁵ IBO defines “encumbered” as funds that are contractually obligated, but have not yet been spent.

things, anticipated costs for ongoing IT support, maintenance, and salaries. DOI obtained a report from OMB showing the total amount of funds committed to ECTP's expense budget lines since 2005. According to the report, as of October 2014, the Program has committed \$336,527,486 in expense funds.

B. ECTP has Understated its Total Costs by Failing to Properly Account for Certain Expenditures as Program Costs

DOI also analyzed the costs of the Program. DOI's analysis revealed that the City did not account for certain project-related expenditures as Program costs. Thus, ECTP has not included those expenditures in its budget or records tracking the total costs of the Program.⁹⁶

More specifically, in its review of ECTP-related contracts, DOI found at least \$211.4 million in costs relating to ECTP projects that were not reflected as Program costs. DOI determined that the ECTP did not account for these costs because (1) expenditures during ECTP made under pre-ECTP contracts were not recorded as Program costs; (2) costs relating to component projects were at times paid from agency budgets rather than ECTP; and (3) certain contracts relating to ECTP projects were omitted from ECTP cost tracking altogether.

We discuss our findings further below. These findings do not purport to be a comprehensive analysis of the total costs of ECTP, but rather, an examination of several specific instances where costs relating or integral to ECTP projects were not accounted for as Program costs. To conduct this analysis, DOI compiled information from FMS regarding expenditures for a sample of ECTP-related contracts, including the amount of funds encumbered and paid for under

⁹⁶ For example, DOI found that the DoITT list of encumbered and paid funds for ECTP contracts did not include the project-related expenditures discussed in this section.

those contracts. DOI identified these contracts utilizing the assigned project identification codes (“project IDs”).⁹⁷

1. Pre-ECTP Contracts

DOI’s review identified several contracts executed by the City before ECTP that were subsequently used by the City to pay for ECTP-related costs. DOI learned that the City continued to utilize these “pre-ECTP” contracts after the Program’s inception for work relating to ECTP and thus had expenditures under these contracts relating to Program objectives. However, DOI determined from its analysis of ECTP financial records that the City did not include the expenditures under these “pre-ECTP” contracts in its accounting of Program costs.

Chart A below lists three examples of pre-ECTP contracts – which related to upgrading the City’s emergency communications system – where the City expended funds after ECTP began, but those expenditures were neither paid for by ECTP nor accounted for as costs of the Program.

Chart A

Vendor Name	Contract Number	Contract Description	Contract Value	Amount Paid	Amount Paid After 01/01/04	Paid by ECTP
iXP Corporation	20020006635	Design & Construction of New Enhanced 911 PSAC	\$26,036,428	\$25,399,512	\$10,862,373	\$0
Compaq Computers	20020016408	Computer Aided Dispatch System	\$63,922,982	\$25,388,385	\$18,908,869	\$0
iXP Corporation	20030023112	System Integration Services for the Emergency Communications	\$10,433,980	\$3,692,548	\$2,476,001	\$0
			\$100,393,390	\$54,480,445	\$32,247,243	\$0

As discussed earlier, iXP provided initial ECTP systems integration services to the City before HP was selected as the Program’s systems integrator. Prior to ECTP, the FDNY had entered a contract with iXP for the company to “provide systems integration consulting services to manage,

⁹⁷ Project IDs are assigned by OMB, identified in the CPs, and entered into FMS to track contract costs associated with a specific scope of work. On larger programs, such as ECTP, it is common to have multiple project IDs.

coordinate and oversee the infrastructure upgrade of the Fire Department's emergency communications systems." Agreement Between the City of New York Acting Through the Fire Department of the City of New York and iXP Corporation at 6 (2003). NYPD also had a pre-ECTP contract with iXP for systems integration services relating to "the design and construction of a new enhanced 911 public safety answering center." iXP Amendatory Agreement (Nov. 28, 2001).⁹⁸ After the inception of ECTP in January 2004, there were \$2.476 million in costs under FDNY's iXP contract and \$10.862 million in costs under NYPD's iXP contract.

Additionally, the NYPD had a pre-ECTP contract with Compaq Computers, which was later assigned to HP upon its acquisition of Compaq. The contract provided that Compaq would provide NYPD with a CAD system that would be installed in two locations. There were \$18.908 million in costs under this contract after ECTP began.

As indicated in the chart above, the total amount of expenditures made under these contracts after the inception of ECTP was \$32.247 million.⁹⁹ DOI found that none of the costs for the pre-ECTP contracts listed above were recorded in FMS or Program records as ECTP costs. Given that the work provided for under these contracts related to ECTP objectives and was performed after ECTP began, the total costs of the Program should have reflected payments made under these contracts during ECTP.

⁹⁸ In a January 2004 contract amendment to NYPD's contract with iXP, the parties agreed upon an additional \$4.998 million for "enhanced System Integration services to assist the City in managing and executing its goal to co-locate the city-wide emergency dispatch and communications infrastructure, including the FDNY (and EMD), into a consolidated public safety communication system." The Fifth Amendatory Agreement, Contract # CT 056 20020006635, at 1-2 (Jan. 30, 2004).

⁹⁹ While the City incurred costs in its efforts to modernize emergency communications before ECTP, DOI did not seek to quantify those costs because its analysis focused on costs incurred during the Program, which began in January 2004.

2. Contract Expenditures Split Between ECTP and Agency Budget Lines

DOI also discovered that costs for several ECTP-related projects were partially paid out of individual agency budgets, rather than entirely through ECTP, and those costs were therefore not accounted for as part of ECTP. DOI found at least \$135.2 million in such costs.

As of October 3, 2014, OMB had issued 117 Certificates to Proceed (“CPs”), which are approvals of agency funding requests,¹⁰⁰ involving charges of funds to the ECTP budget line (DP-0002) for ECTP-related projects. DOI found in its review of CPs that the approved funding for several ECTP-related projects was split between ECTP’s budget line and the budget lines of individual stakeholder agencies. Three of those projects were CAD, the rehabilitation of FDNY’s Communications Offices, and the FDNY’s Network Operations Center. We discuss these projects, as well as examples of contracts involving project expenditures split between ECTP and the agencies, further below.¹⁰¹

a. CAD

As discussed above, the development of a unified CAD system for NYPD, FDNY, and EMS was one of the original goals of ECTP. Nevertheless, DOI learned from its analysis that a significant portion of CAD project costs were not attributed to ECTP. Instead, the City allocated funds to NYPD and FDNY to cover a substantial amount of expenditures under the agencies’ CAD-related contracts. ECTP did not track expenditures encumbered or paid for out of agency

¹⁰⁰ CPs are issued by OMB in response to a request for funds from an agency. The New York City Independent Budget Office defines a Certificate to Proceed is “[a]pproval from OMB that sets forth the terms and conditions under which the capital project shall proceed and informs the comptroller of the amount of obligations to be used for financing the capital project.” IBO, *Understanding New York City’s Budget: A Guide to The Capital Budget* (June 2013). Prior to the issuance of a CP, an agency articulates its funding needs to OMB in a written request describing the project and its purpose. OMB reviews the request and grants approval through a CP. The CP sets forth, among other things, the maximum amount that can be spent, as well as whether capital or expense funds will be used to fund the project.

¹⁰¹ Our discussion of these three projects does not purport to cover all contracts or costs relating to the project.

budgets as costs to the Program, despite the fact that CAD development was one of the Program’s component projects and central goals.

Chart B below shows the costs encumbered by ECTP and by the agencies for two agency CAD contracts: NYPD’s contract with Intergraph and FDNY’s contract with iXP.

Chart B

Vendor Name	Contract Number	Contract Amount	Amount Paid	ECTP Encumbered	Agency Encumbered
Intergraph Corporation	20090013879	\$88,409,388	\$66,305,836	\$43,716,427	\$44,692,961
iXP Corporation	20040021538	\$20,497,082	\$19,720,084	\$2,152,458	\$18,344,624
		\$108,906,470	\$86,025,920	\$45,868,885	\$63,037,585

In 2004, FDNY entered a contract with iXP for “integration services, project management, and hardware for a new computer aided dispatch (“CAD”) system.” iXP CAD Contract, at 3. Though iXP failed to deliver a Fire CAD system, the City paid iXP over \$19 million for its services under the contract. \$18.344 million of those costs were encumbered by FDNY and were not recorded as costs of ECTP. Similarly, after HP failed to deliver a CAD system, NYPD contracted directly with Intergraph to develop its CAD system. \$44.692 million of the encumbered costs under the Intergraph contract were charged to NYPD and were not recorded as costs of ECTP.¹⁰²

b. Renovation of FDNY Communications Offices

The renovation of FDNY’s Communications Offices (“COs”) was a component project of ECTP. ECTP records provide that the purpose of renovating the FDNY COs was to “[r]ehabilitate/refurbish facilities to support the upgrade/migration and installation of key ECTP

¹⁰² Based on its analysis of FMS and ECTP records, DOI identified several additional contracts, which were assigned project codes associated with CAD, where funds were encumbered, in whole or in part, by the agencies, rather than ECTP. Although DOI’s analysis did not confirm that each of these contracts related to CAD, we note that these additional contracts with project codes associated with CAD involved \$17.8 million in additional costs that were charged to the agencies, rather than ECTP. Those costs are not included in the amounts listed in the text above.

systems and emergency communications personnel during transition to PSAC1, PSAC2.” HP, Emergency Communications Transformation Program (ECTP), at 47 (June 27, 2005). A June 2008 CP described the FDNY COs rehabilitation project as “an integral part of the Emergency Communications Transformation Program” and “critical to the future viability of the system.”

However, DOI identified several contracts and purchase orders relating to the rehabilitation of FDNY’s COs where the total costs were not encumbered by ECTP. Most significantly, DDC had a \$75 million contract with URS Corporation (“URS”) for construction management services relating to the renovation of the FDNY COs.¹⁰³ As set forth in Chart C below, \$67.454 million of the costs under the URS contract were encumbered by DDC, while only \$8.010 million of the costs were encumbered by ECTP.¹⁰⁴ As a result, the majority of those costs were not reflected as costs to the Program, despite the fact that rehabilitation of the COs was recognized as “integral” to ECTP.¹⁰⁵

Chart C

Vendor Name	Contract Number	Contract Amount	Amount Paid	ECTP Encumbered	Agency Encumbered
URS Corporation	20050015993	\$75,465,366	\$73,636,867	\$8,010,545	\$67,454,821

¹⁰³ DDC originally entered a contract for construction management services with O’Brien Kreitzberg, Inc., but the contract was assigned to URS. OMB, CP Number 50593, at 5 (June 18, 2008)

¹⁰⁴ According to CP # 50963, sometime in or around 2008, the City decided “that future funding for the 5 CO project would be provided under budget line DP-2,” which is ECTP’s budget line. Although the renovation of the COs was an ECTP project, it appears that funding for the project was allocated to DDC’s budget before 2008, rather than to ECTP. OMB, CP Number 50593, at 12 (June 18, 2008).

¹⁰⁵ Based on its analysis of FMS and ECTP records, DOI identified several additional contracts, which were assigned project codes associated with the rehabilitation of the COs, where funds were encumbered, in whole or in part, by FDNY, rather than ECTP. Although DOI’s analysis did not confirm that each of these contracts related to the rehabilitation of the COs, we note that these additional contracts with project codes associated with the COs renovation involved \$14.3 million in additional costs that were charged to the agencies, rather than ECTP. Those costs are not included in the amounts listed in the text above.

c. FDNY Networks Operations Center

According to the Certificate to Proceed #50952, issued by OMB on August 5, 2008, FDNY required a Network Operations Center (“NOC”) “to proactively monitor major systems and their subcomponents, particularly for critical ECTP systems.” OMB, CP Number 50952, at 2 (Aug. 5, 2008). Though the CP stated that the NOC would provide “pro-active monitoring and event management for the supporting infrastructure of the ECTP network and FDNY’s ECTP emergency services,” the majority of the costs for the NOC were encumbered by FDNY, not ECTP.

FDNY used DoITT’s contract with an existing vendor for work on the NOC project.¹⁰⁶ As set forth in the chart below, DOI’s analysis of FMS revealed that \$5.586 million was encumbered for this vendor’s work: \$876,116 was encumbered by ECTP and \$4.710 million was encumbered by FDNY.¹⁰⁷

Chart D

Vendor Name	Contract Number	Task Order Awarded	Amount Paid	ECTP Encumbered	Agency Encumbered
Dimension Data	20060026003	\$5,586,527	\$4,710,411	\$876,116	\$4,710,411

3. Contract Expenditures Excluded From ECTP

Additionally, DOI found at least three contracts relating directly to ECTP component projects that were not classified as ECTP contracts. As a result, ECTP did not account for

¹⁰⁶ The City engaged Dimension Data to develop the NOC pursuant to a task order under DoITT’s existing contract with the company. OMB, CP Number 50952 (Aug. 5, 2008).

¹⁰⁷ Based on its analysis of FMS and ECTP records, DOI identified several additional contracts, which were assigned project codes associated with the NOC, where funds were encumbered, in whole or in part, by FDNY, rather than ECTP. Although DOI’s analysis has not confirmed that each of these contracts related to the NOC, we note that these additional contracts with project codes associated with the NOC involved \$3.8 million in additional costs that were charged to the agencies, rather than ECTP. Those costs are not included in the amounts listed in the text above.

expenditures under those contracts as costs to the Program. Chart E sets forth information regarding the costs encumbered under these three contracts.

Chart E

Vendor Name	Contract Number	Contract Amount	Amount Paid	ECTP Encumbered	Agency Encumbered
Purvis Systems, Inc.	20050028253	\$12,237,708	\$12,186,893	\$0	\$12,237,708
Purvis Systems, Inc.	20050026936	\$28,427,193	\$28,427,192	\$0	\$28,427,193
Datamaxx Applied Technologies	20101403416	\$3,238,292	\$3,237,401	\$0	\$3,238,292
		\$43,903,193	\$43,851,486	\$0	\$43,903,193

ECTP did not account for costs incurred under the FDNY’s contracts with Purvis Systems for modernization of the Emergency Reporting System (“ERS”) and the voice alarm system.¹⁰⁸ Both ERS and voice alarm were ECTP component projects originally included within the Program’s Communications track. HP, Emergency Communications Transformation Program (ECTP), at 20 (June 27, 2005). Yet Program records indicate that expenditures under the Purvis contracts for ERS and voice alarm were not included as ECTP costs. As set forth in the chart above, FDNY encumbered \$28.427 million under Purvis’s ERS contract and \$12.186 million under Purvis’s voice alarm contract.

ECTP also did not account for the costs of NYPD’s contract with Datamaxx Applied Technologies for a CAD message switch interface. As stated above, the development of a modernized CAD system has been a goal of ECTP since the beginning of the Program. Nonetheless, ECTP did not include the \$3.238 million in expenditures under the Datamaxx contract as Program costs.

¹⁰⁸ The Comptroller’s Office recognized in its August 2014 report that the two Purvis contracts for ERS and voice alarm “do not appear to have been included in prior ECTP cost estimates.” City of New York, Office of the Comptroller, A Review of the Management and Fiscal Controls Over the City’s ECTP Upgrade to its Emergency 911 System, at 13 (August 5, 2014).

C. ECTP Lacked Adequate Criteria to Fully Account for Program Costs

As stated above, DOI found that the ECTP has understated total Program costs by at least \$211.4 million because certain costs relating to ECTP projects or objectives were not accounted for as costs to the Program. As DOI did not conduct a full audit of Program costs, and included here only a sample of contracts where expenditures were not accounted for as ECTP costs, it considers this figure to be a conservative estimate of the costs not accounted for as within ECTP.

DOI determined based on its review, as well as several witness interviews, that these costs were not accounted for as belonging to the Program because officials made decisions regarding which costs to classify as ECTP and which costs to classify as outside ECTP. Witnesses explained that these decisions generally involved consultation between OMB, DoITT or OCEC, and the relevant stakeholder agency regarding whether ECTP or the agencies would bear the costs, as well as any splitting of costs. When asked to explain how these decisions were made, one Program official stated that no written guidelines governed decisions regarding which costs to classify as ECTP. Another witness said that costs would be funded by ECTP (*i.e.*, reflected as Program costs) when the costs related to the scope of an ECTP project. With respect to ECTP-related costs borne by the agencies rather than the Program, another witness suggested that agencies continued to bear the costs for particular projects relating to agency systems where work had been underway before ECTP. Two witnesses stated that ECTP was not intended to cover all costs relating to improvements to public safety communications systems.

Nevertheless, DOI's analysis indicates that at least some of these cost allocation decisions resulted in omitting certain expenditures directly related to ECTP projects or objectives from the Program's accounting of its costs. As a result, neither the Program's budget nor ECTP records containing cost data provide a complete picture of the total costs of the Program.

Recommendations

Recommendation # 6: The City should account for all costs relating to large-scale technology programs like ECTP as costs of the program.

To the extent that the Program budget and cost tracking has not reflected costs of ECTP-related projects, ECTP has not accounted for the total cost of the Program. Accountability and transparency requires that program budgets and cost tracking include all program costs to provide a true representation of a program's cost estimates and allow an evaluation of whether a program has kept to its budget. The exclusion of costs from ECTP discussed in this section undermines this accountability and frustrates efforts to say how much it has really cost so far to pay for ECTP.

That certain costs for ECTP-related projects have been excluded from the Program suggests that ECTP has lacked adequate criteria for tracking Program costs. This lack of criteria resulted in decisions that screened out certain ECTP-related expenditures that should have been included in the Program's accounting of its total costs. As a result, ECTP has not presented a complete picture of its total costs. To remedy this problem for ECTP and future IT projects, the City – specifically OMB – should adopt criteria for classifying and tracking program costs that seeks to fully document the costs of delivering the program and its sub-projects. Furthermore, large-scale projects should assign an individual or unit the responsibility of tracking all costs.

VII. ECTP Has Lacked Standardized Recordkeeping Practices

A. Agencies Employed Varying Document Management Practices

To conduct a review of ECTP, DOI requested Program-related documents from the multiple agencies involved in the Program, including DoITT, NYPD, FDNY, DDC, and OMB, as well as OCEC and the Mayor's Office. DOI learned through the document-gathering process that agency practices varied with respect to management and retention of ECTP-related documents.

DoITT and OCEC have maintained Program documents on a database called SharePoint. DDC has similarly maintained documents related to the construction of PSAC2 on a database called Constructware. FDNY's ECTP records were maintained by one of two department bureaus: the Bureau of Technology and Development / Project Management Office ("BTD") and the Bureau of Communications ("BOC"). BTD primarily maintained ECTP records relating to Stage 1 and PSAC 1. BOC primarily maintained ECTP records relating to Stage 2 and PSAC 2. As discussed further below, NYPD did not have an established document retention or management policy.

B. NYPD Lacked a Document Retention Policy

DOI's document requests to NYPD revealed deficiencies in the agency's recordkeeping policies and practices. On July 3, 2014, after receiving only approximately 100 ECTP-related documents, DOI spoke by telephone with an NYPD official to seek an explanation for the number of documents produced in response to our requests. During the call, the NYPD official informed DOI that many NYPD personnel who were involved with ECTP had recently retired, and that staff searched but were unable to locate any documents for retired personnel. DOI asked the official to provide a list of personnel who had been involved with ECTP, which was provided on July 9, 2014. On July 14, 2014, DOI wrote the official to reiterate our document requests, and provided additional instructions for gathering the documents, including speaking directly with active NYPD employees who were involved with ECTP and making further efforts to identify any archived records of retired personnel. On July 21, 2014, DOI requested that official also provide a written statement outlining the steps taken to locate responsive documents and explaining for particular requests or employees, current or retired, why no responsive documents were located.

On August 1, 2014, the NYPD official provided DOI with the requested written statement, which stated, in relevant part:

A. General

1. The NYPD does not have an agency document (hard copy or soft copy) retention policy concerning employees' project emails or files. Active and retired personnel have the discretion to retain, discard, delete, materials during and after the completion of a project.
2. There was/is no central document management database for the ECTP/ICAD project.
3. There appears to have been an attempt to maintain one or two file cabinets with hard copies of project documents. Responsive documents have been produced.

The official also stated that “[t]here is no requirement for the retired personnel to retain files/documents when they retire.”

The NYPD produced records of active employees involved with ECTP. DOI found that active employees who maintained their records in electronic format had a more significant volume of documents than employees whose records were produced in hard-copy. Though the NYPD did not locate documents of retired personnel stored in hard-copy or electronic format, the NYPD produced emails of retired employees, as well as active personnel, involved with ECTP.

Recommendations

Recommendation # 7A: The City should implement standardized recordkeeping practices on large-scale, multi-agency technology projects.

Agency recordkeeping practices on ECTP were not consistent. To ensure the accessibility and organization of records for any necessary Program reviews or audits, the City should establish uniform recordkeeping practices on large-scale technology projects involving multiple agencies.

Recommendation # 7B: Agencies, including the NYPD, should create a document retention policy for ECTP and future large-scale technology projects.

Due to the absence of a NYPD document retention policy for ECTP, NYPD appears to have not retained some unknown number of ECTP-related records, especially with respect to retired personnel who worked on the Program for many years. NYPD should implement a document retention policy for ECTP and other large-scale technology projects to guide staff regarding retention requirements.

CONCLUSION

ECTP is a complex, multi-billion dollar program to improve public safety by modernizing the City's 911 system. It has involved multiple City agencies, hundreds of contractors and sub-contractors, and dozens of sub-projects. To successfully complete a program of this magnitude and importance requires (1) strong governance, (2) a well-defined vision, (3) sufficient planning, and (4) integrity monitoring to protect the City from harm. This Report demonstrates that ECTP has lacked these indispensable components of success. Consequently, ECTP not only is late and over its original budget, but also, has tested public confidence in the City's ability to deliver on necessary improvements to the 911 system that are critical to public safety.

Since the Mayor stopped work on ECTP for reviews of the Program, the City has taken positive steps to address the Program's prior deficiencies. DoITT has re-established itself as a centralized authority to govern the Program and has sought to engage the agencies. Additionally, the City has sought to reduce its reliance on outside consultants and apply greater oversight of those consultants. The City has also agreed to appoint an independent integrity monitor to ECTP.

To overcome the management failures and internal control weaknesses discussed in this Report, the City will need to be vigilant in its oversight and supervision both of ECTP going forward and future large-scale technology projects.