

City of New York
9-1-1 Call Processing Review (911CPR)
May 1, 2012
Final Report



WINBOURNE
CONSULTING, LLC

1611 N. Kent St. Suite 802
Arlington, VA 22209
(p) 703.774.7854 • (f) 703.935.1147
www.winbourneconsulting.com

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Executive Summary

On December 26, 2010, a blizzard struck New York City and surrounding areas. The blizzard caused numerous public safety problems including delays in answering 9-1-1 calls, overload of police, fire, and EMS resources, and severe delays for some emergency medical calls for service. An initial review within the first week following the storm, conducted by the Mayor's Office of Operations and the Office of Citywide Emergency Communications, found problems in six areas including *"Problems with emergency communications and response."* From these six problem areas evolved 15 citywide recommendations.

Immediately following the initial review of the snow storm response, Mayor Michael Bloomberg tasked the Office of Citywide Emergency Communications (OCEC) with conducting a comprehensive review of 9-1-1 call-taking and dispatch functions, including workflow processes and supporting technology systems, to determine opportunities for improvement. This task was formally named the 9-1-1 Call Processing Review (911CPR) project.

OCEC commissioned Winbourne Consulting, LLC to complete an objective assessment and to document their findings and recommendations. On January 10, 2011 the 9-1-1 Call Process Review (911CPR) project was initiated and chartered to complete the comprehensive review of New York City 9-1-1 operations. A team comprised of NYPD, FDNY, DoITT, OCEC, and consultants was organized to complete the 911CPR project. Detailed information was obtained concerning NYPD and FDNY 9-1-1/Public Safety Answering Center (PSAC) operations, business processes, infrastructure, technology systems, personnel, and other related information.

During the course of the 911CPR analysis, the NYPD and FDNY personnel we encountered exhibited pride and dedication to their assignments, and expressed a desire to have the best 9-1-1 system possible. NYPD and FDNY are recognized worldwide as leaders in providing world class public safety services to the eight million residents of New York City and the 50 million annual visitors. We recognize the critical work these people accomplish often under severely stressful conditions and hope that our findings and recommendations help them to better meet their goal of providing the finest level of service for the people of New York City.

NYPD and FDNY EMD/Fire Dispatch Center personnel perform a 24/7/365 life critical service for the citizens of New York City and public safety responders and serve as the "first of the first responders." We recognize that NYPD and FDNY answer over 11 million 9-1-1 calls annually—a number which far exceeds any other Emergency Communication Center in the United States.

The Emergency Communications Transformation Program (ECTP) was initiated in 2004 to address the needs of the City's emergency public call taking and dispatch operations that arose out of the September 11, 2001 attack and the August 2003 "black-out." ECTP's purpose is to consolidate the City's emergency communications services, specifically the call taking and dispatch functions of the Police and Fire Departments, into shared, load balanced facilities at two Public Safety Answering Centers (PSACs)

where NYPD and FDNY emergency response operations would be co-located. ECTP was initiated with the following five goals:

1. Improve service to the public
2. Improve interoperability and coordination among public safety agencies
3. Improve call processing time to lower overall response time to E911 calls
4. Improve system resiliency and technical redundancy
5. Improve the safety of the City's first responders

A primary component of the ECTP project and key factor to improving 9-1-1 call processing was the successful transition of NYPD and FDNY call takers to the VESTA 9-1-1 system along with co-locating NYPD and FDNY 9-1-1 operations on the same floor at PSAC1. The NYPD VESTA migration on December 5, 2011 and FDNY/Emergency Medical Dispatch (EMD) migration on February 28, 2012, accomplished the total transition of police, fire and EMS dispatch operations into a single location for the first time in New York City history. Achieving this milestone now allows for further initiatives to improve public safety 9-1-1 operations—to date over four million 9-1-1 calls have been successfully received and processed on the new VESTA 9-1-1 system.

Our analysis includes a preliminary review of 9-1-1 call taking and dispatching operations post the NYPD and EMD cutovers to the new VESTA system in December 2011 and February 2012 respectively.

Summary of 911CPR Research

The 911CPR research identified issues concerning 9-1-1/call processing/dispatch operations that fall into the following six categories:

- I. Integrated NYPD and FDNY Strategic Vision and Management of 9-1-1/PSAC Operations—
The 9-1-1 system serves police, fire and EMS operations equally. An integrated, streamlined, and effective 9-1-1/call processing/dispatch operation requires optimal collaboration, cooperation and communication between all public safety agencies.
- II. 9-1-1/Call Processing Procedures –
9-1-1/call processing/dispatch procedures have a direct impact on police, fire and EMS response times and the accurate utilization of public safety resources.
- III. New York City 9-1-1/PSAC Standards and Performance Metrics—
Unified NYC public safety standards, definitions, and performance metrics provide consistency of data and enhanced capabilities for measuring police, fire and EMS operational efficiency and effectiveness.
- IV. 9-1-1/PSAC Technology Systems—
Leveraging technology systems such as 9-1-1/VESTA, Computer Aided Dispatch (CAD), Geographic Information System/Mapping (GIS), Automatic Vehicle Location (AVL), Logging and

Recording (L&R), and other PSAC systems can improve the quality, efficiency and effectiveness of NYPD and FDNY operations.

V. Geofile Synchronization and GIS Strategic Plan—

A CAD system's geofile is the primary tool utilized by 9-1-1 call takers to validate the address of an incident. A geofile's accuracy has a direct impact on sending police, fire and EMS units to the correct location. The utilization of a single GIS/Mapping system improves police, fire, EMS and Office of Emergency management (OEM) interoperability and information sharing capabilities.

VI. Training and Quality Assurance/Improvement Process

The proficiency and professional capabilities of PSAC personnel can provide a direct benefit to public safety operations.

Executive Summary Key Findings and Recommendations

The following sections present detailed descriptions of specific findings of areas for improvement and recommendations for enhancing operations in each of the six categories, described above. Implementation of the recommendations in this report will require collaboration between the relevant stakeholders.

Integrated NYPD and FDNY Strategic Vision and Management of 9-1-1/PSAC Operations

Many of the issues identified point to the need for integrated processes and systems to ensure NYPD and FDNY can respond in a faster, more effective and coordinated manner to life critical emergency incidents.

ES 1 9-1-1/PSAC Governance Structure

The governance or "ownership" of the 9-1-1 system, call handling processes, and related technology systems between the FDNY and NYPD was identified as an area for improvement that will impact 9-1-1/call process/dispatch procedures.

9-1-1 was developed for all life critical emergencies. It is unknown when a 9-1-1 phone rings if the incident is going to be a heart attack, house fire, traffic crash with injuries, or crime in progress. Police, fire and EMS departments must have an equal role in the development and implementation of 9-1-1/call process/dispatch procedures.

Issue: The City of New York needs a unified strategic vision, plan, and agreement regarding 9-1-1/PSAC operations. Working without a common vision for 9-1-1/PSAC coordination has resulted in both agencies' 9-1-1 operations operating independently. Improved collaboration, cooperation and communication between the agencies could enhance the delivery of emergency services. ECTP documentation from 2004 to 2011 shows numerous formal recommendations for a unified management structure.

Recommendation: Mandate by Mayoral Executive Order the creation of a 9-1-1 multi-agency governance structure that would include the Deputy Mayor of Operations, NYPD, FDNY, OCEC, and OEM.

ES 2 9-1-1 Call Process Protocols Workgroup

Issue: Currently, there is no combined NYPD, FDNY and OCEC work group with a sole focus on coordinating, improving or enhancing 9-1-1/PSAC operations.

Recommendation: To continue to achieve ECTP goals, we recommend the formation of a 9-1-1 Call Process Protocols Workgroup to address all recommendations made in this report. The workgroup would be chaired by the Deputy Mayor of Operations and include NYPD, FDNY, OCEC and other stakeholders as required. The primary goal is to create a public safety team environment in which all the 911CPR recommendations are objectively explored and acted upon. The workgroup would be responsible for the prioritization and implementation of solutions including changes in policy, procedures, training curricula, and the employment of proof of concept/pilot projects.

9-1-1/Call Processing Procedures

ES 3 Unified Call Taker (UCT)

Unified Call Taking (UCT) is employed by Emergency Communications Centers (ECC) across the United States using a variety of models. A Unified Call Taker (UCT) methodology recognizes that 9-1-1 is utilized by citizens for police, fire, and emergency medical service events and that the transferring of 9-1-1 calls causes the loss of valuable time. Citizens, Emergency Communications Centers, and public safety personnel can all benefit from a UCT model when implemented appropriately. A UCT process has the potential to:

- Improve 9-1-1 call taking times
- Reduce overall response times
- Eliminate and/or reduce 9-1-1 call transfers
- Improve incident location and call type accuracy
- Enhance the consistency of job/incident information
- Improve coordination of police, fire and EMS resources
- Improve cost effectiveness of PSAP operations

One of the key components of a successful UCT program is ensuring 9-1-1 call takers have the proficiency, skills and tools to equally manage police, fire and emergency medical incidents. This is accomplished through the implementation of business process review, training, policies, procedures and technology systems to enhance the knowledge, skills and abilities of 9-1-1 call takers.

While a UCT model can be beneficial to public safety operations, there are situations in which a UCT model may not be the best solution for an ECC. Prior to implementing a UCT process, a risk-benefit analysis should be completed to ensure that a UCT model can be appropriately implemented to achieve the desired objectives. Critical factors that should be evaluated include:

- Type of UCT model to be employed
- Desired performance objectives and metrics that will be employed to evaluate the UCT initiative
- Proposed overall governance and management of the UCT process
- Willingness of the departments involved to collaborate and cooperate on a joint venture
- Current and future CAD and other technology systems capabilities and limitations
- Knowledge, skills, abilities and call taking proficiency of existing personnel
- Level of effort to change existing business processes to meet UCT goals and objectives
- Design, configuration and training time required to implement a UCT model
- Planning, design, configuration, training, implementation, and support process to be employed
- Cost to implement UCT initiative

Public Safety Answering Center (PSAC) operations

The primary goal of NYPD and FDNY's Public Safety Answering Center (PSAC) operations is to process and dispatch police, fire and emergency medical 9-1-1 incidents as fast and effectively as possible. The fast, efficient processing of 9-1-1 calls has a direct impact on public safety response times. Key components of successful call taking and dispatch operations are:

1. Streamlined business processes from the time a 9-1-1 call is answered to first responders arriving on scene
2. Ability for call takers and dispatchers to modify and update the incident in the CAD system(s) as new information is obtained
3. Provide relevant and actionable information to first responders on a dynamic basis

Issue: Analysis of current PSAC operations identified several areas that require improvement related to the design, implementation and management of the UCT project and process. Refer to Chapter 5 (UCT) for additional information. Some of the issues include:

1. NYPD and FDNY call takers consume valuable time asking duplicative questions and taking identical actions for the same 9-1-1 caller
2. There are inconsistent question and answer procedures employed with 9-1-1 callers
3. As initially implemented UCT processes resulted in FDNY emergency response units being sent to incorrect addresses, and the misrouting, miscoding, and input of inaccurate incident information. Some of these problems continue to exist in the current modified UCT process
4. The current Computer Aided Dispatch (CAD) systems do not have the technical capability for NYPD call takers to dynamically modify a fire response when required
5. The current processes slow the ability of FDNY/Emergency Medical Dispatchers to provide pre-arrival instructions to 9-1-1 callers
6. UCT model that was employed was technology-centric

As a result of issues raised by FDNY the original Unified Call Taker (UCT) operation was modified in 2009 to reintroduce Fire call takers back into the call taking process. Currently, after an NYPD call taker pre-releases a fire call to the fire dispatcher, a fire call taker is conferenced with the 9-1-1 caller to validate

the incident location and type of call. This modification has eliminated some of the location and information quality issues for fire-related calls that stemmed from the original process design.

Recommendation: We recommend the following steps to enhance UCT operations:

- a. Establish a 9-1-1 Call Process Protocols Workgroup that will provide the oversight, structure, and define the corresponding roles, responsibilities and decision processes to provide equal input into the UCT operations by all stakeholders to include City Hall, NYPD, FDNY and OCEC on an ongoing basis
- b. Review and modify UCT business processes/protocols for agency-specific, multi-agency, and high call volume incidents with the goal of ensuring consistent and accurate information is provided by UCT call takers to agency dispatchers.
- c. Use results of the business process and procedure review and subsequent modifications to develop a UCT call taker training program
- d. Oversee improvements to the call taking and dispatching Quality Assurance (QA) functions in police, fire and EMS to establish ongoing QA analysis of UCT performance
- e. Define specific performance metrics and measurement capabilities to assess the performance of UCT operations
- f. Consider changing the UCT call taking process order of questions asked by UCT call takers to include the following steps:

Step 1 - "9-1-1 what is your emergency?"

Step 2 - Determine if the incident is for police, fire or EMS

Step 3 – Immediately conference an EMD or Fire call taker when applicable

Step 4 – Fire or EMD (depending on the what service is required) call taker will manage questioning of the caller and enter the information into their CAD system while an NYPD call taker stays on the line and enters information required by the NYPD CAD system

ES 4 High 9-1-1 Call Volume Event

Various types of events such as severe weather, electrical outages, mass casualty, building fire/collapse, accident, and criminal/acts of terrorism can cause a sudden surge in 9-1-1 call volume.

Issue: Currently, the NYPD and FDNY (Fire/EMD) Communications Centers have developed their 9-1-1 surge response plans independent of each other, although a critical incident typically requires a coordinated multi-agency response.

Recommendation: Develop and implement appropriate and integrated policies, procedures, and training curriculums to successfully address multi-agency crisis events. In the case of a major disaster such as a severe weather event, the NYPD and FDNY Communications Centers' procedures should be aligned with the City's Critical Incident Management System (CIMS), where appropriate.

ES 5 Reduction of Accidental 9-1-1 Calls

Accidental 9-1-1 calls, also called “short” calls, are an unnecessary workload to 9-1-1 systems nationwide. The increased proliferation of cellular telephones has caused a dramatic increase in the number of accidental 9-1-1 calls made (i.e., “purse dial” or “pocket dial”). Analysis of NYC 9-1-1 workload revealed a significant volume of 0 to 19 seconds short calls:

- 2009 3,245,882 (31% of Total Number of Calls Handled)
- 2010 3,910,373 (38% of Total Number of Calls Handled)
- 2011/Jan-Apr 1,071,121 (39% of Total Number of Calls Handled)

Issue: There is a need to develop activities, policies and procedures to determine the causes of accidental/short call workload and to implement initiatives to reduce the short call volume. The identification of a 9-1-1 accidental/short call sources will provide the ability to develop a method to mitigate the workload caused by these types of calls. Examples of data that should be captured and analyzed are:

- Trends and patterns
- Frequent Flyers – same number erroneously calls 9-1-1
- Intentional harm – ranging from pranks to Emotionally Disturbed Persons (EDP)
- Specific types of wireless devices
- Cellular provider service
- Attempting to dial another number (i.e., 9 + 1 + X)

Recommendation: Develop and implement an initiative to mitigate accidental 9-1-1 calls including the identification of trends and patterns and a public awareness campaign. It is an industry best practice to educate the public concerning accidental 9-1-1 calls. Many Public Safety Answering Points (PSAPs) utilize websites, public service announcements, direct mailings, and other forms of marketing campaigns to educate the citizens of their jurisdiction. An initiative to mitigate accidental 9-1-1 calls could significantly decrease the workload on the 9-1-1 system and increase call taker availability.

ES 6 EMD RELAY Workload

FDNY EMD call takers are Emergency Medical Technicians (EMT) and certified in Emergency Medical Dispatch (EMD) procedures. EMD call takers provide pre-arrival instructions to callers over the phone. It is imperative that all 9-1-1 callers reporting a medical emergency are connected to a trained EMD call taker as fast as possible.

Issue: Approximately 15% of all 9-1-1 reported FDNY/EMS incidents are electronically routed from the NYPD SPRINT CAD to the FDNY EMS CAD without the caller being conferenced with an EMD call taker. Based on current protocols, 9-1-1 calls should be routed in this manner when no EMD call taker is available. These incidents are reviewed at the FDNY/EMD “RELAY” position in a First-In/First-Out (FIFO) process. NYPD call takers receive no training in emergency medical call taking and cannot provide a priority code to the incident nor do they provide “pre-arrival” medical instructions.

Recommendation: Conduct a thorough analysis to identify the reason calls are being sent to FDNY/EMD RELAY. If there is an issue with FDNY/EMD call taker availability then a subsequent staffing analysis should be undertaken. This issue is also relevant concerning the recommended transition to the new call taking process as described in Recommendation #8 (page 72).

ES 7 9-1-1 Call Processing Guide Cards

The effective and systematic processing of 9-1-1 calls has a direct impact on public safety first responder response times. Consistent call taking operations are required to collect, process, and disseminate incident information as efficiently and effectively as possible.

Issue: NYPD and FDNY call takers do not consistently and systematically employ standard questions, nor are the questions asked in the same disciplined sequence on each call. The result is inconsistent call taking operations that can have an impact on response times and may also lead to incorrect resources being sent to an incident.

Recommendation: Implement a call taking Guide Card project to enhance current 9-1-1 call taking operations. 9-1-1 call taking guide cards are a Public Safety Answering Point (PSAP) industry standard and can provide excellent benefits to PSAC operations. (Appendix "A" - Examples of Police and Fire Guide Cards).

ES 8 New York City 9-1-1/PSAC Standards and Performance Metrics

9-1-1/PSAC performance metrics are an integral part in the management and assessment of the quality of public safety services. Of specific importance is the ability to provide accurate Response Time information concerning life critical emergencies. The industry standard for the calculation of Total Response Time is:

9-1-1 Answer Time + Call Taking Process + Dispatch Process + Travel Time = Total Response Time

Issue: NYC public safety agencies need uniform definitions and standards concerning police, fire and EMS performance metrics. NYPD and FDNY Fire and EMS do not employ PSAP industry standards concerning performance metrics. NYPD and FDNY Fire and EMS utilize different formulas to calculate Response Times. NYPD does not measure overall 9-1-1 call taking processing time. This practice inhibits the ability of NYPD and FDNY Fire and EMS to generate accurate Response Time information. Additionally, there is no practical method to measure police, fire and EMS performance metrics as a single public safety system, using the current departmental systems and configurations.

Recommendation: Establish uniform police, fire and EMS performance measurement definitions, methodologies and procedures to accurately measure 9-1-1/PSAC performance metrics including Response Times. The migration of NYPD and FDNY to the VESTA 9-1-1 systems provides an opportunity for NYC to develop 9-1-1 performance measurements not previously available.

ECTP 9-1-1/PSAC Technology Systems

The maximum utilization of ECTP 9-1-1/PSAC technology systems can significantly improve public safety operations in numerous areas including:

- The ability to accurately identify the precise location of an incident
- 9-1-1 call taking and dispatch operations
- The ability to acquire and analyze Police, Fire and EMS incident data in an end-to-end format from various systems such as 9-1-1, Computer Aided Dispatch (CAD), and Logging & Recording

ES 9 VESTA/MapStar/FDNY Map

The Automatic Number Identification (ANI) feature provides call takers with the telephone number of a 9-1-1 caller. The Automatic Location Information (ALI) feature provides call takers with the geographic location of a 9-1-1 caller. The VESTA system provides the caller's ANI-ALI information along with the 9-1-1 call to the call taker. ALI information is dependent upon the type of telephone service utilized to call 9-1-1 (i.e., landline, cell phone). Employing ANI/ALI data improves the ability to send police, fire, and EMS units to the correct incident location.

The Federal Communications Commission (FCC) instituted regulations to telephone system providers concerning ANI/ALI data that must be provided to public safety when a 9-1-1 call is completed. ANI/ALI information is a mission critical tool for call takers to correctly identify a 9-1-1 caller and the location of the incident.

Issue: While the recent migration to VESTA, MapStar and the FDNY Map have significantly improved the capabilities of NYPD and FDNY call takers, further enhancements are required concerning the utilization of ANI/ALI data that is automatically provided by the VESTA system. The NYPD and FDNY do not have formal procedures or challenge questions if a 9-1-1 caller's location is different from the incident location displayed on the map or from the ALI data. (i.e., "Are you at the incident location?")

Recommendation: Institute policies, procedures, and training related to the utilization of mapping systems. Leverage the VESTA, MapStar, and FDNY Map systems (i.e., ANI/ALI capabilities) and recommended procedures to assist call takers accurately determine the incident location.

ES 10 Duplicate Technology Systems

NYPD and FDNY designed, configured and implemented separate duplicate technology systems such as 9-1-1/VESTA, NICE Logging & Recording (L&R) and Computer Aided Dispatch (CAD) systems.

Issue: Primary goals of the ECTP program include the consolidation of 9-1-1/PSAC related technology systems and the development of an environment in which police, fire and EMS workload can be measured and analyzed as a single public safety system in an "end-to-end" format. The implementation of separate, duplicate technology systems that occurred in ECTP Phase 1 inhibits ECTP goals from being achieved.

Recommendation: Research the feasibility and cost effectiveness to employ a solution to integrate the duplicate systems such as a data warehouse solution. Assign responsibility for interoperability and information sharing objectives to the previously recommended unified 9-1-1/PSAC governance group to ensure integrated systems are procured, configured and implemented.

ES 11 Automatic Vehicle Location (AVL) system

Automatic Vehicle Location (AVL) systems provide enhanced situational awareness and command and control of public safety resources.

Issue: AVL is operational on all FDNY EMS and Fire apparatus. The AVL system provides an operational enhancement to FDNY EMD through an interface with EMS CAD. The AVL system is used regularly to dispatch ambulances by EMD. However, the current system which has proven to be very effective in reducing ambulance response times can still be improved ensuring that the nearest available ambulance is always dispatched to high priority incidents.

The AVL system is installed on all fire apparatus although the AVL system is not currently used in the dispatch of fire apparatus. The NYPD has not implemented an AVL system in any of their vehicles.

Nationwide, AVL systems have been proven to provide public safety departments a dramatically improved ability to allocate and deploy resources in a more effective manner, as well as enhancing the safety of first responders.

Recommendation: Consider expanding FDNY's use of AVL for dispatch of Fire units. Identify and implement AVL related protocols to assist in dispatch of FDNY Fire Units. Consider utilizing a "closest unit" dispatch process for fire apparatus in addition to current static "run card" assignments. Enhance the EMS AVL system to ensure nearest available units are always recommended for dispatch to high priority incidents.

ES 12 Geofile Synchronization

A single NYPD, FDNY and OEM geofile and Geographic Information System (GIS) strategic plan and governance structure can improve NYPD, FDNY and OEM interoperability and information sharing, eliminate disparate systems, improve inter-agency response, situational awareness, and command and control.

A critical factor in the assignment of emergency resources is the effective validation of an incident location in the CAD system. 9-1-1 call takers may validate an incident location utilizing various types of data including a street address, cross-street intersection, business name, latitude/longitude, and other means. The names of a location (i.e., common name, alias name, landmark name) are directly correlated to a specific street address. It is imperative that the CAD system's geofile be accurate, as it will have a direct impact on sending responding units to the correct incident location. The CAD system's incident location validation process is dependent upon an accurate geofile database.

Issue: NYC Public Safety currently employs three CAD systems: NYPD SPRINT, FDNY StarFire and FDNY EMSCAD. All three CAD systems are interfaced and emergency incidents and information are transmitted from one CAD system to another on a 24/7 basis. The three CAD systems each employ their own separate geofile database.

The three geofile databases have disparate information that can cause a mismatch when an address from one CAD system does not match information in another CAD system. Disparate geofile and

mismatch issues can adversely impact 9-1-1 call taking and dispatch operations by delaying the assignment of apparatus while a mismatch is being resolved or if responding units are sent to a wrong address. Additionally, there are no formal protocols that ensure when NYPD or FDNY make a change to their geofile the other agency is notified of the precise change in a timely manner.

Recommendation: Develop a single NYC Public Safety Geofile plan including the following areas:

1. Establish protocols to ensure coordination between NYPD and FDNY when one agency makes a change to their geofile
2. Develop unified geofile standards and definitions for NYPD and FDNY
3. For the three legacy CAD systems, improve the utilization of geofile information
4. Develop a single geofile methodology for the new NYPD I/CAD and future FDNY CAD systems
5. Develop a methodology for the maintenance and updating of a single NYC public safety geofile

ES 13 Geographic Information System/Mapping (GIS)

A CAD system's GIS/mapping application is one of the primary tools utilized by 9-1-1 call takers to locate and validate the address of an incident. Directly related to the geofile issue, the location of the incident can be determined by many indicators such as, vanity address, common name, business name, alias/landmark name and other indicators. The ability to map all address and location name indicators is a mandatory requirement for 9-1-1 call taking operations.

Issue: NYPD, FDNY and OEM developed their GIS/mapping solutions independent of each other. There is no NYC public safety GIS/mapping strategic plan even though NYPD, FDNY and OEM need the same type of GIS/mapping information. This is especially true when dealing with multi-agency, complex and significant (i.e., severe weather, natural disaster, terrorism) incidents.

Recommendation: NYPD and FDNY should develop and implement a single NYC public safety GIS/mapping solution. There are numerous benefits that can be obtained from a single GIS/mapping solution including:

- Single technical and operational maintenance of a GIS/mapping application ensuring accurate and consistent information to all agencies
- NYPD and FDNY Fire and EMD would gain enhanced capabilities from other stakeholders input such as DoITT/CSCL and OEM
- Enhanced ability to manage address changes via a single public safety process
- Enhanced Emergency Management capabilities
- Creating a foundation to leverage Next Generation 9-1-1 (NG9-1-1) data
- Ability to share mapping layers and embedded information such as:
 - Premise History Alerts – Address specific
 - Dangerous threats
 - Safety hazards
 - Hazardous materials
 - Emotionally disturbed and violent persons locations

- GIS/Mapping layers
 - Building foot print
 - Blueprints and schematics
 - Pre-fire and emergency plans
 - Domestic Security and OEM instructions
 - Pictures and video
 - Detailed information concerning the incident location
 - Enhanced capability for situational awareness and command and control

ES 14 Training and Quality Assurance/Improvement

The knowledge, skills, abilities, and proficiency of 9-1-1/PSAC personnel have a direct impact on police, fire and EMS operations. Proactive quality control processes can identify trends and patterns involving both individuals and the system in a timely manner. When trends and patterns are identified that do not conform to defined policies or procedures, corrective action can be taken to remedy the situation.

Issue: NYPD and FDNY Fire and EMD Quality Assurance/Improvement (QA/I) management and in-service training programs are inconsistent and should be enhanced.

Recommendation: NYPD and FDNY should apply a more rigorous QA/I process at multiple levels (i.e., first line supervisor, section administration and executive management). NYPD and FDNY should collaborate and coordinate on the development of training curriculums for all multi-agency related incidents.

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1.0 911CPR Project Authority

On December 26, 2010, a blizzard struck New York City and surrounding areas. The blizzard caused numerous public safety problems including delays in answering 9-1-1 calls, overload of police, fire, and EMS resources, and severe delays for some emergency medical calls for service. An initial review within the first week following the storm, conducted by the Mayor's Office of Operations and the Office of Citywide Emergency Communications, found problems in six areas:

- (1) *The decision not to declare a snow emergency*
- (2) *Insufficient accountability tools that led to a lack of real-time information on street conditions*
- (3) *Insufficient and delayed deployment of City assets that could have assisted with snow removal operations*
- (4) *Failure to procure and preposition private resources*
- (5) *Insufficient communication within City government and to the public*
- (6) *Problems with emergency communications and response*

From these six problem areas evolved 15 Citywide recommendations. Specifically related to public safety emergency communications and response, the review recommended the following two recommendations:

"#14 - Reform dispatch protocols in extreme and high volume events. The 9-1-1 system can improve the way it responds to high call volume events by creating escalation protocols that focus on expected problem areas and improve the ability to bring in new staff. The City will also conduct a comprehensive review of its 9-1-1 call handling during large scale emergencies (emphasis added). Procedures given to supervisors for monitoring calls in backlog during heavy volume will also be reviewed. Protocols for which type of FDNY, EMS, or NYPD resource is sent to specific types of events in these extreme situations will also be reviewed. In addition, the City will improve its ability to bring in additional staff during high call volume events."

"#15 - Accelerate PSAC integration and implementation. Over the upcoming months, the integration of the City's dispatch and telephony systems will be improved through the Emergency Communications Transformation Program. In the near-term, operational procedures will be reviewed and the best practices applied where necessary (emphasis added). Technology systems will be employed and tailored to meet the operational needs of NYPD and FDNY. Co-location of NYPD and FDNY will enhance the effectiveness of emergency response citywide. The Emergency Communications Transformation Program will continue to transform a 30-40 year old system by implementing state-of-the-art technologies."

Immediately following the initial review of the snowstorm 9-1-1 response, Mayor Michael Bloomberg tasked the Office of Citywide Emergency Communications (OCEC) with conducting a comprehensive review of 9-1-1 call-taking and dispatch functions. The Mayor tasked OCEC to:

1. Conduct an immediate review of 9-1-1 call handling and dispatch operations associated with the storm.
2. Conduct an overall review of 9-1-1 call handling and dispatch operations, including workflow processes and supporting technology systems, to determine opportunities for improvement.

1.1 911CPR Objective

OCEC commissioned Winbourne Consulting, LLC to complete an objective assessment and to document their findings and recommendations. On January 10, 2011, coincident with snow storm testimony during City Council hearings, the 9-1-1 Call Process Review (911CPR) project was initiated and chartered to complete the comprehensive review of New York City 9-1-1 operations.

The 911CPR project included the identification of any operational or technical shortfalls, an evaluation of the Interim Unified Call Taker initiative and related systems capabilities, and the determination of what short-term and long-term actions are necessary to improve overall emergency response operations.

1.2 911CPR Methodology

A team comprised of NYPD, FDNY, DoITT, OCEC, and consultants was organized to complete the 9-1-1 Call Processing Review (911CPR) project.

Detailed information was acquired concerning NYPD and FDNY 9-1-1/Public Safety Answering Center (PSAC) operations, business processes, infrastructure, technology systems, personnel, and other related information. To complete the data gathering phase of the project, a process survey and a question and answer process was employed.

The major activities completed in developing the 911CPR report included:

- Assessment of current state of operations, technology, and facilities for efficiencies and opportunities for improvement
- Extensive interviews with both individuals and groups with NYPD and FDNY PSAC management, call takers, dispatchers, IT personnel, and ECTP (OCEC) personnel to understand any unique operational approaches
- Numerous workshop planning sessions with NYPD and FDNY stakeholders to discuss the overall assessment, analyze alternatives, discuss current and future projects, and prioritize issues
- Numerous direct observation periods in NYPD, Fire, and Emergency Medical call taking and dispatch areas
- Exhaustive review of documentation provided by the public safety agencies to enhance an overall understanding of NYPD and FDNY organizations, public safety operations, and PSAC operations

- Industry research of best practices including federal and state agencies; other jurisdictions and industry associations such as:
 - Association of Public Safety Communications Officials (APCO)
 - National Emergency Number Association (NENA)
 - National Association of Emergency Medical Services Physicians (NAEMSP)
 - International Association of Chiefs of Police (IACP)
 - National Fire Protection Association (NFPA)
 - International Association of Fire Chiefs (IAFC)
 - National Highway Safety Transportation Administration (NHSTA)
 - State of New York 9-1-1 Board Guidelines and Standards
- Development of strategic recommendations to improve NYPD and FDNY Communications Center's operations

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2.0 NYPD, FDNY, and OCEC Organizations

The major stakeholders in the 9-1-1 process are NYPD, FDNY, and OCEC. NYPD and FDNY are responsible for call taking and dispatch operations, including the requirements, policies, procedures, and personnel responsible for supporting emergency response in New York City. OCEC is responsible for the technological software and hardware solutions that support the 9-1-1 operation through and in concert with the Emergency Communications Transformation Program (ECTP).

2.1 New York City Police Department

The New York City Police Department is the largest Police Department in the United States with 34,500 sworn officers and more than 17,000 civilian members. The department is comprised of 76 Precincts, 12 Transit Districts, 9 Housing Police Service Areas, and other investigative and specialized units. The 2010 City of New York Mayor's Management report states that the "NYPD is committed to providing, with the utmost integrity and respect, a safe and secure environment for the public. Key NYPD public service areas are structured:

- *Enhance the safety and security of the public through a multi-faceted approach to crime reduction*
- *Enhance traffic safety for City residents*
- *Improve the quality of life for City residents*
- *Improve police/community relations by providing courteous, professional and timely service"*

NYPD Communications Division

Call taking and dispatching functions that support the NYPD's field operations are located within the Communications Division. The Commanding Officer of the Communications Division, a rank of Deputy Chief, is in charge of the Division and reports to the Deputy Commissioner of Information Technology who reports to the Police Commissioner.

The Commanding Officer of the Communications Section, currently a Deputy Inspector, reports to the Chief of the Communications Division. There is a Captain assigned as the Executive Officer and five Duty Captains as well as Operations and Training Coordinators and several other Civilian managers that are assigned to the Communications Section.

Staffing of the NYPD 9-1-1 operations consists of approximately 1,250 Police Communications Technicians (PCT), Supervising Police Communications Technicians (SPCT), and Principal Police Communications Technicians (PPCT). Personnel with the PCT title perform multiple functions including the 9-1-1 call taker and dispatcher positions.

The NYPD ECTP Project Management Office is under the Office of Information Technology's Enhancement Unit. The Enhancement Unit is currently managed by an NYPD Captain who directly reports to the Commanding Officer of the Office of Information Technology (OIT), a Deputy Chief, who in turn reports to the Deputy Commissioner of Information Technology.

2.2 New York City Fire Department

The Fire Department of New York (FDNY) protects more than eight million residents in an area of 320 square miles. The department is administered by the Fire Commissioner appointed by and responsible to the Mayor. The uniformed force is under the command of the Chief of Department and consists of more than 11,400 fire officers and fire fighters.

Additionally, the department includes 2,800 Emergency Medical Technicians, Paramedics, and Supervisors assigned to the Bureau of Emergency Medical Service (EMS), as well as 1,200 civilian employees.

The FDNY responds to fires, public safety, and medical emergencies, natural disasters, and terrorist acts to protect the lives and property of City residents and visitors. The Department advances fire safety through its fire prevention, investigation, and education programs, as well as contributing to the City's homeland security efforts. The Department responds to more than 260,000 fires and non-fire related emergencies and more than 1.1 million medical emergencies each year, and maintains approximately 250 firehouses and ambulance stations¹

FDNY Emergency Medical and Fire Dispatch Centers

Call taking and dispatching that supports the FDNY's Fire and EMS field operations fall under the Bureau of Communications (BOC). The Chief of Communications, a rank of Deputy Assistant Chief of Department, is in charge of the BOC and directly reports to the FDNY Chief of Department.

The Director of the BOC reports to the Chief of Communications. There is a Director and Deputy Director of Fire Dispatch Operations as well as a Chief and Deputy Chief of Emergency Medical Dispatch (EMD) who also report to the Chief of Communications.

Staffing of FDNY Dispatch Operations consists of approximately 160 Fire Alarm Dispatchers and 35 Supervising and Chief Dispatchers assigned to Fire Dispatch operations, and approximately 250 EMTs and 35 EMS Lieutenants and Captains assigned to Emergency Medical Dispatch. Personnel in both Fire Dispatch and EMD perform multiple functions including the call taker and dispatcher positions.

Fire Dispatch operations for Queens and Bronx are located in Borough Communication Offices in their respective boroughs in buildings that have been recently renovated. These two Communications Offices have the infrastructure to support the remaining three boroughs in a back-up capacity.

Brooklyn, Manhattan, and Staten Island Fire Dispatch operations are located at PSAC1 in Brooklyn at 11 Metro Tech Center. Back up capabilities for Bronx and Manhattan are also located in PSAC1. EMD (Emergency Medical Dispatch) for all five boroughs is currently located at PSAC1 with an unmanned back up facility at 1 Metro Tech Center in Brooklyn.

¹ Sources: The 2009 Mayor's Management Report and FDNY Home Page

Fire Alarm Dispatchers and Supervisors work rotating shifts including nights, weekends, and holidays in any or all Central Office facilities. Regularly scheduled shifts are usually 12 hours in duration.

EMD dispatch and supervisory personnel are Certified EMTs or Paramedics. They work steady tours but rotate work days including weekends and holidays. Regularly scheduled shifts are usually eight hours in duration. Dispatch personnel often work overtime assignments in the field to maintain their medical skills.

FDNY Bureau of Technology Development and Systems

The Bureau of Technology Development and Systems (BTDS) is responsible for the implementation, on-going maintenance, repair, and technical support of computer operations and programming as it relates to the EMS CAD system (EMSCAD), Fire CAD system (StarFire), all FDNY computer related equipment and systems, wide and local area networks, computer support, IT security, and special projects.

BTDS is also responsible for systems and equipment that support all facets of FDNY operations including those dealing with the real-time dispatch and unit responses to fire and medical emergencies. Examples of systems that support FDNY Dispatch are the CAD systems, AVL, Logging and Recording, alarm boxes, and Voice Alarm.

The Bureau provides all technical support for radio communications including repairs, maintenance, and system upgrades and enhancements. This includes all FDNY portable radios, mobile radios, telemetry, trunking, data equipment, and all communication equipment located at the FDNY Borough Central Offices, 1, 11 and 9 MetroTech Centers.

The FDNY ECTP Program Management Office is under the Office of the Deputy Commissioner for Support Services and Technology with responsibility for the project Program Management Office tasked to BTDS.

2.3 Mayor's Office of Citywide Emergency Communications (OCEC)

The Mayor's Office of Citywide Emergency Communications was created in September 2010. The OCEC is currently led by a Director who reports to the Deputy Mayor of Operations. OCEC is primarily responsible for the management of the ECTP. Additionally, OCEC works closely with NYPD and FDNY on other radio and emergency communications initiatives throughout the City.

Emergency Communications Transformation Project (ECTP)

The Emergency Communications Transformation Program (ECTP) was initiated in 2004 to address the needs of the City's emergency public call taking and dispatch operations that arose out of the September 11, 2001 attack and the August 2003 "black-out." ECTP's purpose is to consolidate the City's emergency communications services (specifically the call taking and dispatch functions of NYPD and FDNY Fire and EMD) into shared, load balanced facilities at two Public Safety Answering Centers (PSACs) where NYPD and FDNY emergency response operations would be co-located. The two facilities will be supported by notional and logical technology systems that will:

- *Improve interoperability*

- *Decrease overall response time by eliminating duplication of effort*
- *Eliminate single points of failure within the system and create centralized focus on enhanced redundancies at a core set of 9-1-1 facilities*
- *Update antiquated technologies with integrated, state-of-the-art systems*
- *Improve agency dispatch to emergencies by ensuring the optimal mix of emergency resources*

ECTP was initiated with the following five (5) goals:

1. *Improve service to the public*
2. *Improve interoperability and coordination among public safety agencies*
3. *Improve call processing time to lower overall response time to E911 calls*
4. *Improve system resiliency and technical redundancy*
5. *Improve the safety of the City's first responders*

To accomplish these goals, the City is endeavoring to consolidate the existing E9-1-1 operational structure. In this context, ECTP was divided into two stages and organized around the creation of the two Public Safety Answering Centers (PSAC1 and PSAC2).

The two phases of the ECTP program are Stage 1 and Stage 2. Stage 1 provided for the upgrade of call taking and dispatch systems at PSAC1. Stage 2, including the construction of PSAC2 facility in the Bronx, will provide for systems integration in PSAC2 and also various systems retrofit into PSAC1.

ECTP Stage 1

In support of the City's ECTP objectives and strategies, the essential goal of ECTP Stage 1 is the construction and implementation of the first of two Public Safety Answering Centers (PSAC1). This includes the consolidation of FDNY (including EMD) and NYPD call taking and dispatching operations, as well as the outfitting of two FDNY Communication Offices (COs) as load-balanced emergency call taking and dispatching centers.

The City engaged Hewlett Packard (HP) in April 2005 to integrate the ECTP Stage 1 systems, and contracted with Verizon in July 2006 to provide the E9-1-1 system. In April 2006, the City also engaged the services of Gartner Consulting to provide project monitoring and quality assurance services for ECTP Stage 1. The HP and Verizon contracts remain currently in place. Several other contractors and subcontractors have been engaged since the ECTP's inception.

Currently, ECTP Stage 1 has reached the majority of its milestones, including:

- Migration of FDNY Fire and Emergency Medical Operations into PSAC1
- Completion of much of the work associated with the single call center model
- Successful completion of testing for the new citywide emergency response 9-1-1 telephony system (VESTA)
- Migration of Fire, NYPD and EMD onto an upgraded E9-1-1 platform (VESTA)

- Relocation of NYPD call taking and dispatch operations to the 3rd floor of PSAC1

ECTP Stage 2

ECTP Stage 2 will enhance the resilience and redundancy of New York City's E9-1-1 services by delivering a second Public Safety Answering Center (PSAC2) for NYPD and FDNY call taking and dispatch operations that will work in unison (live) with PSAC1. PSAC1 and PSAC2 will act as a single, virtual 9-1-1 call center with each call taker handling police, fire, and emergency medical calls.

Call takers and dispatchers will be supported by systems that enhance the users' abilities to perform their duties, eliminate duplication of effort, reduce errors, improve the interaction with the citizen, and enhance the coordination between NYPD and FDNY Fire and EMD dispatch operations.

Additionally, Stage 2 includes the construction of a new facility—PSAC2. The deployment of this facility is a joint effort between the Office of Citywide Emergency Communications (OCEC) and the New York City Department of Design and Construction (DDC). PSAC2 is designed as a dedicated, stand-alone 9-1-1 operations center that is a fully redundant, secure, and hardened facility.

PSAC2 is planned to be a multi-story facility located in the Bronx. The facility is designed to operate without interruption under extremely adverse conditions, thus strengthening the City's ability to maintain communication in the event of a natural disaster or large-scale emergency. The PSAC2 building design is now being finalized and preliminary construction work has begun. The move-in date for NYPD and FDNY staff is currently expected in 2015.

ECTP Stage 2 is multi-faceted program involving multiple City agencies and various contractors. In this stage, the City will ensure the successful completion of ECTP goals and objectives by applying programmatic and engineering best practices to deploy and integrate a myriad of complex technological systems across a spectrum of citywide emergency response operations.

PSAC1 and PSAC2 will be mirrored, fully redundant facilities. If one or the other center is out of service for any reason, the other PSAC will handle all emergency call taking and dispatch operations citywide.

Other major components of the ECTP Stage 2 initiative include the deployment and/or upgrade of:

- Network Infrastructure
- E911 telephony systems
- Radio systems
- Computer Aided Dispatch (CAD) for FDNY Fire and EMS
- Computerized triage for EMS
- Logging and recording systems
- Mapping for caller location
- Full systems integration

3.0 9-1-1, NYPD, and FDNY Workload Assessment

3.1 9-1-1 & CAD Workload Overview

The primary methodology to measure the effectiveness of a 9-1-1 system and PSAP operations is the evaluation of relevant workload information with a specific emphasis on 9-1-1 and Computer Aided Dispatch (CAD) system data. 9-1-1 and CAD system workload and operational metrics have a critical role in measuring police, fire, and EMS response times, assessing the effective allocation, deployment and assignment of communications resources, and completing an overall evaluation of PSAC operations for all agencies, systems and procedures.

The maximum utilization of resources can reduce response times, improve public safety services, and reduce operational costs. Obtaining a maximum output at the greatest efficiency and effectiveness possible is the objective of workload analysis and planning. For example, 9-1-1 system data will demonstrate:

- 9-1-1 workload
 - Total workload of the 9-1-1 system
 - Breakdown of 9-1-1 activity by period of year (i.e., winter, spring, summer and fall), day of week and time of day
 - Type of incoming 9-1-1 workload such as landline, wireless, or Voice over IP (VOIP)
- 9-1-1 time metrics
 - Average Speed of Answer – Amount of time a 9-1-1 stayed in the Automatic Call Distribution (ACD) queue until it was answered by a call taker
 - Abandoned Rate – Number of 9-1-1 calls that were abandoned prior to being answered by a call taker
 - Abandoned Time – Amount of time a 9-1-1 call was in the ACD answer queue prior to being abandoned
 - Accidental Calls – 9-1-1 calls made by accident
 - Total Talk Time – Amount of time call takers stayed on the line with a 9-1-1 caller
- Call taker performance metrics
 - Logged in time – Total time available to receive a 9-1-1 call via the ACD
 - 9-1-1 workload handled
 - Individual Average Speed of Answer
 - Individual Total Talk Time
- Transfer and conferencing of 9-1-1 calls
 - PSAP supervisor
 - Language Line
 - Secondary PSAPs (i.e., FDNY EMD and Fire)
- Trends and Patterns
 - 9-1-1 workload to schedule personnel accordingly
 - Frequent Flyers – Repeat telephone numbers, callers and locations

CAD system data provides information concerning:

- CAD system workload
 - Total CAD incidents for police, fire, EMS and multi-agency response
 - Breakdown of incident type of police, fire and EMS activity
 - Breakdown of CAD incident activity by period of year (i.e., winter, spring, summer and fall), day of week and time of day
 - CAD workload source such as 9-1-1, 10-digit number, alarm company, ERS, request from the field, etc.
- Urgency of incident
 - Life threatening, urgent and non-urgent
 - Emergency medical, structure fire, crime in progress
- Type of incident
 - Police – Alarm, traffic crash, robbery, burglary, theft, etc.
 - Fire – Alarm, structure fire (i.e., high rise, business, residential), gas leak, emergency medical, etc.
 - EMS – Heart attack, stroke, difficulty breathing, trauma, traffic crash, etc.
- CAD time performance metrics
 - Pre-Release/Alert Time - Amount of time required to process the incident prior to pre-releasing it to dispatch
 - Total Call Taking Time – Amount of time required to completely process the incident
 - Dispatch Queue Time – Amount of time the incident remained in the dispatchers queue prior to being selected for dispatch
 - Response Time – Combined segments of call taking, dispatch queue, dispatch and travel time
- Individual performance metrics
 - Call Taker
 - Dispatcher
 - Supervisor
- Incident Information
 - Units assigned
 - Units travel time
 - Units activity on scene
 - Incident notes
 - Time on scene and/or assigned to the incident
 - Closing disposition of incident
- Trends and patterns
 - Incident workload to schedule personnel accordingly
 - Frequent Flyers – Repeat locations
 - Workload analysis

- Crime analysis

9-1-1 and CAD system workload data provide a 360-degree perspective of PSAP operations including:

- Time efficiency and operational effectiveness of PSAP business processes
- Impact of policies, procedures and training curriculum on PSAP operations
- Personnel issues including staffing numbers and proficiency
- Total PSAP picture to individual PSAP tours and sections
- Relationship of PSAP operations to PSAP industry standards and best practices (i.e., APCO, NENA, IACP, NFPA, etc.)

NYPD and FDNY provided their 9-1-1 and CAD system data. Meetings were held with both agencies to ensure there was a complete understanding of the various systems, the capability of the systems to provide accurate data, agency perspective of workload data, and other related areas. As data was analyzed, follow-up meetings were conducted for clarification and a more granular assessment of data in some specific categories.

The NYPD and FDNY do not employ the same definitions, business processes, performance standards, and operational metrics relative to 9-1-1 call processing and Emergency Communications Center (ECC) operations. For example, the NYPD and FDNY have different definitions and measurements for mission critical performance metrics such as:

- 9-1-1 Call Process Time
- Dispatch Process Time
- Total Response Time

To accurately evaluate the time efficiency and operational effectiveness of NYPD and FDNY 9-1-1 operations, there should be a single set of definitions, performance standards, and operational metrics that apply consistently to all New York City emergency response operations (i.e., police, fire, and EMS).

Uniform citywide public safety definitions and business processes that apply to NYPD and FDNY have not been developed. Therefore, anomalies may occur in some of the statistical calculations.² For example:

- NYPD and FDNY employ different CAD codes for the same type of incident
- NYPD and FDNY do not classify the priority of an incident (i.e., life critical, urgent and non-urgent) in the same manner
- NYPD and FDNY employ different methodologies to calculate Agency Response Time (i.e., NYPD does not include 9-1-1 call taking and dispatch queue time in their calculation)

² All 9-1-1 data was provided by NYPD.

- NYPD does not measure 9-1-1 call processing time while FDNY does measure the call taking segment

3.2 9-1-1 Workload Analysis

NYPD defines the Number of Calls Offered (NCO) as the number of 9-1-1 calls that were placed by the public and presented to the PSAC Automatic Call Distribution (ACD) system. The “offered calls” that were not answered by a call taker are “abandoned” calls (calls that are discontinued by the caller). The abandoned workload is represented as the Number of Calls Abandoned (NCA).

NYPD defines the Number of Calls Handled (NCH) as the number of 9-1-1 calls that made it to the PSAC ACD and were answered by a 9-1-1 call taker. Table 3.2.1 and Figure 3.2.2 below outlines total calls in these categories for calendar year 2010.

2010 9-1-1 Data	Volume	Percent of Total Workload
Number of Calls Offered (NCO)	11,052,108	N/A
Number of Calls Abandoned (NCA)	669,944	6.06%
Number of Call Handled (NCH)	10,382,164	93.94%

Table 3.2.1 – NCH and NCA Total Percent of Calls

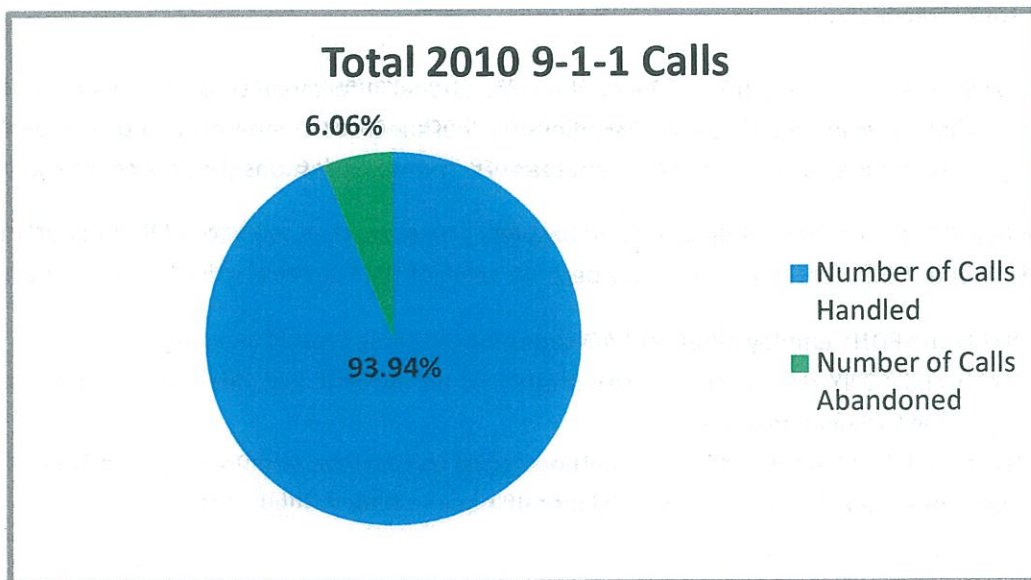


Figure 3.2.2 – NCH and NCA Total Percent of Calls

A high-level break down of the Number of Calls Handled shows 97.5% are coming from landline or cellular telephones (versus such means as call boxes, transfers from 3-1-1, etc). Table 3.2.3 and Figure 3.2.4 below demonstrate the NCH workload for 2010.

Breakdown of 2010 NCH	Volume	Percent of NCH Workload
9-1-1 System (Two Switches)	10,122,664	97.5%
Transfers from 3-1-1 to 9-1-1	180,288	1.7%
Emergency Reporting System (ERS)	70,946	0.68%
Solar Cell Box	7,160	0.07%
Telephone Device for the Deaf (TDD)	1,106	0.01%
Voice over IP (VoIP) 9-1-1 - Captured by borough only	Estimated	0.01%

Table 3.2.3 – 2010 Breakdown of 9-1-1 Calls

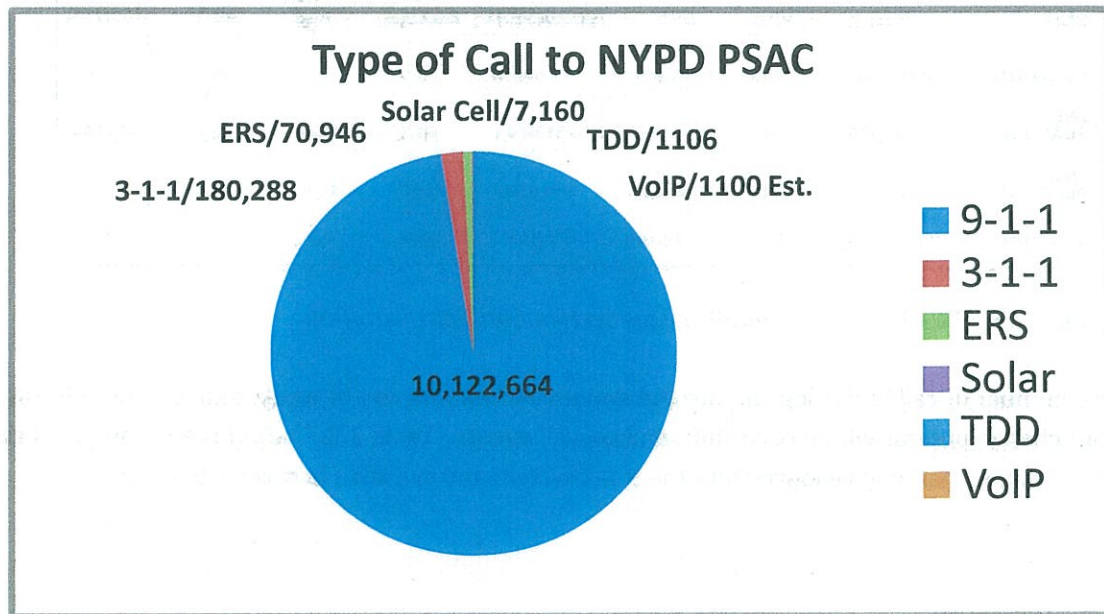


Figure 3.2.4 – 2010 Breakdown of 9-1-1 Calls

In 2010, NYPD call takers conferenced an NYPD Spanish speaking call taker or obtained language line (translation service) assistance for 2.6% of the total calls handled (Table 3.2.5). The NYPD does not collect data regarding the number of instances a call taker requested a supervisor be conferenced into a 9-1-1 call.

Breakdown of 2010 NCH	Volume	Percent of Workload
Number of Call Handled (NCH)	10,382,164	93.94%
Conference to Spanish Positions	157,493	1.52%
Language Line	110,497	1.06%
3-1-1 Recording (IVR)	87,178	0.84%

Table 3.2.5 – 2010 NYPD Breakdown of 2010 NCH

As seen in Table 3.2.6 below, NYPD averaged 62.1 call takers logged into the 9-1-1 system throughout 2010.

UNIT	NCO	DELAYS	NCH	ABANDONED	AVG. AGENTS	AVG. CALLS	LONGEST HELD SEC.	ROUTED
1ST PLATOON	2,023,366	21,402	1,946,867	77,609	51.9	6.2	187	66464
2ND PLATOON	3,923,310	23,145	3,671,317	251,570	61.1	10.4	206	449,324
3RD PLATOON	5,105,432	42,225	4,763,980	340,972	73.3	11.1	434	629,717
SECTION	11,052,108	86,772	10,382,164	670,151	62.1	9.3	434	1,145,505

Table 3.2.6 – 2010 NYPD Communications Section Call Taker Staffing

The number of call takers logged into the system can vary by day of week, time of day, shift, during the shift change process within each shift, and special events. Table 3.2.7 below is an example of the range of call takers that may be logged into the 9-1-1 system and available to receive 9-1-1 calls.

ANNUAL 2010								
3RD PLATOON								
1/2 HRS	NCO	DELAYS	NCH	ABANDONED	AVG. AGENTS	AVG. CALLS	LONGEST HELD SEC	ROUTED
1500	351,598	1,060	337,940	14,066	85	11	137	31,985
	353,425	924	335,360	17,938	80	12	106	43,938
1600	349,519	1,922	326,284	23,193	75	12	217	47,486
	343,270	2,070	321,618	21,037	76	12	190	44,160
1700	343,038	1,905	322,305	21,286	76	12	233	41,742
	347,508	2,500	321,702	25,470	78	11	285	41,482
1800	348,134	2,639	321,692	26,591	77	11	277	39,811
	338,138	2,469	315,622	22,013	78	11	311	37,445
1900	327,881	2,466	307,387	21,180	75	11	410	34,393
	317,568	2,470	295,456	22,117	73	11	434	40,003
2000	309,797	3,156	286,466	23,507	69	11	255	43,025
	298,432	2,017	281,497	16,396	72	11	148	35,394
2100	290,625	2,257	271,714	19,373	68	11	105	38,816
	275,919	3,646	255,081	20,718	67	11	120	37,399
2200	265,811	5,255	242,567	23,270	65	10	140	38,635
	244,769	5,469	221,289	22,817	62	10	134	34,003
TOTAL	5,105,432	42,225	4,763,980	340,972	73	11	434	629,717

Table 3.2.7 – Range of Number of NYPD Call Takers Logged Into the System in 2010

Busy Hour Workload

An example of a busy hour assessment can be found in the National Emergency Number Association (NENA) Call Answering Standard:

NENA 56-005, Call Answering Standard

#1 - Standard for answering 9-1-1 Calls. Ninety percent (90%) of all 9-1-1 calls arriving at the Public Safety Answering Point (PSAP) shall be answered within ten (10) seconds during the busy hour (the hour each day with the greatest call volume, as defined in the NENA Master Glossary 00-001). Ninety-five (95%) of all 9-1-1 calls should be answered within twenty (20) seconds.

The New York State 9-1-1 Board also has a standard for wireless 9-1-1 calls during a busy hour period:

New York State 9-1-1 Board §5202.2 Standards.

(b) All PSAPs shall have staffing adequate to answer ninety percent (90%) of all incoming W-911 calls within ten seconds of connection.

NYPD reported that for 2010, 99% of all 9-1-1 phone calls were answered in 30 seconds or less.

However, NYPD management advised they did not track 9-1-1 performance data concerning periods of maximum workload or what is referred to as the “busy hours.”

As previously described, 9-1-1 workload data was analyzed from numerous perspectives to ensure an accurate assessment of all factors has been completed. A critical workload factor is the evaluation of 9-1-1 data during “busy hour” operations. A high or “busy hour” 9-1-1 workload timeframe may be weekday morning and evening rush hours, Friday and Saturday evenings from 11:00pm to 3:00am,

special events, or even during severe weather. Busy hour periods can vary by segment of year (i.e., winter, spring, summer, and fall), month, day of week and time of day. Busy hour periods are assessed separate from the total aggregate as it is expected that performance data such as Average Speed of Answer will be faster during slow periods.

The NYPD was unable to provide any busy hour data but was able to provide 2010 9-1-1 call processing time metrics in Table 3.2.8 below.

Time Metric	Number	Percent
0 - 5 seconds	9,528,252	86.21%
6 - 29 seconds	1,337,223	12.88%
Greater than 30 seconds	86,772	0.91%

Table 3.2.8 - 2010 Average Speed of Answer (Delays Held in Queue)

3.3 Total Talk Time

NYPD measures the Total Talk Time as the time actually spent on the line with a 9-1-1 caller for all non-abandoned calls divided by the number of calls received. The NYPD reported the 2010 System Average Total Talk Time was 1:08 minutes. Since the total number of calls received includes approximately 3.9 million short calls, utilizing this metric as currently calculated does not accurately reflect the NYPD's time spent on received and processed 9-1-1 calls. Please refer to Section 3.5 for additional information regarding short calls.

3.4 Wireless 9-1-1 Activity

Nationwide, Public Safety Answering Points (PSAPs) that are most closely equivalent to New York City's Public Safety Answering Center (PSAC) have realized a significant increase in the volume of 9-1-1 wireless activity. There is a direct correlation between the proliferation of cellular telephones and the increase in cellular 9-1-1 calls to PSAPs.

In 2011, the Federal Communications Commission (FCC) published a report that estimated nationwide; approximately 70% of all 9-1-1 calls are made from wireless devices.³ New York City's 9-1-1 call source closely mirrors the national wireless 9-1-1 trend. In 2010, nearly 59% (6,114,975) of the 9-1-1 workload was received from cellular telephones. During 2010, there were select months when the number of 9-1-1 wireless calls exceeded 62% of the total 9-1-1 volume. As can be seen in Table 3.4.1 below, the increase in wireless 9-1-1 calls has been a consistent trend for New York City since 2003.

³ "...Despite the fact that there are more than 270 million wireless consumers nationwide and that approximately 70 percent of all 911 calls are made from mobile hand-held devices..." http://www.911.gov/fcc_steps.html

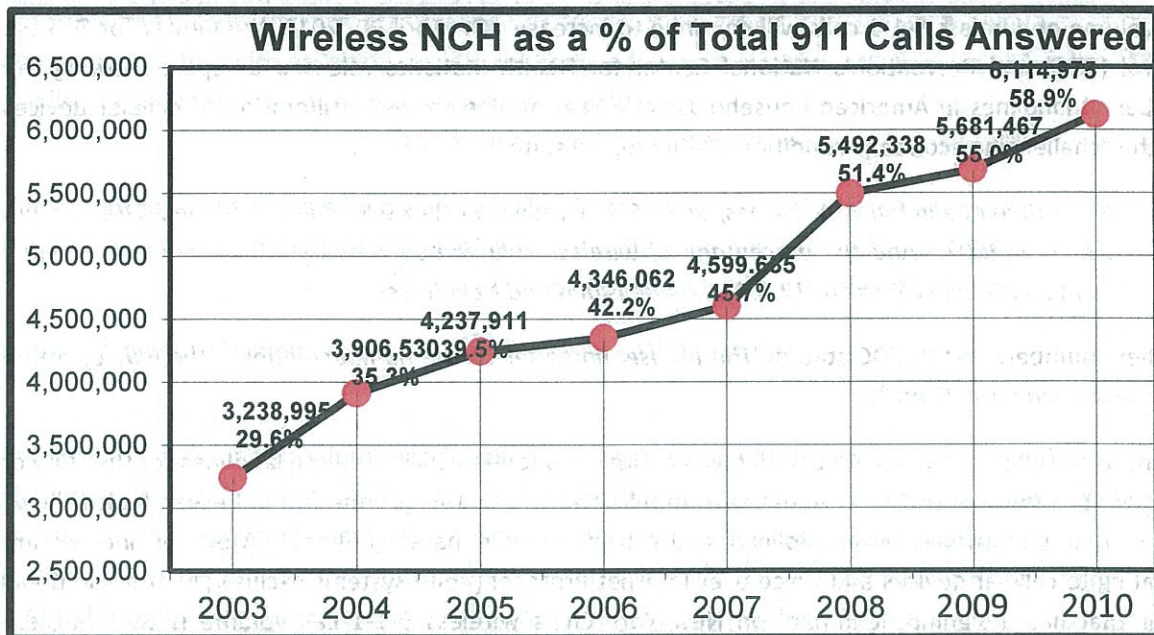


Table 3.4.1 – 2003-2010 Wireless 9-1-1 Call Workload (Figure provided by NYPD)

Table 3.4.2 below demonstrates the consistent decline in landline 9-1-1 calls made in New York City from 2001 to 2010.

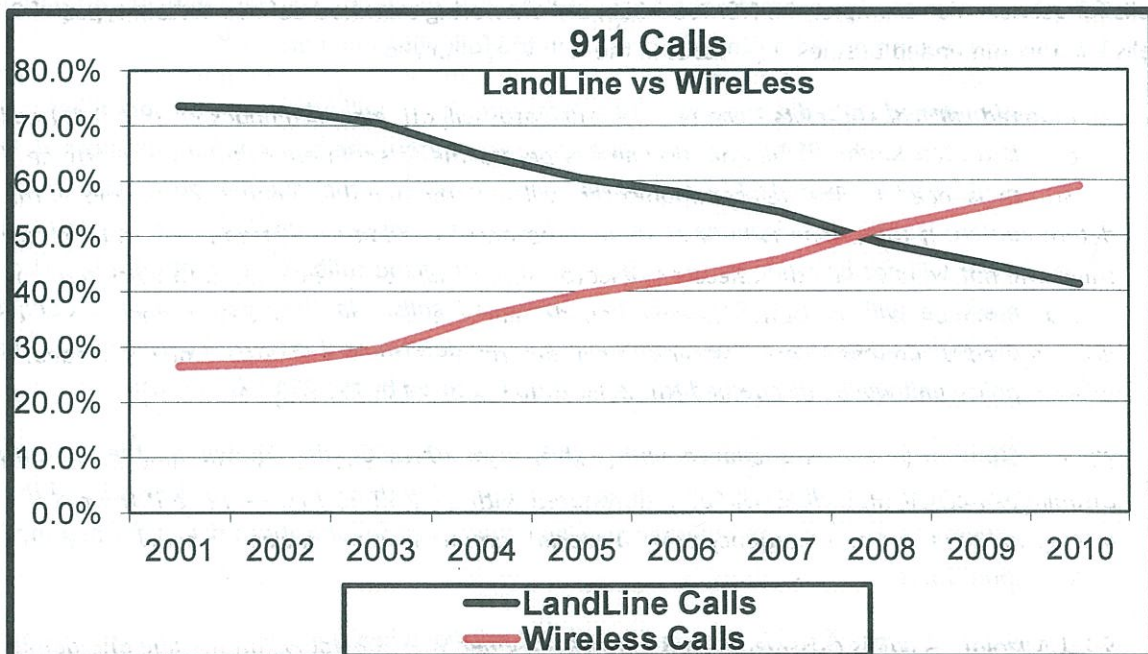


Table 3.4.2 – Decline in NYC 9-1-1 Landline Calls .Figure provided by NYPD

The volume of wireless 9-1-1 calls will continue to increase. On April 20, 2011, the Center for Disease Control (CDC) and Prevention's National Center for Health Statistics released a report showing the number of landlines in American households is decreasing due to the proliferation of cellular devices and the "challenging economic conditions." The report states:

More than one in four U.S. homes, or 26.6%, had only a wireless phone as of June 2010, up from 13.6% in 2007. And the percentage of wireless-only homes increased in every state, ranging from 35.2% in Arkansas to 12.8% in Rhode Island and New Jersey.

Stephen Blumberg of the CDC stated "The phrase 'home telephone number' is going the way of rotary dial phones and party lines."

According to the CDC report, the percentage of wireless phones replacing home landlines for the "City of NYC Counties" has consistently increased from 9.5% in 2007 to 19% in June 2010. Research also shows that commercial businesses are following the trend to eliminate landlines. More businesses are migrating to cellular devices and Voice over Internet Protocol (VoIP) systems exclusively. An additional factor that has a significant impact on New York City's wireless 9-1-1 call volume is the transient population that enters and exits New York City each year. The NYC Tourism Bureau reported that in 2010 over 47.8 million people visited New York City and over 50 million in 2011.

3.5 9-1-1 Abandoned, Short, Silent Calls

NYPD and FDNY Communications Centers do not employ uniform definitions for all types of incoming 9-1-1 calls for service. For example, the NENA 56-005, call answering standard defines certain types of 9-1-1 calls and recommended business processes in the following manner:

Abandoned calls/disconnects - *The telecommunicator will attempt a call back when a 9-1-1 call is routed to the PSAP and the call disconnects before the telecommunicator can determine if assistance is needed. The telecommunicator will call the number back once to make this determination. If the phone is busy or there is no answer, additional attempts to contact the caller will not be made by the telecommunicator. If the callback attempt goes to voice mail, no message will be left. Response to abandoned calls. In the event a call is abandoned or disconnected before the telecommunicator can determine if emergency assistance is needed, a police unit will be dispatched to the location indicated by the PSAP display (ALI).*

Silent calls - *In compliance with Public Law 101-336, also known as the Americans with Disabilities Act, all silent calls will be interrogated with a TTY/TDD to determine if the caller is attempting to report an emergency using a special communications device for hearing impaired individuals.*

9-1-1 Misdial - *A call is classified as a 9-1-1 misdial when the caller stays on the line and admits to the misdial.*

Unintentional 9-1-1 Call - A call is classified as unintentional when the 9-1-1 personnel can hear conversation, radio, etc. in the background and have listened sufficiently and checked with a TTY/TDD to determine that there is no indication of an emergency situation.

Direct observation and interviews identified that there is a significant workload related to 9-1-1 short and silent calls that can be defined as any of the following types of 9-1-1 calls coming into PSAC1:

1. The 9-1-1 call moved through the telephone switch, was presented to the ACD, and was delivered to an available NYPD call taker but the caller disconnected prior to the call being answered by a call taker
2. The caller disconnected immediately upon hearing the 9-1-1 announcement by the NYPD call taker
3. The 9-1-1 caller advised the NYPD call taker they accidentally called 9-1-1
4. Background noise is heard with no indication of an emergency or suspicious activity that would require a police, fire, or EMS response. This is often referred to as a "pocket dial" or "purse dial" call as a 9-1-1 hot key was activated causing a cellular phone to dial 9-1-1.)

NYPD enters a job for "silent" 9-1-1 calls with background noise that could be interpreted as something dangerous, suspicious, or any activity that may require a police response.

At the time of this analysis, the NYPD advised they did not track and/or maintain data concerning silent or short calls. During a review of the NYPD Communications Center Call Taker's manual, Process #310 – Event Codes were reviewed that included the capturing of "Open line no voice contact" and "Cellular-Dialed wrong number" 9-1-1 calls. NYPD advised this procedure was valid and in operation.

Types of Events Codes listed in Process #310:

1. Telecommunications Device for the Deaf (TDD) calls
2. Additional calls arriving in SPRINT (Special Police Radio Inquiry Network) the NYPD CAD system
3. Language Line calls
4. Cellular Telephone (open line no voice contact)
5. Cellular – dialed wrong number
6. Calls transferred to the 3-1-1 recorded announcement

NYPD stated that the reported Event Code workload numbers for 2010 (Table 3.5.1 below), are not an accurate portrayal of activity as the numbers are dramatically low. While NYPD advised the Event Code procedure is still valid, NYPD call takers do not follow the procedure so all Event Code activity is significantly under reported and therefore not included in any performance analysis.

Code	Name	Count
1	TDD	20
2	Additional Calls	1,002
3	Language Line Calls	121
4	Cellular Open Line	4,720
5	Caller Dialed Wrong #	2,080
6	Calls Transfer 311	504
	Undefined Codes*	2,850

*Codes used in the event report that were not Codes 1 thru 6

Table 3.5.1 – 2010 Event Code Workload Provided by NYPD

NYPD advised that the Pinnacle 9-1-1 query system was limited in the ability to complete the reports that were requested for short call information. In the end, we agreed to a single query for 9-1-1 calls that lasted “0 to 19 seconds.” Some silent calls last over 19 seconds depending upon how long the call taker listens to the call and uses the TDD interrogation tool. There is also a possibility that some “duplicate calls” (i.e., reporting an incident already in the SPRINT CAD system) would be contained in this workload number. The NYPD does not capture a “duplicate call” workload in SPRINT. Based on the team’s experience, direct observation and interviews with NYPD Communications Center personnel, we believe some duplicate calls may be included in the “0 to 19 seconds” statistic but not a significant number to change the finding. The NYPD provided analysis of all 9-1-1 calls with a “0-19 seconds” answering time for 2009, 2010, and 2011 (January-April).

In 2010, the NYPD received 3,910,373 short 9-1-1 calls (i.e., 0-19 seconds) which represent 38% of the total Number of Calls Handled (NCH). From January to April 2011, a total of 1,071,121 short calls were received or 39% of the NCH.

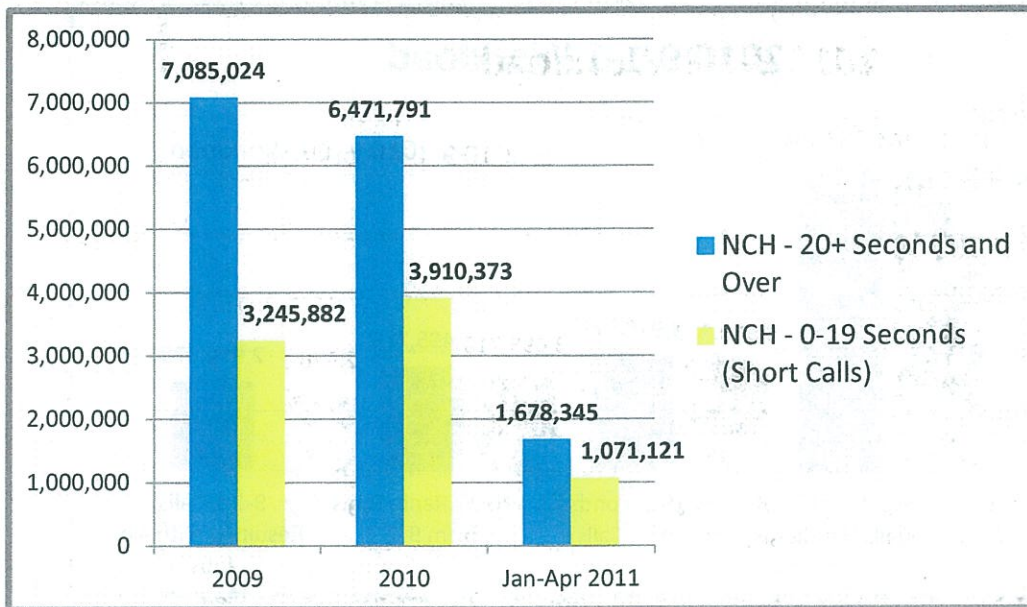


Figure 3.5.2 – 0-19 Seconds Short Calls 2009 through April 2011

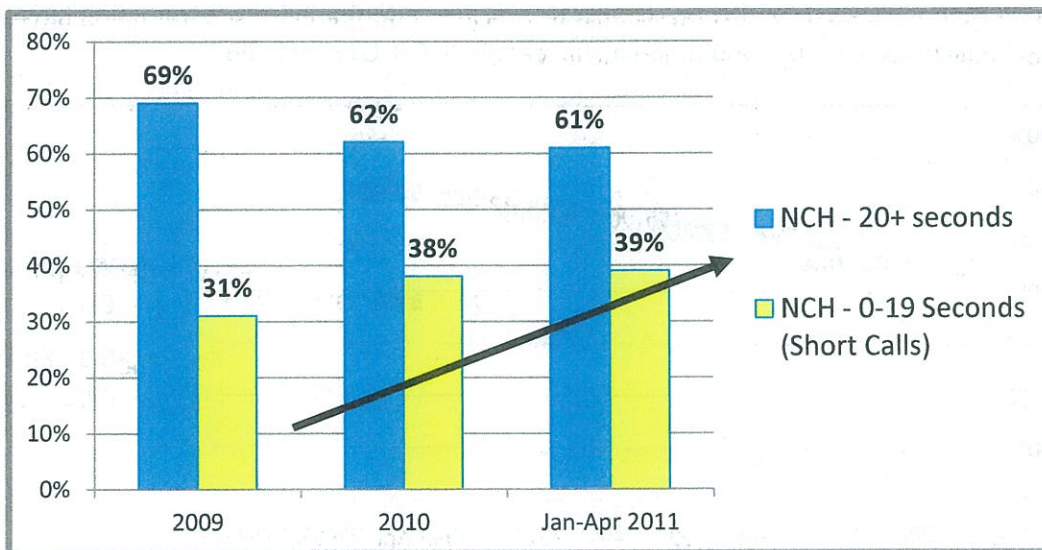


Figure 3.5.3 – 0-19 Seconds Short Calls as a Percentage of NCH 2009 through April 2011

Figure 3.5.4 demonstrates that call volume of 9-1-1 short calls in 2010 exceeded the total number of NYPD radio runs from all 9-1-1 calls.

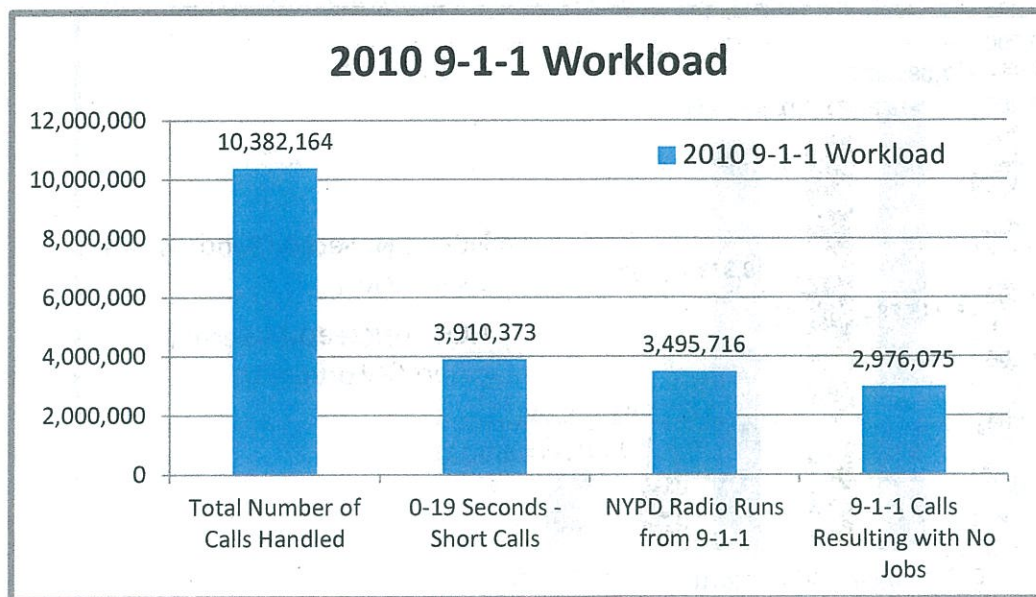


Figure 3.5.4 – 9-1-1 Short Calls to Radio Runs Comparison, 2010

As can be seen in Figure 3.5.5 below, it is reasonable to conclude that the increased utilization of cell phones is one of many factors resulting in an increase in NYC 9-1-1 short calls.

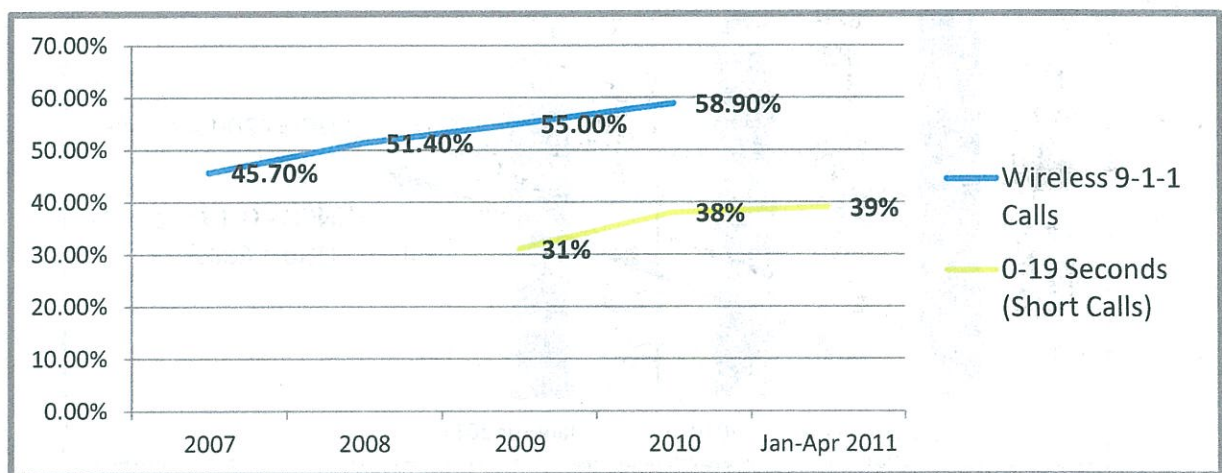


Figure 3.5.5 – Relationship of Wireless 9-1-1 Calls to 9-1-1 Short Calls (2008-2011)

NYPD does not have a policy that mandates callbacks for 9-1-1 short call incidents.

Accidental 9-1-1 calls are not a new issue. Numerous public safety institutions (APCO, NENA, IACP, etc.) have published studies and reports concerning this problem. For example, in August 2002, NENA published a report detailing the problem and its impact on operations, and recommended actions to

mitigate accidental 9-1-1 calls.⁴ The FCC and other public safety industry organizations have published advisories concerning accidental 9-1-1 calls. Refer to Appendix “D” - Accidental 9-1-1 Calls.

Finding 1 Accidental and Short Calls

NYPD does not have programs, policies or procedures to determine the cause of short calls or the effect they have on call taker workload. Examples of data that should be captured and analyzed are:

- Trends and patterns
- Frequent Flyers – same number erroneously calls 9-1-1
- Intentional harm – ranging from pranks to Emotionally Disturbed Persons (EDP)
- Is the issue related to specific types of wireless devices
- Cellular provider service
- Attempting to dial another number (i.e., 9 + 1 + X) of which there are a plethora of examples including:
 - Dialing from a PBX system that requires “9” for an outside line and “1” for long distance
 - Area codes that start with 9-1 (i.e., 910, 919, etc.)
 - Central Office number starts with 9-1
 - Dialing India – The country code is 91 and city code for New Delhi is 11
 - Children who have just learned to dial 9-1-1

The identification of a 9-1-1 short call workload source provides the basis to develop a response to mitigate the workload from that source. While all 9-1-1 short calls can never be entirely eliminated an effort to identify trends has diminished short and abandoned call workload in other major cities.

Recommendation 1 – Mitigate Accidental 9-1-1 Calls

NYC Public Safety should develop and implement an initiative to mitigate accidental 9-1-1 calls including the implementation of policies and procedures to identify trends and patterns, and a public awareness campaign. An initiative to mitigate accidental 9-1-1 calls could significantly decrease the workload on the 9-1-1 system and increase call taker availability (i.e., Average Speed of Answer).

It is an industry best practice to educate the public concerning accidental 9-1-1 calls. Many PSAPs utilize websites, public service announcements, direct mailings, and other forms of marketing campaigns to educate the citizens of their jurisdiction. There is documented evidence that public education alone can reduce the number of short calls by as much as 50%.

In combination with public education, we also recommend that 9-1-1 Call Process Protocols Workgroup develop a two-part policy for contacting the owners of phones used to make short calls:

⁴ NENA Operational Information Document 56-501
Silent or Hang-Up 9-1-1 Calls for Service: An Operations Focused Study

1. Inform the “short-caller” that they called 9-1-1 and 9-1-1 is for emergency use only
2. Identify and contact “frequent flyers” or numbers that frequently call 9-1-1, but hang up before the call is answered to inform them of the correct use of 9-1-1

3.6 9-1-1 Jobs/Incidents Analysis

As demonstrated in Figure 3.6.1 below, in 2010 FDNY/EMS received 98% of their total incidents from 9-1-1 calls, while FDNY/Fire received 76.5% from 9-1-1 calls and the NYPD received 73.2% of their Radio Runs from 9-1-1 calls.

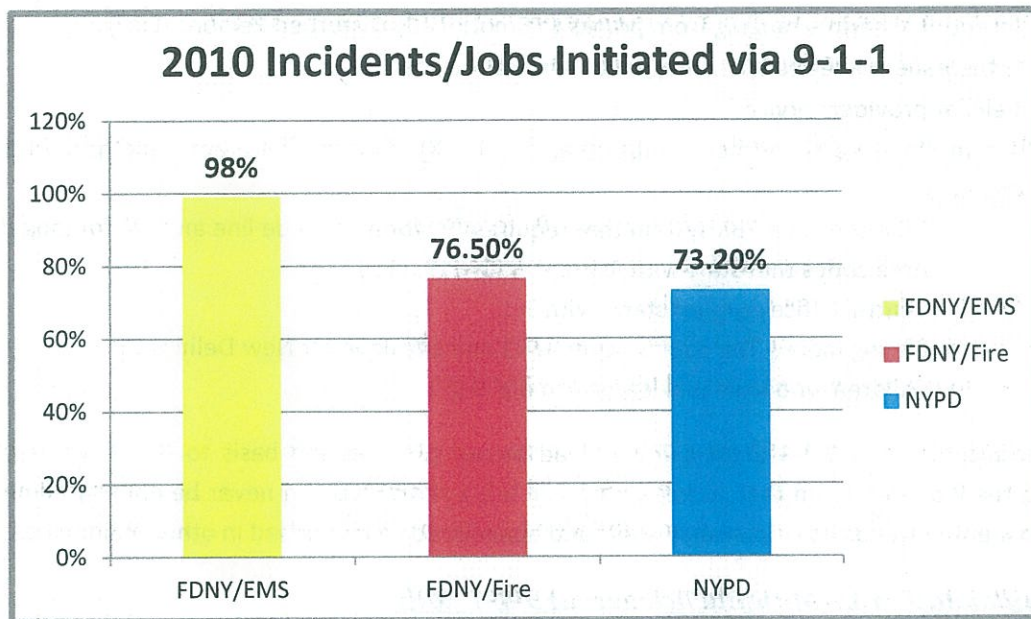


Figure 3.6.1 – Incidents/Jobs Initiated by a 9-1-1 Call

Of the 10,382,164 calls handled in 2010, 3,495,716 (33.63%) resulted in police radio runs. The 9-1-1/Jobs breakdown for NYPD is:

Workload	Category	% of NCH
10,382,164	Total NCH	100%
3,910,373	0-19 seconds short calls	37.7%
3,495,716	Radio Runs from 9-1-1 Calls	33.63%
2,976,075	No NYPD Jobs from 9-1-1 Calls	28.67%

Table 3.6.2 - 2010 NCH/NYPD Jobs Breakdown

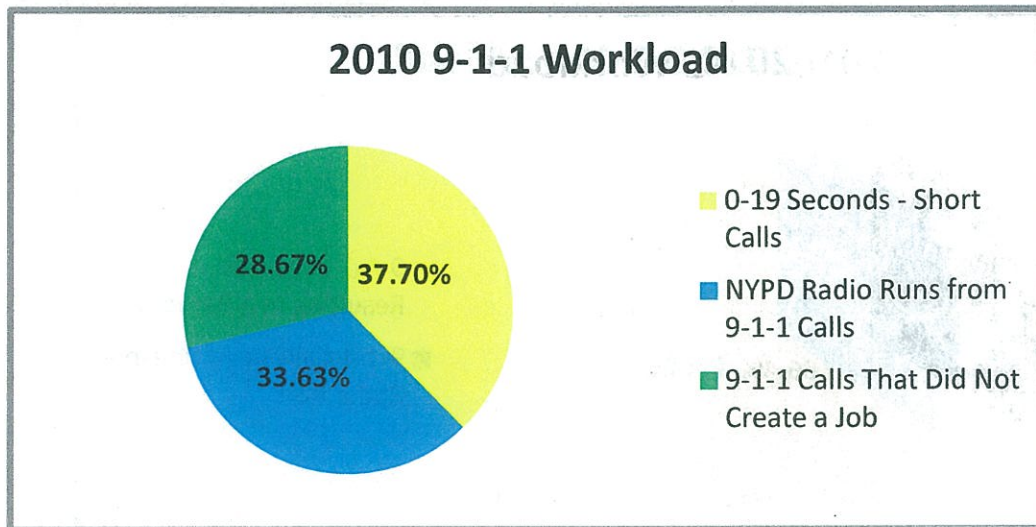


Figure 3.6.3 – Breakdown of NYPD 9-1-1 Workload

There is no single metric that characterizes the workload of a 9-1-1 system. There are a wide spectrum of 9-1-1 metrics that relate to different aspects of the system such as:

- 9-1-1 system Infrastructure workload
- 9-1-1 call taking workload
- Abandoned, accidental, and short 9-1-1 calls
- 9-1-1 calls that generate police, fire, and EMS jobs/incidents
- Non-emergency (not police services) or inappropriate calls
- Type and volume of incidents reported
- Priority levels of jobs/incidents
- Primary responding agency workload
- Multi-agency response workload

As previously noted, 9-1-1 volume alone does not dictate the management structure of a 9-1-1 system. In fact, in 2010 there were more 9-1-1 calls that did not result in an NYPD job (6,886,448 or 66.4%) compared to the number of 9-1-1 calls that did result in an NYPD job (3,495,716 or 33.6%).⁵ (See Figure 3.6.4 below.)

⁵ 28.67% of the 66.4% are 9-1-1 calls that did not require a SPRINT job to be created. These calls are not part of the 0-19 seconds' short calls that also did not result in a SPRINT job. While NYPD does not collect a duplicate 9-1-1 call statistic it should be assumed that a percentage of the 28.67% were duplicate calls for the same incident (i.e., a SPRINT job had already been created. Example - multiple witnesses reporting a traffic crash). At this time it is difficult to estimate the percent number but experience, NYPD anecdotal information, and direct observation reveals it is most likely not more than 5% of the 28.67%.

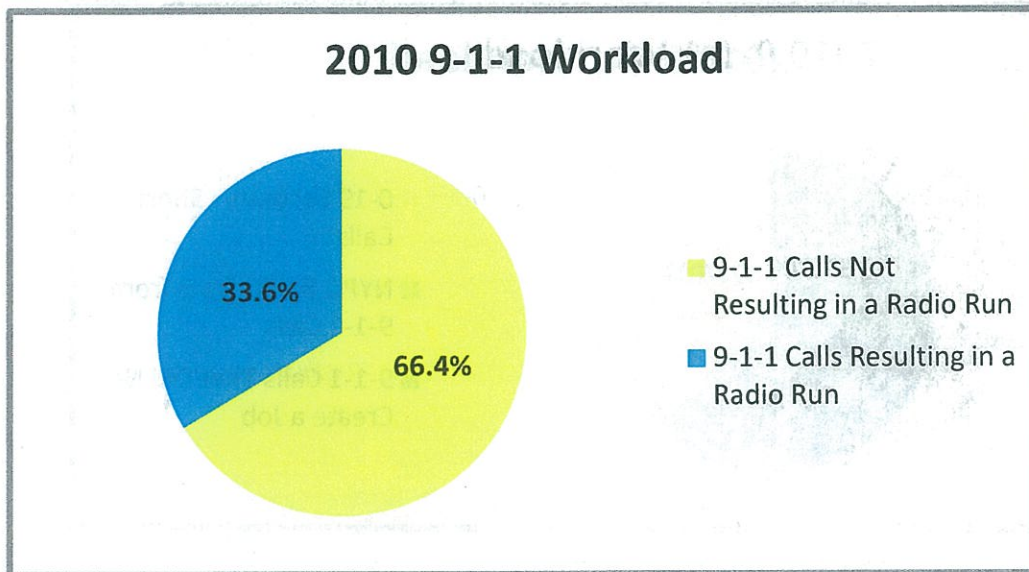


Figure 3.6.4 – 9-1-1 Calls Resulting in an NYPD Job

3.7 Job/Incidents by Priority Level

An important aspect concerning the operational effectiveness of call taking and dispatch operations is the management of workload by priority status. The highest priority designation (i.e., life threatening emergency) demands a faster process for dispatching resources to the incident than a lower priority incident (i.e., non-violent crime with no suspects on scene). Examples of priority status designations are:

Priority 1 – Life threatening emergency, violent crime in progress, significant risk to the safety and well being of people or officer needs help

Priority 2 – Urgent situation such as a medical emergency or traffic crash with unknown injuries

Priority 3 – Non-violent crime in progress

Many agencies assign incidents a precise priority level to assist the PSAP and field operations decision making process concerning the allocation and deployment of personnel. For example, the First-In/First-Out (FIFO) model does not work for public safety as it does not distinguish between life threatening, urgent, and non-urgent incidents. For public safety purposes, life threatening emergencies should always take precedence over lower priority incidents.

To accurately measure the effectiveness of a co-located/consolidated PSAP and multi-agency operations (i.e., police, fire, and EMS resources respond to the same incident) the agencies involved should employ the same priority definitions and levels for all incidents. A heart attack, structure fire, and traffic crash with injuries should all have a defined priority level in the CAD system based on intended operational response of police, fire, and EMS resources.

There are no uniform definitions or codes utilized by the NYPD and FDNY concerning the ranking of jobs/incidents by priority level. The absence of this consistency makes it difficult to analyze the workload that flows through the PSAC by priority status. For example, typical Priority 1 (life threatening) workload queries for the 9-1-1 system, call taking and dispatch operations may include:

- Period of year, month, day of week and time of day
- Agency breakdown – Police, fire and EMS
- Type of activity by incident
- Time metrics for each segment in the call taking, dispatch process and response time for Priority 1 activity
- Multi-agency workload based on Priority 1 incidents
- Quality Assurance of Priority 1 type activity
- Trends and patterns of Priority 1 activity for predictive modeling, scheduling, training and allocation and deployment of personnel

The objective is to measure the PSAP and public safety agencies handling of workload by priority level to determine if life threatening and urgent incidents are being managed in the fastest manner possible while also providing quality information to both responding public safety personnel and 9-1-1 callers (i.e., Emergency Medical Dispatching – Pre-arrival instructions).

NYPD and FDNY Fire and EMS have their own unique priority level definitions, codes, and processes. For example, FDNY EMS segment codes are the following:

- Segment 1-3 = Life Critical (Cardiac, choking and life threatening)
- Segment 4 & 5 = Urgent (Lights and sirens employed)
- Segments 7 & 8 = Modified response (No lights and siren)⁶

While NYPD has priority codes 1 through 8, with Priority 1 being the highest level of emergency and Priority 8 the lowest, there are no formal definitions that separate the emergency level of each code. Priorities 1 – 4 are considered the life critical to urgent range.

Additionally, the NYPD could only provide a priority level breakdown of total jobs dispatched versus jobs created solely from 9-1-1. For example, in 2010, the NYPD shows 4,776,988 total jobs dispatched and 3,495,716 jobs created from 9-1-1. See Figure 3.7.1 below for breakdown of NYPD jobs dispatched and Figure 3.7.2 for percent of jobs dispatched by category groupings.

⁶ FDNY apparatus operate in an emergency lights and siren mode to all incidents. Note: FDNY has initiated a modified response project that is still in the "pilot" stage so it was not included in the analysis for this report.

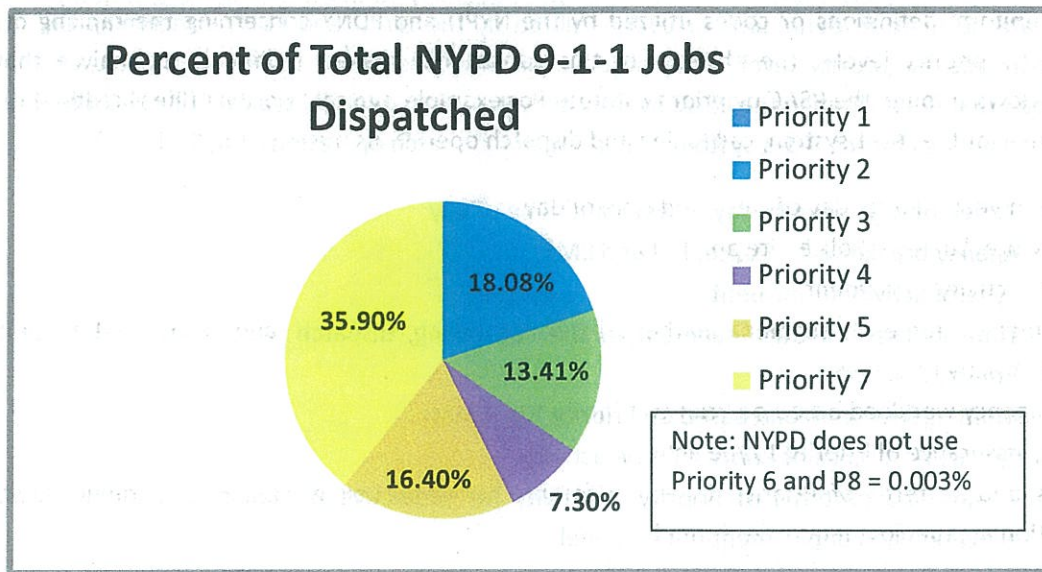


Figure 3.7.1 –Percent Total of NYPD Jobs Dispatched in 2010 from 9-1-1 calls only

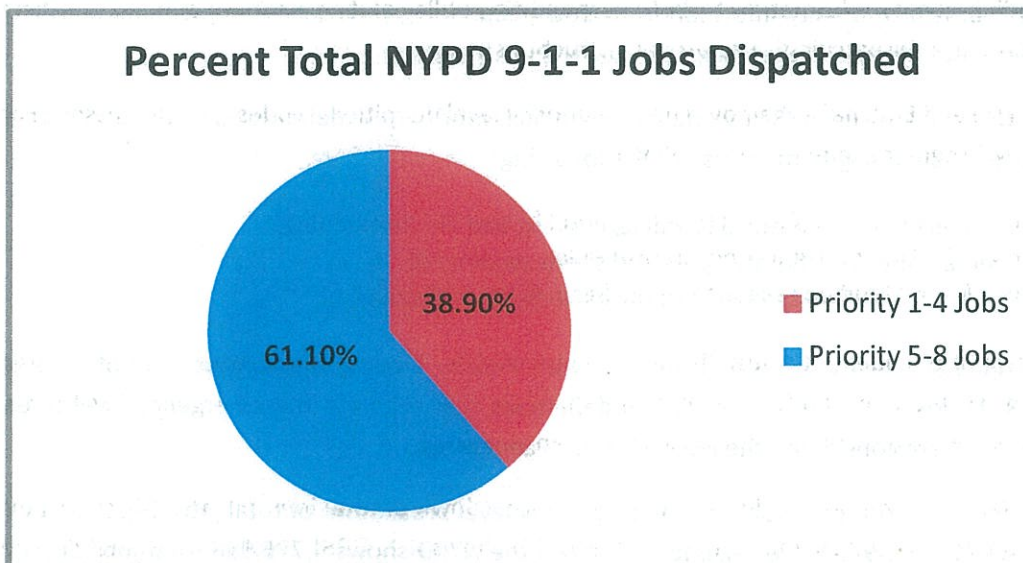


Figure 3.7.2 – Comparison of NYPD 2010 P1-4 and P5-8 Jobs for 9-1-1 only

Of the total number of calls handled by NYPD in 2010 (10,382,164), 17.9% (1,858,627) were Priority 1-4 level. Of the total number of jobs dispatched in 2010 (4,776,988), Priority 1-4 accounted for 1,858, 627 jobs or 38.9%, as presented in the graphic above.

However, contained within NYPD's 38.9% of Priority 1-4 workload are incidents that FDNY Fire and EMS either are the primary responding agency or will also respond to the same incident.

Many emergency incidents require a multi-agency response. There are numerous types of jobs/incidents in which police, fire, and EMS can all be considered as a primary responding agency as each agency will have a specific assignment to complete at the incident. For example, the Priority 1-3 multiple agency incidents contained in the NYPD workload are:

- Traffic Crash 33,072 jobs or 0.69%
- Fire 40,393 jobs or 0.85%
- Ambulance 351,843 jobs or 7.37%
- Total 425,308 jobs or 8.9%

NYPD Ambulance/Emergency Medical jobs (1,049,888) accounted for 22% of all NYPD jobs dispatched (4,776,988) in 2010.

NYPD also has a significant number of self initiated dispatches that do not go through 9-1-1.

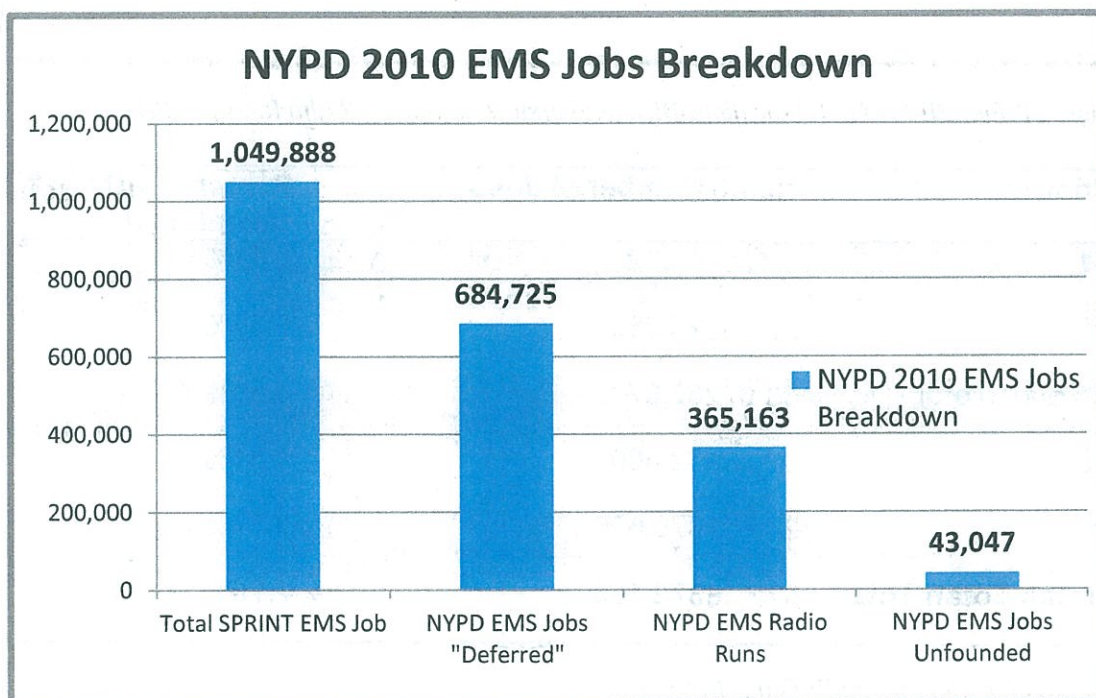


Figure 3.7.3 – NYPD EMS Jobs Breakdown for 2010

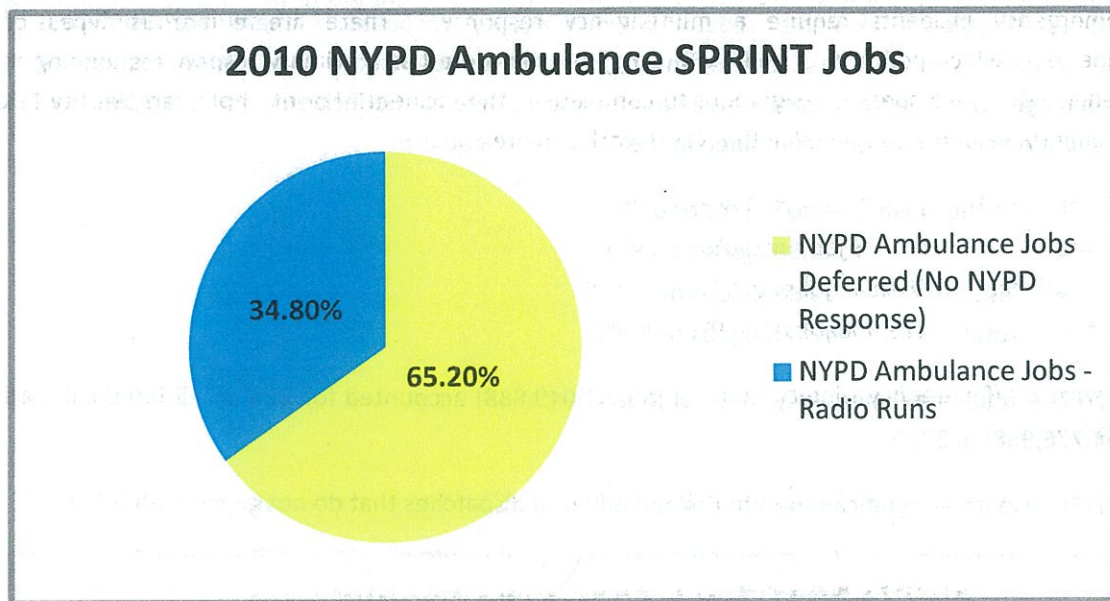


Figure 3.7.4 – NYPD Ambulance Jobs Differed Versus Ambulance Radio Runs for 2010

Priority	Number of Jobs	Percent of all Jobs Dispatched
P1	6,822	0.14%
P2	26,250	0.55%
P1 & P2 Total	33,072	0.69%
P5	62,400	1.31%
P7	276,696	5.79%
Traffic Crash Total	372,168	7.79%

Table 3.7.5 – NYPD Traffic Crash Breakdown

Priority	Number of Jobs	Percent of all Jobs Dispatched
P1	2,076	0.04%
P3	38,317	0.80%
P1 & P3 Total	40,393	0.85%
P5	3,866	0.08%

P7	9,250	0.19%
Fire Alarm Total	53,509	1.12%

Table 3.7.6 – NYPD Fire Alarm Breakdown

Priority	Number of Jobs	Percent of all Jobs Dispatched
P2	181,062	3.79%
P3	170,781	3.58%
P1, P2& P3 Total	351,843	7.37%
P5	13,220	0.28%
P5	12	0.0%
P7	414	0.01%
P7	16	0.0%
P7	31,877	0.67%
Ambulance/EMS Total	397,482	8.32%

Table 3.7.7 – NYPD Ambulance/EMS Breakdown

Note: There are numerous types of NYPD incidents that are categorized as P5 and P7 hence the different numbers shown.

The NYPD is the primary responding agency on 30% of NYPD's total P1-4 incidents.

3.8 Life Critical & Urgent Workload

As previously discussed, 9-1-1 systems are designed to aid citizens for all types of emergencies.

For certain types of life critical medical emergencies such as a heart attack or an incident in which a patient has stopped breathing, numerous studies have shown there is a five to six minute window to save the patient's life.⁷ These types of studies have been the catalyst for many communities and public

⁷ A Mayo Clinic study revealed for some types of heart attacks "a one-minute decrease in the call-to-shock time increases the odds of survival by 57%...a three-minute reduction in call-to-shock time improves the odds of survival almost four-fold."

safety agencies to evaluate public safety response times and the inclusion of Automated External Defibrillator (AED) devices in their emergency medical response plans.

In 2010, 78% of all FDNY EMS incidents were Life Critical or Urgent. The breakdown of FDNY EMS incidents dispatched (1,261,993) in 2010 is (see Figure 3.8.1):

- 36.9% are Life critical incidents
- 41.1% are Urgent
- 21.7% are Non-urgent

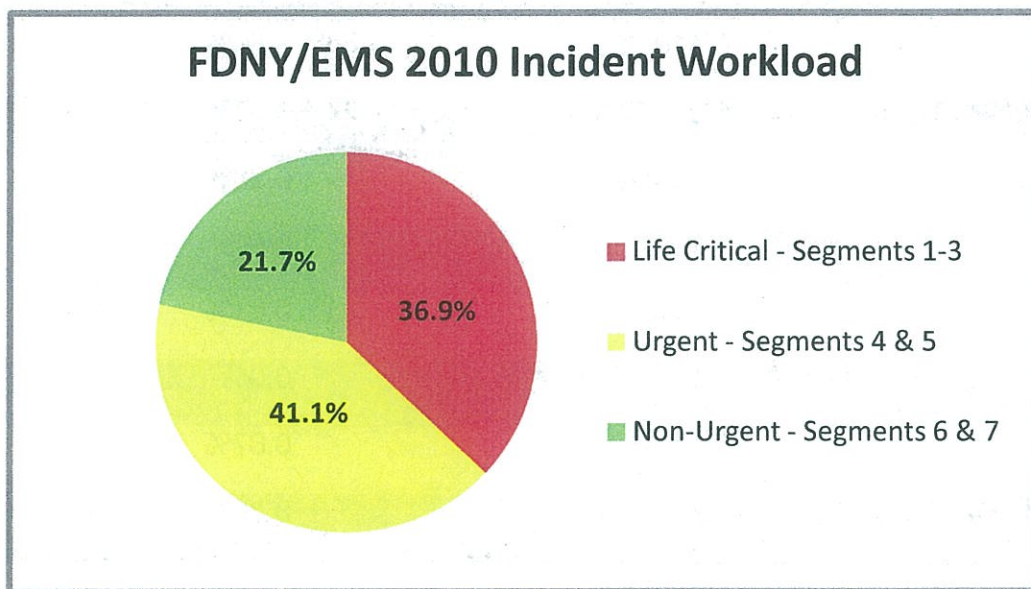


Figure 3.8.1– FDNY EMS Incident Workload by Priority in 2010

While the Unified Call Taker (UCT) model is discussed in Chapter 5, UCT 9-1-1 calls accounted for 34.5% (174,900) of the total FDNY incidents dispatched in 2010. Figure 3.8.2 below shows a breakdown of all FDNY Fire workload for 2010 by type of activity as defined by FDNY in the Mayor's Management Report (MMR). The workload includes incidents received no matter how they were initiated (i.e., 9-1-1/UCT, 10-digit, private fire alarm, ERS, request from NYPD, etc.).

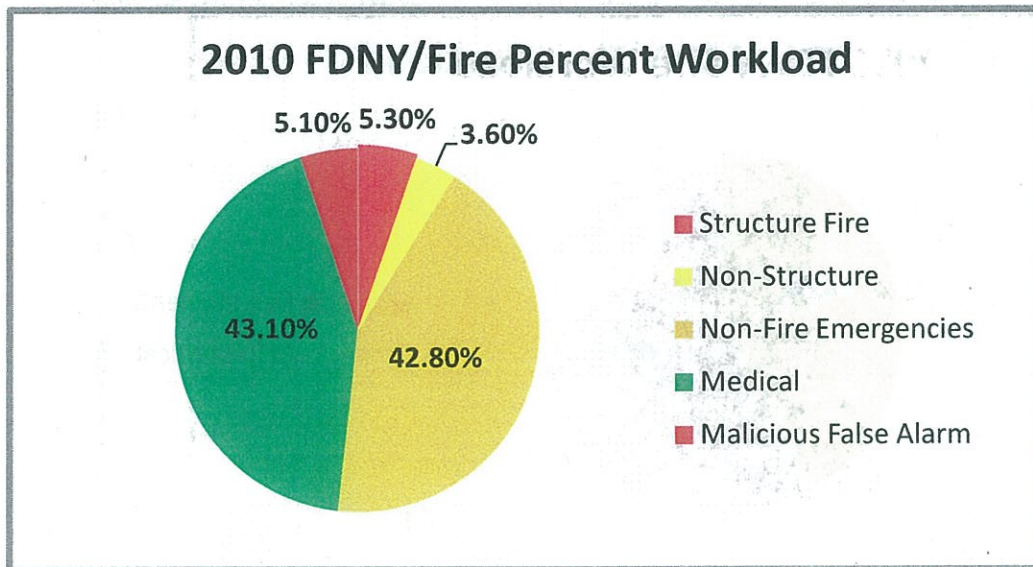


Figure 3.8.2 – FDNY/Fire Workload by Percent in 2010

The FDNY Certified First Responder-Defibrillator (CFR-D) Program is intended to provide immediate assistance prior to the arrival of an ambulance. CFR-D engines are equipped with first aid equipment and defibrillators. Assigned personnel receive emergency medical training and are CFR-D certified.

To deliver on-scene aid with the least delay, FDNY EMS and NYPD generated alarms that meet the Fire Department response criteria (pre-defined high priority medical emergencies) are relayed to the FDNY StarFire CAD simultaneously upon their input from a 9-1-1 call or EMS dispatcher. The incidents are presented to the Fire Decision Dispatcher who reviews the recommendation and dispatches the required CFR-D qualified unit.

FDNY Fire divides their incident workload into two categories, 1. Fire Incidents and 2. Certified First Responder (CFR/Medical). The CFR program is intended to utilize the closest available FDNY resource for specific types of emergency medical incidents. Figure 3.8.3 below shows that 42% of all FDNY Fire activity is CFR related.

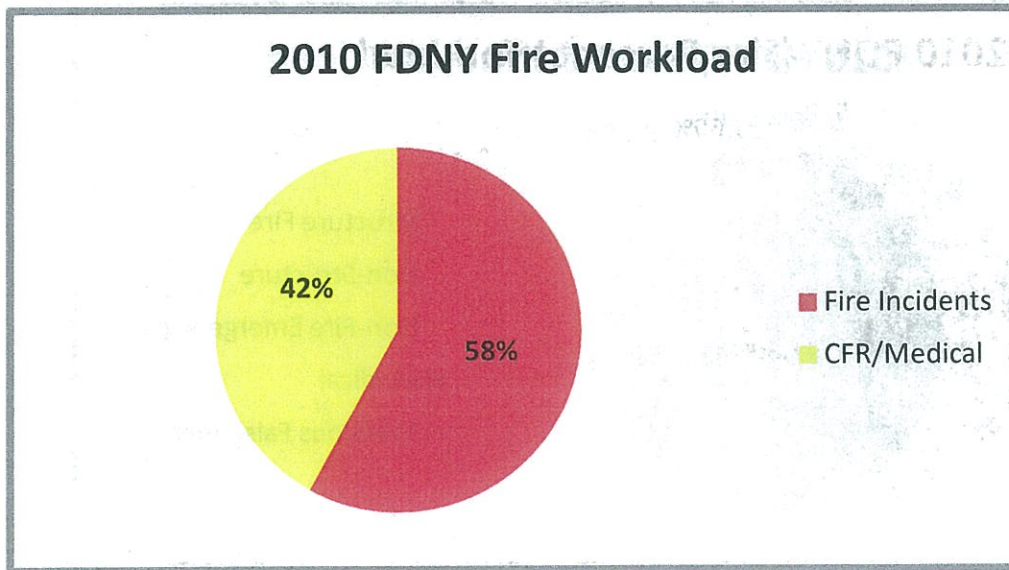


Figure 3.8.3 – FDNY/Fire Workload by Percent in 2010

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4.0 NYPD, FDNY EMD and Fire PSAP Business Process Assessment

4.1 9-1-1 Business Process Overview

The analysis of the NYPD and FDNY 9-1-1 call taking business processes identified areas that could be improved. Our findings focus on four key issues:

1. Agency specific policies, procedures and business processes
2. Applicability and utilization of 9-1-1 industry best practices
3. 9-1-1 call taking policies, procedures and business processes require updating
4. The need to improve procedures and practices to better utilize the Automatic Number Identification (ANI)/Automatic Location Information (ALI) information now being provided visually as part of the VESTA call taking software

Agency Specific Processes

NYPD and FDNY independently develop 9-1-1 call taking policies, procedures, and business processes.

Applicability and Utilization of Industry Best Practices

Clearly not every industry best practice can be employed at every PSAP. However, industry best practices are developed through a significant amount of interaction and collaboration by 9-1-1/PSAP subject matter experts. Even though NYPD and FDNY may have the highest volume of 9-1-1 calls in the US, both agencies could greatly benefit from reviewing industry recommendations and modifying them as applicable.

Documentation, interviews and direct observation demonstrated that NYPD and FDNY do not fully employ PSAP industry standards to develop policies and procedures. NYPD and FDNY employ some 9-1-1 call taking business processes that vary with 9-1-1 Public Safety Answering Point (PSAP) industry best practices and guidelines produced by federal and state agencies and national associations such as:

- Association of Public Safety Communications Officials (APCO)
- National Emergency Number Association (NENA)
- National Association of Emergency Medical Services Physicians (NAEMSP)
- International Association of Chiefs of Police (IACP)
- National Fire Protection Association (NFPA)
- International Association of Fire Chiefs (IAFC)
- National Highway Safety Transportation Administration (NHSTA)
- State of New York 9-1-1 Board Guidelines and Standards

Need to Update Policies and Procedures

Both agencies have many agency-specific policies, procedures, and business processes that were developed twenty to thirty years ago that require updating. Where possible using 9-1-1 industry standards should be incorporated. This requirement is especially relevant considering the expansion

and modernization of the technology base implemented through ECTP and independent projects by FDNY and NYPD in recent years. All policies, procedures, and business processes require periodic examination for value, time efficiency, and operational effectiveness.

ANI/ALI Utilization

Neither NYPD nor FDNY completely utilize available systems information to aid call takers and dispatchers. This information includes such things as data provided to call takers from the 9-1-1 system (i.e., Master Street Address Guide (MSAG), and FCC Phase II mapping data of wireless 9-1-1 calls). These systems automatically provide critical information regarding the location and number of a caller. These are referred to as Automatic Number Identification (ANI) and Automatic Location Identification (ALI).

Prior to the implementation of the VESTA system, we observed that NYPD call takers were underutilizing the ANI/ALI information and associated legacy mapping system during the call taking process. In addition, we also noted that Fire Call takers who were provided with new VESTA ALI mapping were also underutilizing the available technology. Now that both departments are using VESTA and an ALI mapping solution, the policies and procedures should be reviewed to better utilize the newly available location mapping provided as part of the VESTA upgrade. EMD migrated to VESTA during February 2012 utilizing an FDNY developed, associated ALI map. Since the cutover recently occurred, we have not evaluated EMD's use of ANI/ALI or associated mapping information in their call processing.

4.2 NYPD 9-1-1 Call Taking Business Process

The NYPD Communications Center is the Primary Public Safety Answering Point (PSAP) for New York City. NYPD refers to their PSAP as a Public Safety Answering Center (PSAC). There is a PSAC1 in Brooklyn and a PSAC2 is under construction in the Bronx.

All 9-1-1 calls made within the City of New York are routed through one of two telephone DMS switches to a networked Automatic Call Distribution (ACD) system. The ACD then routes 9-1-1 calls to the next available NYPD call taker position primarily at PSAC1 that is located at 11 MetroTech in Brooklyn. Calls for 9-1-1 service are also received at the NYPD Communications Section secondary call center located at 1 Police Plaza (1PP) in Manhattan.

NYPD call takers answer 9-1-1 calls with their assigned unique operator number included in the 9-1-1 announcement. Call takers then immediately proceed to obtain information concerning the location of the emergency.

NYPD call takers utilize SPRINT (Special Police Radio Inquiry Network), a Computer Aided Dispatch (CAD) system that has been operational since the early 1970s. The SPRINT CAD system is "green screen" and is hard coded to follow specific business processes originally developed decades ago. Prior to the December 2012 migration to the 3rd floor of PSAC 1, NYPD personnel utilized an IBM RISC 6000 terminal for all SPRINT processes (NYPD Call Takers Guide procedure #401).

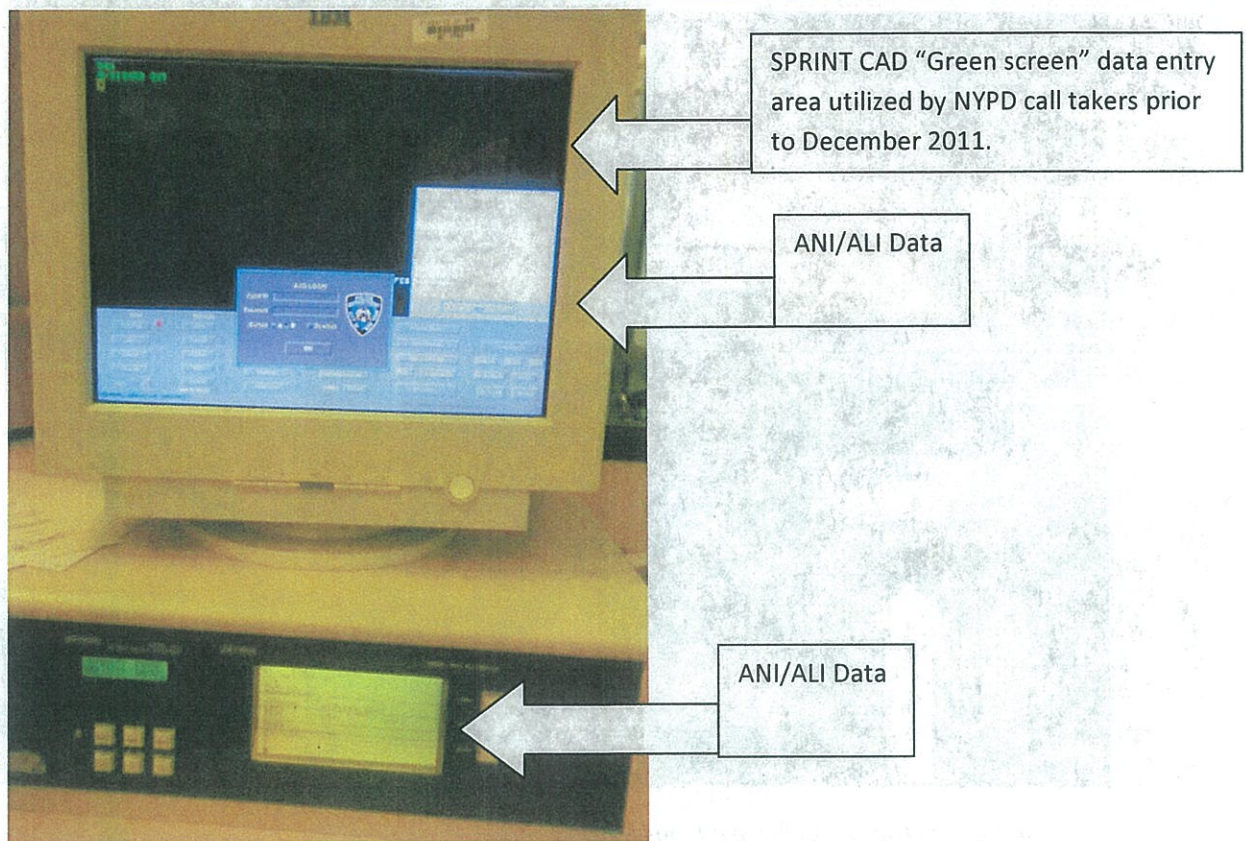


Figure 4.2.1 – Legacy NYPD Call Taker Console at PSAC1 (Prior to December 2011)

As illustrated in Figure 4.2.2 below, the FDNY (Fire and EMD) and NYPD migration to the 3rd floor of PSAC1 has provided NYPD call takers with improved mapping capabilities and working conditions including dedicated monitors for:

1. VESTA 9-1-1 system
2. SPRINT CAD system
3. MapStar application

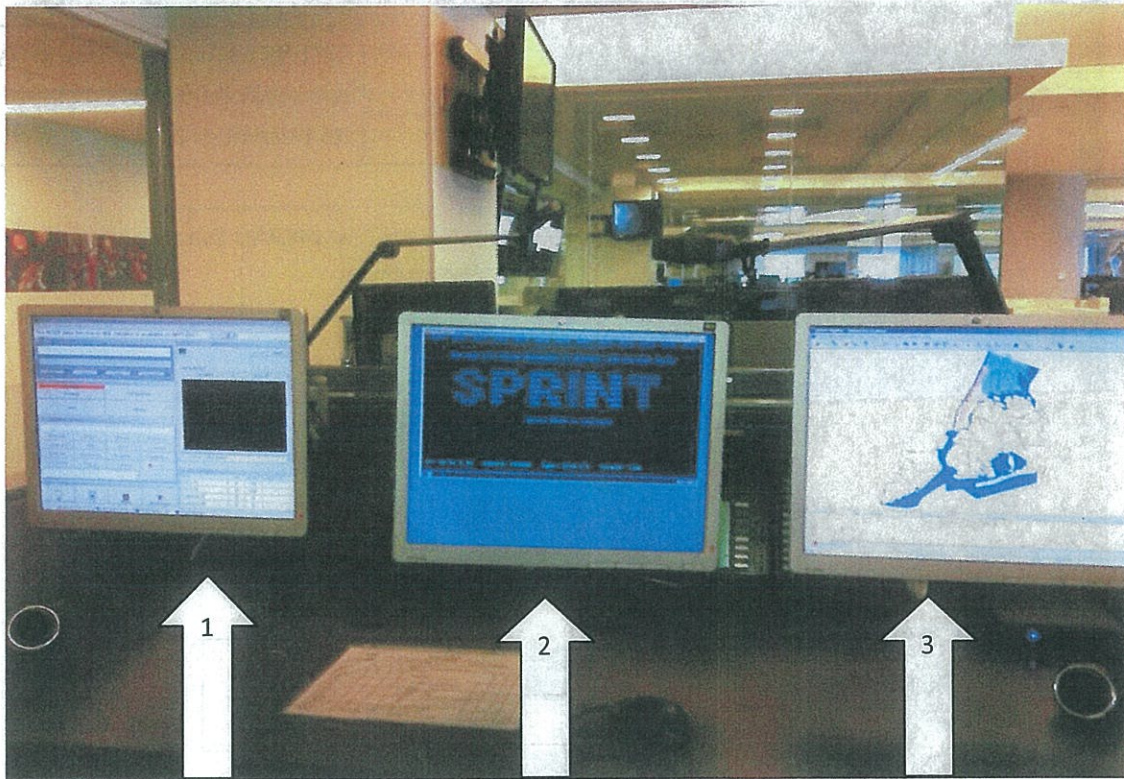


Figure 4.2.2 – Picture of NYPD 3rd Floor Console Suite

Call takers and dispatchers manually enter data into the SPRINT CAD system including specific numbers for each borough for job input (Brooklyn is 6, Manhattan is 7, etc). The SPRINT CAD system does not contain a menu of NYPD job type codes for call takers to select when entering a job. Call takers input a job type code from memory. NYPD is currently in the process of configuring a new Intergraph CAD (I/CAD) system.

Subsequent to the 9-1-1 announcement and NYPD operator number notification, call takers question 9-1-1 callers first for information concerning the location of the emergency. The following is a typical series of questions asked and actions taken by NYPD call takers:

1. Location of emergency
2. Borough
3. Address
4. Cross Streets
5. Residence or building
6. Apartment
7. Building floor
8. Validate address - SPRINT geofile
9. Check for SPRINT duplicates

Call takers must initiate every new job in the SPRINT CAD with the location of the incident via the "IQ" screen (NYPD Call Takers Guide procedures #404-413). NYPD procedures direct call takers to both validate the address/location of the incident in the SPRINT geofile and check the SPRINT CAD system for duplicate jobs (i.e., the same incident previously reported to another call taker).

NYPD procedure #404 advises call takers to scan existing SPRINT records for possible duplicates. The search for duplicate jobs can consume valuable time as changing the input of the location can change the NYPD unit assigned. For example, a single intersection may have different sectors attached to it depending upon the order street names are entered into SPRINT. This process is an important factor concerning the time efficiency and operational effectiveness of the NYPD call taking operations.

Subsequent to validating the address and checking for duplicates, NYPD call takers continue the question and answer process with:

10. Name of caller
11. Telephone number
12. Type of emergency

Call takers utilize an "Incident Entry" (IE) screen to enter new information for a new job or an "Incident Addition" (IA) screen if the 9-1-1 caller is providing information on an existing "duplicate" job.

The SPRINT CAD system is essentially text based with call takers writing a narrative as information is obtained from the 9-1-1 caller. Call takers utilize a combination of NYPD approved abbreviations and their own unique shorthand that can vary from call taker to call taker (similar to text messaging).

NYPD Procedure #416 describes the input information required for a complete SPRINT job as:

- a) Code signal
- b) Qualifier
- c) Remarks
- d) Routing (if necessary)
- e) Priority (if necessary)
- f) External routing (i.e., EMS/ambulance)

NYPD inputs all fire and emergency medical incidents into the NYPD SPRINT CAD system to create an NYPD job prior to conferencing FDNY Fire and EMD call takers even though FDNY is the primary responding agency.

Finding 2 NYPD Operator Number in 9-1-1 Announcement

NYPD call takers include their operator number with the initial 9-1-1 announcement. Previous logging and recording systems required this action to be able to identify the call taker that managed a specific 9-1-1 call. NYPD's current logging and recording, CAD and the VESTA Computer Telephone Integration

(CTI) systems require a log-on process that eliminates the need for an up-front operator number announcement.

Recommendation 2

Eliminate the NYPD operator number with 9-1-1 announcement. If an operator number is needed it can be employed at the end of the 9-1-1 call when urgency is no longer an issue. Eliminating the operator number can save one to three seconds.

Note: FDNY EMD operators also answer a conferenced 9-1-1 call from NYPD with their operator number. An initial exchange of information between the NYPD call taker and FDNY EMD call taker consumes time and can confuse the 9-1-1 caller. The EMD operator number information is required by the NYPD call taker to electronically send the information entered into the SPRINT CAD system to the EMSCAD system. Additionally, this issue is also related to the appropriate design and configuration of the new NYPD and FDNY CAD systems.

Finding 3 Inconsistent Call Processing Procedures

Subsequent to the 9-1-1 announcement and operator number ("This is 9-1-1, Operator 123"), NYPD call takers employ a wide diversity of questions and processes to complete the call taking operation. Although call takers should be provided some discretion and flexibility to utilize different processes depending upon the circumstances, there should be a consistently applied protocol.

An NYPD approved consistent methodology will ensure all 9-1-1 calls are processed in the appropriate manner. Callers should expect the same level of proficiency and professionalism from all call takers.

Recommendation 3

Update procedures, introduce Guide Cards, enhance training, and improve the Quality Assurance (QA) programs to achieve more consistent call taking operations.

ANI/ALI - Automatic Number Identification/Automatic Location Identification (ALI)

The correct location of an emergency incident is of paramount importance for a fast and effective public safety response. Enhanced 9-1-1 systems are designed to assist call takers in correctly identifying the telephone number of the 9-1-1 caller and the location of the caller.

These systems present call takers with the telephone number of the phone making the 9-1-1 call (ANI – Automatic Number Identification) in case the 9-1-1 call is disconnected. Depending upon the type of telephone system used to make the 9-1-1 call (i.e., landline, wireless, VoIP), the exact or approximate location of the 9-1-1 call (ALI – Automatic Location Information) is also presented to the call taker via the 9-1-1 system.

Landline Telephones - Master Street Address Guide (MSAG)

For landline phones, databases containing the telephone number, physical street address, primary jurisdiction (i.e., city, county, etc.), and other pertinent information are maintained by the telephone system provider. In simplified terms, when a 9-1-1 call is placed, the ALI/MSAG database is queried as part of the 9-1-1 system process for the address location of the telephone number. Telephone

companies and providers in the 9-1-1 industry normally follow National Emergency Number Association (NENA) guidelines regarding the MSAG database, system specifications, and requirements.

For multi-extension systems (i.e., PBX) some systems and MSAGs can be updated to show the exact address location of an extension. For example, a business may employ a PBX system with the primary location being its headquarters at "X" addresses and satellite offices located throughout the same jurisdiction at different addresses. If a 9-1-1 call is made from a satellite office, the system may provide the street address of the satellite office versus the headquarters address.

It is important to maintain as accurate an MSAG database as possible. This requires a team effort between 9-1-1 call takers, PSAP managers, and the telephone system provider. Upon receiving a 9-1-1 call from a landline, call takers verify that the location of the caller is the same as the ANI/ALI information provided through the 9-1-1 system. If there is a discrepancy, a form or other process is completed to notify PSAP managers and the telephone provider of the issue so it can be corrected.

Wireless – FCC Phase 1 & 2

In the 1990's the FCC championed federal legislation regarding the ability of wireless (i.e., cellular) telephones to provide the location of a 9-1-1 caller. The FCC's high-level description of Phase I & II legislation is:

The FCC's Wireless 911 Rules

The Federal Communications Commission (FCC) has adopted rules aimed at improving the reliability of wireless 911 services and the accuracy of the location information transmitted with a wireless 911 call, as part of our efforts to improve public safety. Such improvements enable emergency response personnel to ensure that Public Safety Answering Points (PSAPs) receive meaningful, accurate location information from wireless 911 callers in order to dispatch local emergency responders to the correct location and to provide assistance to 911 callers more quickly.

The FCC's wireless 911 rules apply to all wireless licensees, broadband Personal Communications Service (PCS) licensees, and certain Specialized Mobile Radio (SMR) licensees. Mobile Satellite Service (MSS) providers, however, are currently excluded.

Basic 911 rules require wireless service providers to transmit all 911 calls to a PSAP, regardless of whether the caller subscribes to the provider's service or not.

Phase I Enhanced 911 (E911) rules require wireless service providers to provide the PSAP with the telephone number of the originator of a wireless 911 call and the location of the cell site or base station transmitting the call.

Phase II E911 rules require wireless service providers to provide more precise location information to PSAPs; specifically, the latitude and longitude of the caller. This information must be accurate to within 50 to 300 meters depending upon the type of location technology used.

The FCC recently required wireless carriers to provide more precise location information to PSAPs. As a result, wireless carriers will be required to comply with the FCC's location accuracy rules at either a county-based or PSAP-based geographic level. The new standards apply to outdoor measurements only, as indoor use poses unique obstacles.⁸

Currently, ANI/ALI information is presented to the NYPD call taker on the VESTA console monitor. Phase I data (i.e., cellular telephone number, address of the cellular tower the call is being routed through, etc.) is immediately displayed when the 9-1-1 call is received. The system automatically completes a Phase II data update within "10 to 15 seconds." Phase II data was previously displayed on the Zetron console in the form of latitude/longitude numbers. The Phase II latitude/longitude (i.e., approximate location of the 9-1-1 caller) is now displayed on a separate monitor map for enhanced viewing.

Phase I & II Mapping

NYPD has reported that all cellular providers in New York City are Phase II compliant.

Prior to the migration to the 3rd floor of PSAC 1 in December 2011, the NYPD Communications Center completed a technology upgrade to receive Phase II data in 2003/2004. The upgrade project included the installation of a street map on all NYPD call taker consoles that had the capability to map the latitude and longitude of FCC Phase II data.

The street map (also referred to as a "string map" by NYPD personnel) was very basic at best. The map, installed by vendor iXP, contains no block ranges, layers, or other common features on PSAP center mapping systems. Figure 4.2.3 below is a screen shot of the previous iXP map.

⁸ <http://transition.fcc.gov/cgb/consumerfacts/wireless911srcv.html>

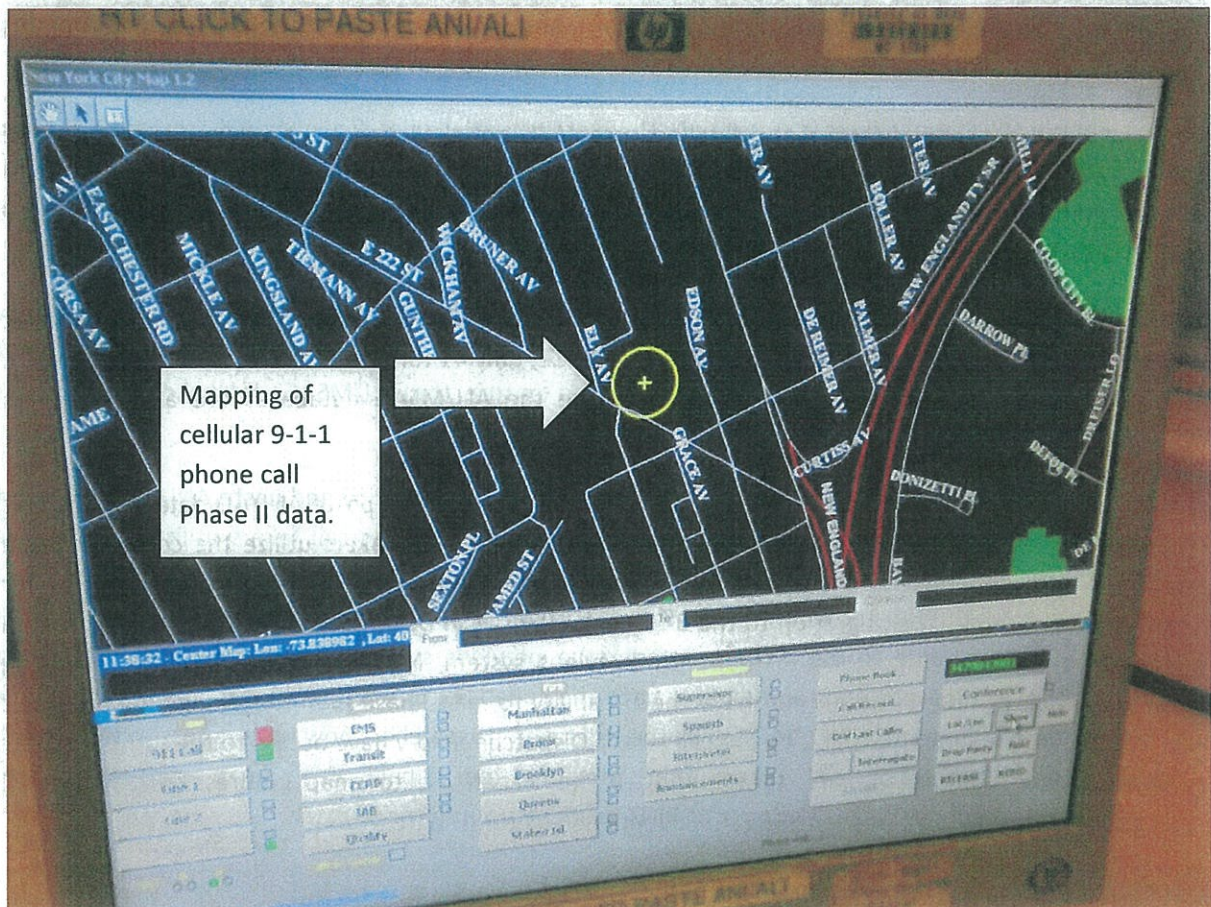


Figure 4.2.3 – iXP Street Map

Finding 4 ALI Mapping Information is Underutilized

Direct observation, interviews, and data analysis revealed that the NYPD Communications Center underutilizes ALI information.

The ability to leverage ANI/ALI information has been greatly enhanced with the migration to the VESTA and MapStar system. As previously noted, the old system had the mapping and CAD screens on the same computer monitor. Since NYPD call taking procedures are heavily focused on the SPRINT CAD system there was a diminished ability to employ the map because it covered the CAD screen. The new system separates the VESTA 9-1-1 system, SPRINT CAD system and MapStar onto three different computer monitors allowing NYPD call takers improved situational awareness and the ability to validate ANI/ALI information by simply glancing at the mapping monitor.

NYPD provided information that demonstrated various training sessions conducted with NYPD call takers to both initially educate call takers on how to use the MapStar system and follow-up training to elevate their level of proficiency with the new mapping application. However, NYPD reported no enhancements to their policies and procedures related to the utilization of ANI/ALI data as a result of

the migration to the new VESTA and MapStar systems. Direct observation of NYPD 9-1-1 operations also revealed opportunities for improvement concerning the leveraging of these systems.

Formal NYPD procedures dictate that call takers essentially not challenge 9-1-1 callers if the location of the incident (i.e., same location as the caller) is different from the ALI information presented. NYPD advised that their policy is to enter the location the caller verbally advises versus what is presented by the 9-1-1 system.

The NYPD Communications Center has an ALI/MSAG discrepancy form and procedure (#217), however it was rarely utilized. For all of 2010 and through May 2011, only 41 forms were completed. Additionally, NYPD has no position specifically assigned to ensure the ALI/MSAG databases are as accurate as possible.

It should be noted that NYPD procedures direct call takers to copy and paste ANI/ALI data into the text of the job/incident. However, there is no consistency of when call takers utilize the copy and paste process. Some call takers copy and paste Phase 1 data (i.e., address of cellular tower) versus waiting for Phase II data. Prior to the migration to the 3rd floor of PSAC 1 in December of 2011, Phase I or II data provided no value to dispatchers. Under the previous system, NYPD dispatchers had no mapping systems at their positions and did not have the capability to map Phase II latitude/longitude data that was inserted into a SPRINT CAD job by the call taker. Dispatchers now have access to the same MapStar systems utilized by call takers that provides the capability to map address and Phase II latitude/longitude data included in SPRINT incidents routed for dispatch.

Recommendation 4

There is a mission-critical need for the NYPD Communications Centers to leverage ALI data to the greatest extent possible. Besides employing PSAP industry best practices there are substantial reasons to leverage ALI data including:

- There are numerous streets with the same name (and sometimes block range) in more than one borough. Some street names are used in all five boroughs
- New York City allows vanity addresses and other types of addressing that could confuse a 9-1-1 caller
- Some local neighborhoods refer to streets by a local name versus the full street name. For example, one neighborhood drops the "1" and refers to a street as 16th Street versus the correct 116th Street
- Several million commuters who travel to New York City for employment each day
- Over 47 million people visit New York City a year and may not know their precise location

NENA 56-005, Call Answering Standard #6.1 - Standard for answering 9-1-1 Calls - Address verification states:

The telecommunicator will verify all addresses reported. If the address provided by the caller matches the ALI display, the address may be considered verified. In the event there is a

discrepancy, additional steps must be taken to verify the location of the incident being reported, such as repeating the address twice and/or annunciating each digit of the address if necessary to clarify. (Emphasis added).

The NYPD should update their procedures and train personnel on the value and appropriate use of ALI data.

Finding 5 The Mapping of Phase II Data Is Underutilized

Prior to the migration to the 3rd floor of PSAC 1 in December 2011, the NYPD's non-utilization of ALI data adversely impacted the value of the iXP map for Phase II data. However, there were operational reasons the iXP map was under-employed. Activating the iXP map covered the SPRINT CAD screen prohibiting call takers from entering data. The SPRINT CAD data entry screen remains the primary tool for NYPD call takers. Designing the iXP map to cover the SPRINT CAD screen rather than installing an additional monitor created a significant operational conflict for call takers. As previously stated, the functionality, features, and overall usefulness of the map was severely limited. Since December 2011, 9-1-1 call takers now have a map displayed on a separate monitor that automatically displays the location of the incoming call. This is a significant improvement as it does not require any action on the operator's part and does not obscure their CAD screen as in the legacy system.

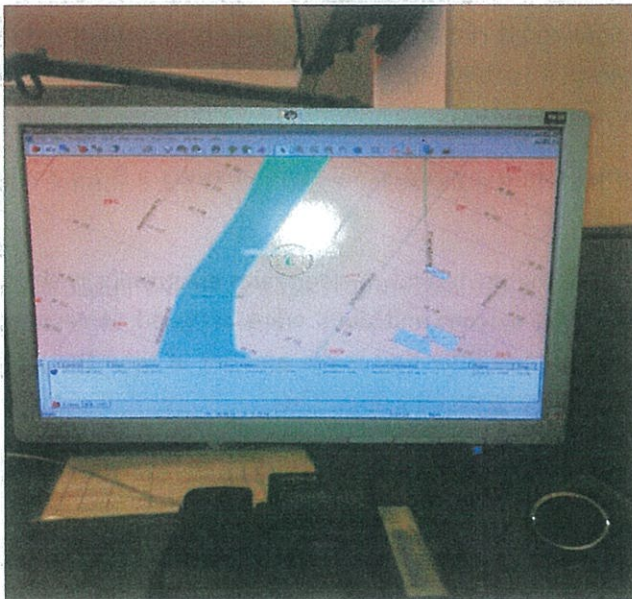


Figure 4.2.4 – Picture of NYPD 3rd Floor VESTA MapStar Console

Recommendation 5

Phase II mapping must be an essential component of NYPD call taking processes. The national average for wireless 9-1-1 calls is 70%. New York City has realized a consistent growth in the number of wireless 9-1-1 calls (up to 60%) and that number is certain to increase. Process and Procedures should be uniformly implemented to take full advantage of the new technologies available to call takers and dispatchers since the December 2011 migration to the 3rd floor of PSAC 1.

Finding 6 NYPD Does Not Measure Total Call Taking Processing Time

9-1-1 call processing time is an important component of the total public safety response time. PSAP industry best practices define Public Safety Response Time as the total time from the point a 9-1-1 call is made to the arrival of responding units. Figure 4.2.5 below provides a high level visual workflow of Total Response Time.

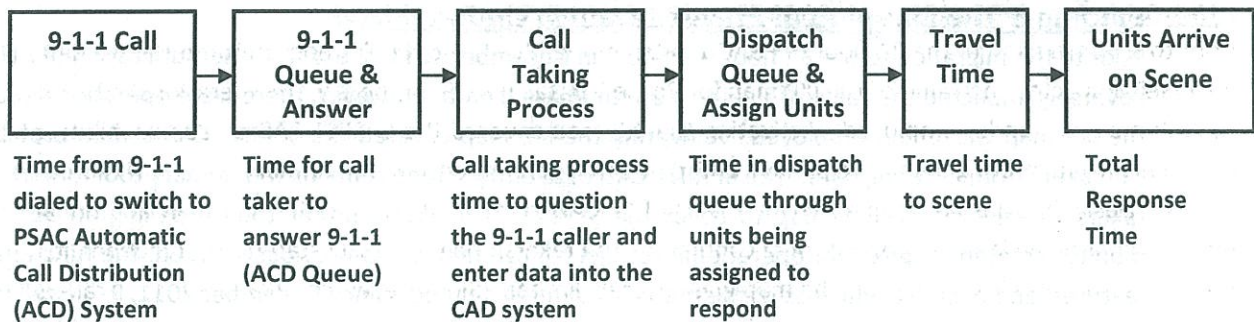


Figure 4.2.5 – Total Response Time Workflow

9-1-1 Process Time – The time from the point a 9-1-1 call was made until it was answered in the PSAP. This time includes 9-1-1 Queue Time that is the amount of time a 9-1-1 call was in the PSAP's Automatic Call Distribution (ACD) system prior to being answered by a call taker.

Call Taking Process Time – The time from the point a call taker answers a 9-1-1 call until it is shipped electronically to a dispatcher.

Dispatch Process Time – The time from the point a job/incident was electronically shipped from a call taker to a dispatcher via the CAD system and units were assigned to respond to the incident. This time includes Dispatch Queue time that is the amount of time the job/incident waited in the CAD Dispatch Queue to be assigned by a dispatcher.

Travel Time – The time from the point units were notified of the incident to the time units arrived at the location of the incident.

As such, the following captures total emergency response time:

Total Response Time = 9-1-1 Process + Call Taking Process + Dispatch Process + Travel Time

The above is a high-level view of total response time. Figure 4.2.6 below depicts an example of various time stamps that can be designed and configured into a 9-1-1/CAD system to measure the effectiveness of PSAP operations.

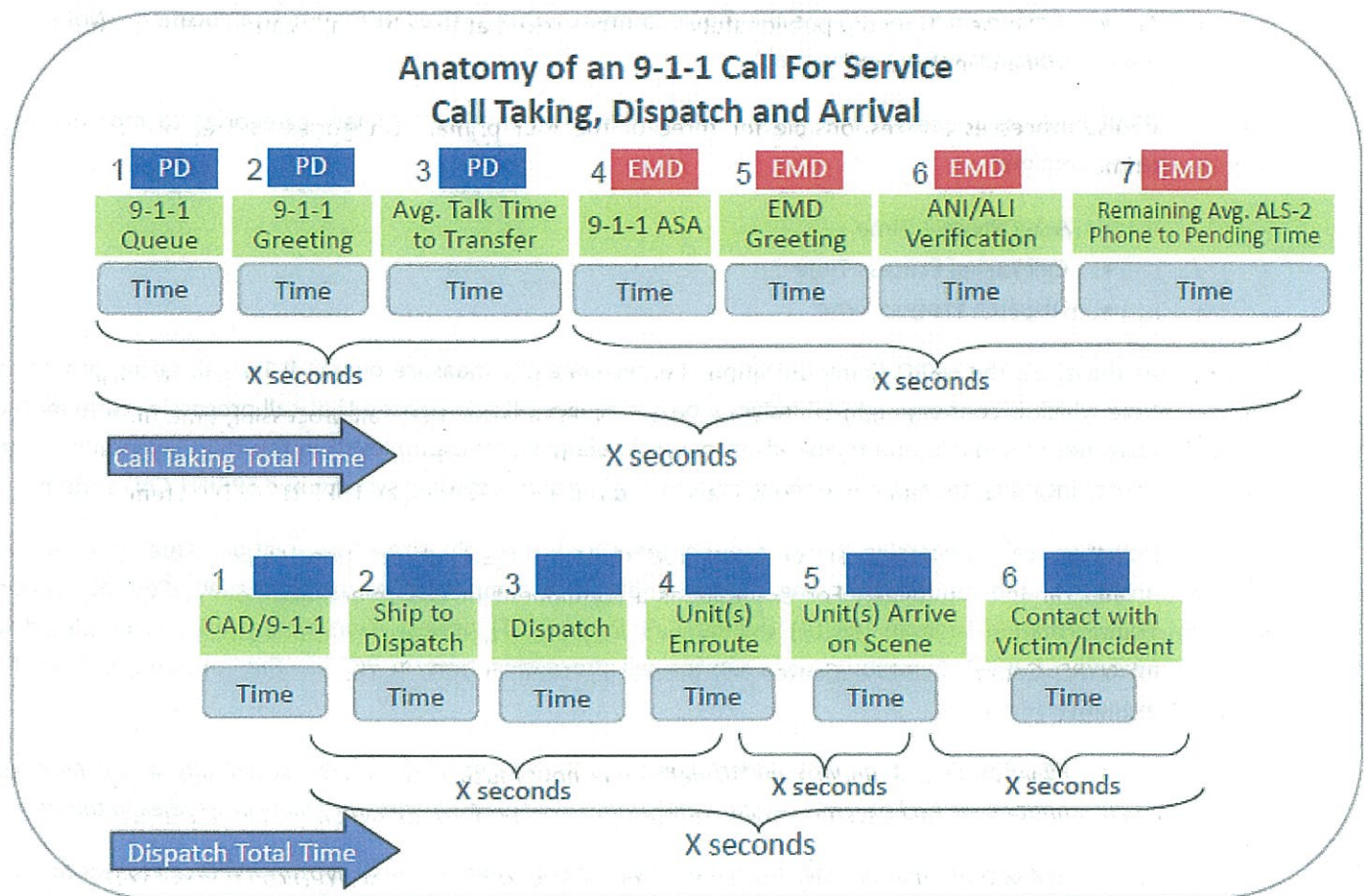


Figure 4.2.6 – Anatomy of a 9-1-1 Call for Service

For the time measurements to have value there must be clearly articulated definitions and protocols that apply to NYPD, FDNY EMD, and Fire Dispatch. Examples of CAD Time Stamp definitions include:

- 9-1-1 Queue – The time a 9-1-1 call entered the queue to be answered
- Average Speed of Answer (ASA) – Aggregate total of 9-1-1 calls over X period of time. Note: Can vary depending upon period of year, day of week, time of day, busy period, etc.
- Ship to Dispatch – Time period between the call taker answering the 9-1-1 Call for service and the incident being electronically shipped to the appropriate dispatcher
- Dispatch queue – Amount of time a call for service remained in the Dispatcher's queue before being dispatched to a public safety resource
- Acknowledgement – The time a public safety resource acknowledged the Call for Service. Note: Acknowledgement does not mean the resource is enroute to the incident
- Enroute – Time the public safety resource actually started traveling (i.e., "wheels rolling") to the incident

- Arrived on Scene – Time the public safety resource arrived at the physical location. Note: This does not mean “in the area”

PSAP business processes are responsible for three of the four primary categories to measure total response time:

- 9-1-1 Process Time
- Call Taking Process Time
- Dispatch Process Time

At this time, the NYPD Communications Center does not measure overall 9-1-1 call taking processing time which is contrary to PSAP industry best practices. NYPD advised that call processing time metrics were not obtainable due to the disparate technology systems employed in the NYPD Communications Center including the 9-1-1 telephony system, logging and recording system, and SPRINT CAD system.

However, call processing times can be measured through direct observation, Quality Assurance processes, and random sampling. For example, as a component of the Emergency Communications Transformation Program (ECTP) Unified Call Taker (UCT) project, Gartner Consulting completed an analysis of NYPD Communications Center call processing time in 2007.⁹ The following is from the executive summary:

911 Baseline Study was undertaken to determine how much time potentially would be saved under a unified call taker system and what vendors could perform follow on studies in the future.

Out of a population of 1.04 Million 911 calls that involve transfers from NYPD call takers to FDNY call takers, Gartner analyzed 1,435 calls selected at random. The sampling methodology taken supports a 95% confidence level in the results, +/-2.6%.

A stratified random sample was conducted.

⁹ The methodology and results of Gartner’s analysis are contained in the 2007 Baseline 911 Metrics/Process Measurement report. During our review of the Gartner baseline report, we discovered error in the total amounts of time listed in specific segments:

1. The EMD table (Figure 4.2.7) a total of 184 Seconds when the segments add up to 194
2. The Fire table (Figure 4.2.8) indicates that in the to-be state, 15 seconds could be saved rather than the 65 that are actually indicated by adding up the redundant segments. Despite these errors, we believe that the individual segment times accurately capture 9-1-1 call processing times. This is supported by our personal observations conducted as part of our review and we are including these tables as part of this report.

Taken directly from the Gartner analysis, Figure 4.2.7 below demonstrates that for an emergency medical incident, the NYPD call taking process time from the point a 9-1-1 call was answered to the conferencing of an FDNY EMD Ambulance Receiving Officer (ARO) averaged 135 seconds or 2 minutes 15 seconds.

For EMS calls, the tables below describe the as-is and to-be state for an example call; grey boxes represent call functions dropped for the to-be state

- The current, as-is call taking process example

Operator Announcement	Incident Location Verification	Caller Incident Information	Conference Connect Time	Agency Info Exchange	EMS Triage	EMS re-verification of incident location & callback	EMS repeated caller incident information	EMS Pre-Arrival Instructions	Total Time
3 sec	112 sec	18 sec	2 sec	6 sec	14 sec	22 sec	10 sec	7 sec	184 sec

- The to-be call taking process example

Operator Announcement	Incident Location Verification (longest time)	Caller Incident Information (longest time)	Conference Connect Time	Agency Info Exchange	EMS Triage	EMS re-verification of incident location & callback	EMS repeated caller incident information	EMS Pre-Arrival Instructions	Total Time
3 sec	112 sec	18 sec	2 sec	6 sec	14 sec	22 sec	10 sec	7 sec	144 sec

- For this example, the to-be process time saves 40 seconds

Figure 4.2.7 – Gartner Baseline 911 Metrics Report – EMS Incidents

For a Fire incident (Figure 4.2.8), the NYPD call taking process time from the point a 9-1-1 call was answered to the conferencing of an FDNY Fire Alarm Receipt Dispatcher (ARD) averaged 75 seconds or 1:15 minutes/seconds.

For Fire calls, the tables below describe the as-is and to-be state for an example call; grey boxes represent call functions dropped for the to-be state

- The current, as-is call taking process example

Operator Announcement	Incident Location Verification	Caller Incident Information	Conference Connect Time	Agency Information Exchange	Fire re-verification of incident location & callback	Fire repeated caller incident information	Fire Pre-Arrival Instructions	Total Time
4 sec	27 sec	30 sec	14 sec	2 sec	43 sec	12 sec	0 sec	132 sec

- The to-be call taking process example

Operator Announcement	Incident Location Verification	Caller Incident Information (longest time)	Conference Connect Time	Agency Information Exchange	Fire re-verification of incident location & callback (longest time)	Fire repeated caller incident information	Fire Pre-Arrival Instructions	Total Time
4 sec	27 sec	30 sec	14 sec	2 sec	43 sec	12 sec	0 sec	117 sec

- For this example, the to-be process time saves 15 seconds

Figure 4.2.8 – Gartner Fire Incident Baseline Analysis

As part of this analysis, NYPD advised the “Average Total Talk Time” metric for 2010 was 1:08 minutes/seconds. However, as described in Section 3.5 (Accidental/Short Calls) the NYPD Communications Center receives a significant volume of accidental, misdialled, and other types of 9-1-1 “short” calls. In 2010 there were 3,910,373 “0-19 second” 9-1-1 calls which accounted for 38% of all 9-1-1 calls handled. From January through April 2011, “0-19 seconds” calls were 39% of the total Number of Calls Handled (NCH) workload. These short calls skew the “Average Total Talk Time” metric.

Recommendation 6 A & B:

A) Establish a methodology and associated procedures to measure and evaluate 9-1-1 call processing time. 9-1-1 call processing time measurements provide a tangible metric concerning individual, management, training, and overall PSAP operations.

B) Establish call taking process performance standards, metrics, and procedures to evaluate the performance of the NYPD Communications Center. PSAP industry standards (i.e., APCO, NENA, IACP, NFPA, etc.) and guidelines should be utilized as applicable.

Many PSAPs utilize NENA, APCO, NAEMS, NFPA, IACP and other industry guidelines. For example, the Average Speed of Answer (ASA) is a critical metric concerning 9-1-1 call taking operations. NYPD does

not maintain and is not able to query the call processing time during the busy hour as articulated in the National Emergency Number Association (NENA) Call Answering Standard:

NENA 56-005, Call Answering Standard

#1 - Standard for answering 9-1-1 Calls. *Ninety percent (90%) of all 9-1-1 calls arriving at the Public Safety Answering Point (PSAP) shall be answered within ten (10) seconds during the busy hour (the hour each day with the greatest call volume, as defined in the NENA Master Glossary 00-001). Ninety-five (95%) of all 9-1-1 calls should be answered within twenty (20) seconds.*

The analysis was also unable to ascertain if the NYPD Communications Section accomplished the 95% standard.

NYPD provided the call processing time metrics:

Time Metric	Number	Percent
0-5 Seconds	9,528,252	86.21%
6 - 29 seconds	1,337,223	12.88%
Greater than 30 seconds	86,772	0.91%

Table 4.2.9 - 2010 Average Speed of Answer (Delays Held in Queue)

4.3 NYPD to FDNY/Fire Dispatch Workflow

Post-UCT implementation (May 4, 2009), NYPD call takers follow the same business processes as pre-UCT with two additions:

At the conclusion of receiving the necessary information to enter a job into the SPRINT CAD system, NYPD call takers will “pre-release” the job/incident to FDNY Fire Dispatch. The “pre-release” process utilizes an interface, commonly referred to as a “link”, between the NYPD SPRINT CAD system and the FDNY Fire Dispatch StarFire CAD system. The pre-released job/incident is then presented to an FDNY/Fire Dispatch “Decision Dispatcher” (DD) position.

Immediately following the pre-release of the job/incident, NYPD call takers “conference” the caller with an FDNY/Fire Dispatch call taker (also known as an Alarm Receipt Dispatcher – ARD). It is UCT policy that a job/incident be pre-released prior to conferencing a Fire ARD. A call “conference” is essentially the same as a call transfer with the NYPD call taker staying on the line for a limited amount of time.

To conference an FDNY ARD, the NYPD call taker selects the borough of the incident location on the call taker’s Vesta Console. FDNY Fire Dispatch also employs a 9-1-1 Automatic Call Distribution (ACD) system. If the selected borough ARD’s are busy, the 9-1-1 call transfer is routed to the next available ARD as configured in the ACD.

If new or different information is obtained during the conference call with the Fire ARD (i.e., different address than originally entered into SPRINT), the NYPD call taker will update the SPRINT CAD system while the FDNY ARD continues to question the 9-1-1 caller. NYPD policy provides discretion as to when a call taker may disconnect from a 9-1-1 conference call with FDNY Fire Dispatch.

4.4 NYPD to FDNY/Emergency Medical Dispatch Workflow

The initial Unified Call Taker (UCT) project neither involved nor impacted the business processes employed with FDNY EMD for emergency medical incidents. UCT is described more fully in Chapter 5.

From the moment a 9-1-1 call is received, NYPD call takers follow the same business processes for emergency medical incidents as previously described for fire incidents, with an additional series of manual actions. At the conclusion of obtaining enough information to create a SPRINT job, UCT call takers will then conference the caller with an FDNY EMD call taker.¹⁰

EMD call takers receive incoming 9-1-1 calls from NYPD via a VESTA ACD. EMD call takers answer the 9-1-1 call from NYPD with their unique EMD operator number. The EMD call taker operator number is required for the NYPD call taker to electronically transfer data that was previously input into the SPRINT CAD system to the EMS CAD system. The EMS CAD system is different and separate from the Fire StarFire CAD system. Once the data is received by the EMS CAD, the EMD call taker will enter incident data into the EMD CAD while asking the caller additional questions.

The EMD call taker asks essentially the same questions and takes the same actions as the NYPD call taker concerning the location of the incident. Following determination of location, the EMD call taker asks additional questions regarding the medical emergency.

Prior to disconnecting with the caller, the EMD call taker will provide pre-arrival instructions to the caller. These instructions assist the caller, or others in the incident vicinity, until first responders arrive on scene. The NYPD call taker stays on the line with the caller and disconnects at the point they believe they have all the pertinent information required for the SPRINT CAD job.

Finding 7 Continuing Need for Coordinated Policies Regarding EMD Related 9-1-1 Calls

There is a continuing need for jointly prepared and agreed-to policies and procedures between NYPD and FDNY concerning emergency medical incident specifically, 9-1-1 call taking business processes, performance standards, performance metrics, Quality Assurance (QA), and problem identification and resolution. Of significance, neither EMD managers nor FDNY EMS leadership were involved in the

¹⁰ Unlike a Fire Dispatch incident, NYPD call takers do not have to identify and then select the borough in which the incident is located.

development, training, and implementation of numerous NYPD Communications Center procedures related to emergency medical incidents that impact FDNY EMD and EMS operations.

For example, if an incident involves a crime and an injury, NYPD procedure #506 instructs call takers to manage the incident as a crime first, prior to conferencing the caller to FDNY EMD. There is no instruction to call takers to determine the severity of injury and the need for EMD to provide pre-arrival instructions and/or dispatch EMS units to the victim as soon as possible.

Additionally, EMD is not able to perform QA oversight on emergency medical incidents from the point a 9-1-1 call was answered up through when EMS units are dispatched.

Recommendation 7

All NYPD Communications Center policies and procedures that impact FDNY operations should be created through a formal process involving all requisite NYPD and FDNY subject matter experts. Also, EMD QA processes must be able to assess EMD related calls from call receipt to dispatch.

Finding 8 NYPD Redundant Operations

NYPD call takers enter data into the SPRINT CAD system prior to conferencing FDNY EMD. For a medical emergency, the NYPD is not the primary responding agency.

Figure 4.4.1 below shows the workflow process for an emergency medical incident. NYPD call takers obtain location information, validate the address in SPRINT, check SPRINT for duplicate jobs, and then obtain the type of emergency prior to conferencing an EMD call taker.

The initial step for NYPD is to validate the address in the SPRINT CAD system. The incident location will still have to be validated in the EMSCAD system geofile by an EMD call taker prior to dispatching EMS units.

NYPD call takers then check the SPRINT CAD system for duplicate jobs. The NYPD call taker will still have to conference an EMD call taker for EMS units to be dispatched.

While NYPD may enter all emergency medical jobs into their SPRINT CAD system, many of the emergency medical or "aided" jobs are not dispatched to NYPD units. In 2010, NYPD entered 1,049,888 emergency medical jobs. Only 34.8% (365,163) of those jobs resulted in a "radio run" for NYPD. Conversely, 65.2% (684,725 of the 1,049,888 jobs) were "deferred" (i.e., not dispatched).

Another potential area for reducing call processing time of a 9-1-1 call is through the interaction between the EMD call taker and the NYPD call taker. For example, the EMD call taker answers the 9-1-1 call from NYPD with their operator number. This number is necessary for the NYPD call taker to send the SPRINT CAD data to the EMS CAD system and specific call taker. 9-1-1 callers can be confused by the verbal interaction between the NYPD and EMD call takers exchanging information as they are talking to each other and not the 9-1-1 caller.

Further time is lost through the manual procedures in place and redundant data entry. NYPD call takers must enter the correct EMD call taker operator number for the data to be received by EMD.

EMD call takers complete redundant data entry into EMS CAD for the information that NYPD call takers entered into SPRINT. Figure 4.4.1 below depicts the 9-1-1 call process from NYPD call takers to EMD call taker and dispatch personnel, highlighting the areas where duplicative questioning and actions occur.

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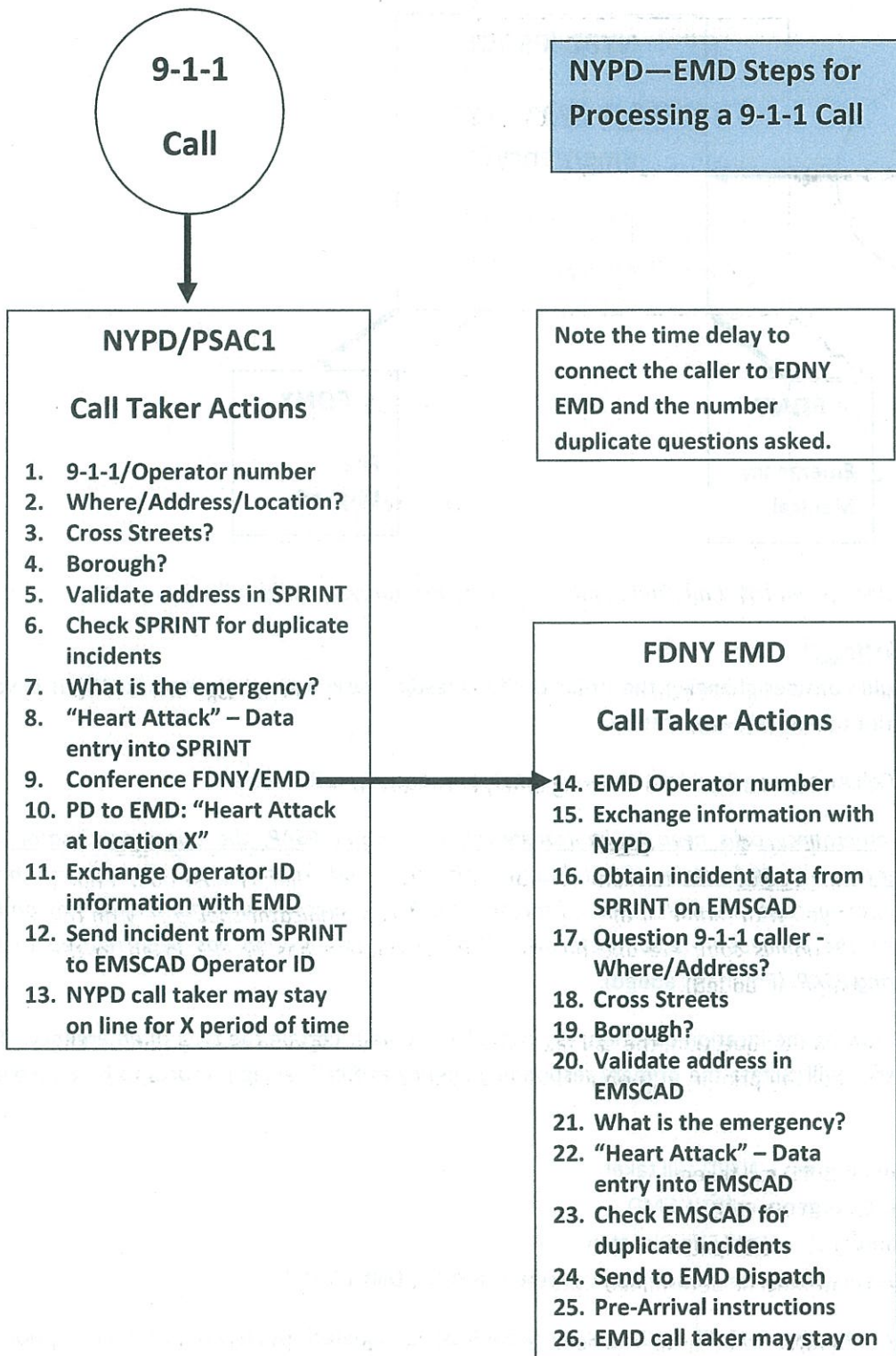


Figure 4.4.1 – NYPD to FDNY/EMD – Duplicative Questions and Data Entry

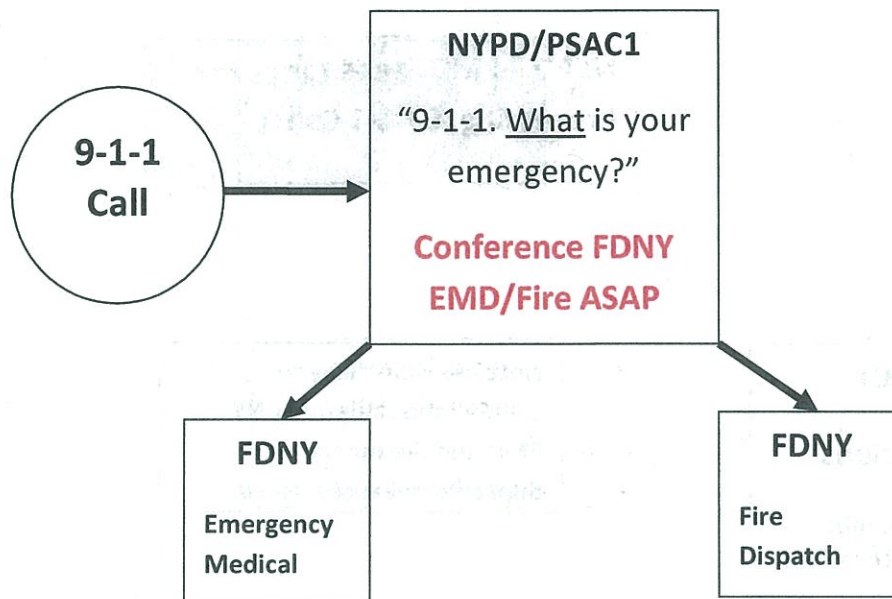


Figure 4.4.2 – Recommended Call Taking model used by Primary/Secondary PSAPs

Recommendation 8

The NYPD should consider changing the order of the questions asked the caller to ask “What is your emergency”, prior to determining location.

NENA 56-005, Call Answering Standard #7 - Transferring emergency calls states:

When emergency calls need to be transferred to another PSAP, the telecommunicator will transfer the call without delay. The telecommunicator will advise the caller: “Please do not hang up; I am connecting you with (name of the agency).” The telecommunicator should stay on the line until the connection is complete and all pertinent information has been relayed to the answering PSAP. (Emphasis added).

Immediately following the location question, the call taker would ascertain the type of emergency. The type of emergency will dictate the primary responding agency and call taking protocol to be employed. For example:

- Crime in Progress – NYPD call taker
- Medical Emergency – FDNY EMD
- Fire Emergency – FDNY Fire Dispatch
- Multi-agency response – To be determined by NYPD, FDNY EMD & Fire

No data entry into the SPRINT CAD system would be completed by NYPD call takers prior to conferencing FDNY EMD or Fire Dispatch. NYPD call takers would stay on the line to initiate a SPRINT job simultaneously with FDNY EMD or Fire Dispatch.

The implementation of a Primary PSAP/Secondary PSAP model (Figure 7.4.3 below) would provide the following benefits:

- Eliminate redundant data entry.
- Improve 9-1-1 call processing time.
- Improve quality of 9-1-1 call processing and dispatching of public safety resources.
- Leverage call taking expertise of FDNY EMD & Fire Dispatch.

4.5 FDNY EMD Business Processes

When a caller dials 9-1-1 to report a medical emergency, an NYPD call taker obtains the patient's location, validates the location in the NYPD SPRINT CAD system, checks for duplicate NYPD incidents, and obtains basic information regarding the nature of the medical emergency. The NYPD call taker then enters the NYPD appropriate incident code and attempts to connect the caller (call conference) with an EMD call taker.

Unlike an FDNY Fire Dispatch incident, for an EMD incident NYPD call takers do not have to identify and then select the specific borough (console button) in which the incident is located. EMD call takers logged into the FDNY ACD receive incoming 9-1-1 calls from NYPD in a "forced answer" process in which the call automatically rings in the available EMD call taker's headset.

EMD call takers answer the 9-1-1 call with their unique EMD operator number. The EMD call taker operator number is required for the NYPD call taker to electronically transfer data from the NYPD SPRINT CAD system to the EMS CAD system via a CAD-to-CAD interface. When ready, the EMD call taker tells the NYPD call taker to "send the job". The NYPD call taker then routes the incident to the EMS CAD.

Once the SPRINT data is received by EMS CAD, the EMD call taker receives the data on their CAD screen and accepts the data for input into the EMS CAD incident. The EMD call taker asks essentially the same questions and takes the same actions as the NYPD call taker concerning the location of the incident plus asking more detailed questions regarding the nature of the medical emergency in order to triage the incident and enter an appropriate EMS incident code.

EMD call takers are all certified EMTs. "Flip cards" containing medical triage protocols are available at every EMD call taker position but are not consistently utilized. Most of the triage questioning is freelance based on the knowledge and experience of the EMD call taker. The EMS incident type codes are unique to EMS and are different than the codes used by NYPD.

When the EMD call taker has verified the incident location and has enough information to assign an EMS incident code, the incident is electronically released to the EMD radio dispatcher controlling the geographic area where the incident is located. Prior to disconnecting with the caller, the EMD call taker provides pre-arrival medical instructions whenever possible. These instructions are also available on "flip cards", however, it is our observation that the pre-arrival instructions are free lanced in the same manner as the triage process.

The NYPD call taker stays on the line with the 9-1-1 caller and disconnects when they believe they have all the pertinent information required for the SPRINT CAD job.

If there are no available EMD call takers when the NYPD call taker attempts to conference the call (allows six rings), the SPRINT CAD incident is electronically routed to a queue in EMS CAD. These incidents are referred to as "RELAY" jobs. Once the electronic routing is completed the 9-1-1 caller is released. There is no medical triage performed with the caller and there are no pre-arrival instructions offered.

There is an EMD call taker assigned to work the "RELAY" queue. Incidents in this queue are selected by the call taker and based on the text that has been supplied by the NYPD call taker an EMS incident code is assigned and the call is routed from RELAY to dispatch. This method of data transfer only is also employed when there is no caller on the line for NYPD to transfer such as when the caller hangs up prior to conference or when the incident originates with an NYPD field unit via the radio.

EMD estimates that approximately 30% of all medical calls are handled through the RELAY process and of the 30% as many as half (15% of all total medical calls) are due to there being no available EMD call taker.

Finding 9 Utilization of Triage Cards

Triage and Pre Arrival instruction "Flip Cards" are not consistently used by EMD call takers. EMD call takers perform medical questioning and triage and offer pre-arrival medical instructions based on their knowledge and experience as EMTs. They do not consistently employ standardized questioning trees or scripted pre-arrival instructions. This can lead to inconsistent incident coding and affect ambulance response times to high priority incidents.

Recommendation 9

Enforce the consistent use of the supplied medical triage and pre-arrival instruction "flip cards" by EMD call takers. Focus supervisory oversight and Quality Assurance efforts on call taker compliance. Explore the inclusion of a computerized triage product for the new CAD system.

4.6 RELAY Position Workload

As previously articulated in Section 3.4, approximately 30% of all medical calls received from the public are not conferenced to a medically trained call taker (RELAY jobs). Emergency medical incidents are electronically routed to the EMD RELAY "pending" screen by NYPD call takers when there are no available EMD call takers. Calls are coded and prioritized based on unscripted questioning by non-medically trained 9-1-1 call takers. This process can lead to incorrect priorities being assigned to medical calls and could delay receipt of critical medical care.

Note: During the course of this analysis we discovered that EMD RELAY personnel were provided with only the borough and the address of the incident on the initial RELAY pending screen. EMD RELAY personnel had no way of knowing which incident had the higher priority if multiple incidents were

presented at the RELAY position. Upon being advised of this issue FDNY BTDS added the NYPD incident type code to the RELAY screen to provide EMS personnel with the NYPD call type.

Re-emphasizing the Section 3.4 recommendation, FDNY and NYPD should engage in a joint agency study of “RELAY jobs” and attempt to determine the cause of the high number of un-triaged incidents. An associated staffing analysis should be undertaken by FDNY and call taking staffing adjusted to better accommodate call volumes during periods of time when the number of “RELAY jobs” are highest.

4.7 FDNY Fire Dispatch Business Processes

When a caller dials 9-1-1 to report a fire or other emergency requiring an FDNY response, an NYPD call taker obtains the location of the emergency, validates the reported location in the NYPD SPRINT CAD system, checks for duplicate NYPD incidents, and questions the caller to determine the nature of the incident (i.e.: fire, type of structure, location in the structure, etc.). Once the location and incident type is determined and the appropriate NYPD code is entered into SPRINT, the incident is “pre-released” and routed either manually or via an automatic route (depending on the incident code entered) to the FDNY StarFire CAD system via the CAD-to-CAD interface.

The StarFire CAD creates an incident that is routed to the Fire Decision Dispatcher in the borough where the incident is located. Each Fire Borough Dispatch operation has its own Decision Dispatcher who is responsible for dispatching all alarms in that borough. The Decision Dispatcher reviews the incident location, incident information entered by the NYPD call taker, as well as the associated incident code. Any required corrections are made, the CAD recommendation for unit assignment is reviewed, accepted, or modified, and the incident is released to the assigned fire apparatus for acknowledgment and response.

In the current UCT environment, subsequent to the incident being “pre-released”, the NYPD call taker connects the caller (call conference) with a Fire call taker. The purpose of the conference is to allow a fire call taker to revalidate the incident location and confirm the incident type. The process of conferencing a fire call taker was added to the UCT process in November 2009 to address issues identified by the FDNY during the initial rollout of UCT.

When conferencing callers to Fire Dispatch, NYPD call takers have to identify and then select the specific borough the incident is located. The Fire VESTA ACD is programmed to present the call to an available call taker in the Fire borough operation where the incident is located. If there is no call taker available, the call is immediately routed to an available fire call taker in another borough operation. Fire Dispatch does not employ a “forced answer” ACD process. A “forced answer” process automatically presents a 9-1-1 call to the next available call takers headset. Currently, the ACD is configured to ring the phone at the next available call taker’s position. The call taker must manually answer the call. FDNY was not able to provide any statistics regarding how long it takes for a fire call taker to react to the incoming call.

The fire call taker asks the same questions and takes the same actions as the NYPD call taker concerning the location of the incident and nature of the incident. More detailed questions might be asked regarding the fire emergency to ensure the proper response is dispatched to the scene. Any additional

information received or changes to the location of the emergency are added to the fire incident and sent to the Decision Dispatcher and/or radio dispatcher for changes to response or updating of responding units.

When the Decision Dispatcher has made a decision as to what units will actually be assigned to the incident, he or she dispatches the incident and the alarm is routed to the assigned companies, either in their fire houses via the Alarm Teleprinter/Selector PC (ATSPC- a Rip and Run Printer/touch screen) or if the units are out of quarters, to the mobile data terminals (MDT) in the units.

If a unit in a fire house does not acknowledge the run within 30 seconds, or if their ATSP is out of service, StarFire generates an alert screen at the Voice Alarm position. The Voice Alarm is an intercom between fire houses and the dispatch center. When the alert screen is received, the dispatcher assigned to the Voice Alarm position calls the affected units using the voice alarm system and reads the assignment to them. The units will then acknowledge and the dispatcher updates their status in CAD. Similarly if assigned units are out of quarters and their MDT is out of service or if they do not acknowledge via their MDT, the StarFire CAD will generate an alert screen at the Radio position. The Radio dispatcher then calls the assigned unit and advises them of the response and updates their status in CAD.

Finding 10 ALI Information and Associated MapStar Mapping is Underutilized in Fire Call Taking

When NYPD conferences a FDNY call taker, the receiving FDNY call taker obtains fresh ANI/ALI information (FD's own ALI dip). This feature has been available to FD call takers since 2009. Each fire call taker is also provided with a VESTA MapStar map that displays the location of the caller or the cell site (for wireless calls).

During the initial observation of fire call taking and related document review, there were no policies or procedures in place directing personnel on how to use ANI/ALI data in the call taking process. Personnel did not review ALI data and when queried about Phase II wireless data were unaware of the procedure for obtaining a "re-bid" using VESTA.

The FDNY does not track discrepancies in the MSAG data base and does not have an ALI/MSAG discrepancy report. Subsequent to discussing this with BOC, Fire Dispatch management released an "Advisory (Dispatchers Advisory 11-05) instructing dispatch personnel to:

"Review ANI-ALI and Map-Star mapping information while processing an alarm; to assist in verifying response to the proper location, and to be certain that these tools are used in the event there is difficulty in determining the proper location of a fire or emergency."

The findings revealed that Fire Dispatch personnel have never received training regarding the Map-Star product. Formal training was only offered to Supervisors during initial VESTA training. Other than the aforementioned "Advisory" there are no policies or procedures in place instructing Fire dispatch

personnel on the use of Map-Star nor is there any policy in place on how or when to utilize ANI/ALI data in order to ensure response to the correct location.

Regarding record keeping related to ANI-ALI information, there is currently no mechanism for capturing the ANI/ALI data that is received directly by FDNY call takers into the StarFire Incident History.

Recommendation 10

There is a mission-critical need for the FDNY Communications Centers to leverage ALI data to its maximum capability. Besides employing PSAP industry best practices, there are substantial reasons to leverage ALI data including:

- There are numerous streets with the same name (and sometimes block range) in more than one borough. Some street names are in all five boroughs.
- New York City allows vanity addresses and other types of addressing that could confuse a 9-1-1 caller.
- Some local neighborhoods refer to streets by a local name versus the full street name. For example, one neighborhood drops the "1" and refers to a street as 16th Street versus the correct 116th Street.
- Several million commuters who travel to New York City for employment each day.
- Over 47 million people visit New York City a year and may not know their precise location.

NENA 56-005, Call Answering Standard #6.1 - Standard for answering 9-1-1 Calls - Address verification states:

"The telecommunicator will verify all addresses reported. If the address provided by the caller matches the ALI display, the address may be considered verified. In the event there is a discrepancy, additional steps must be taken to verify the location of the incident being reported, such as repeating the address twice and/or annunciating each digit of the address if necessary to clarify." (Emphasis added).

The FDNY should create policies and procedures and train personnel on the value and appropriate use of ALI data and associated Map-Star mapping. Follow up quality assurance measures should also be adopted which allows management, supervisors, and trainer personnel to assess levels of compliance with the policies as well as any employee knowledge deficits that require additional training.

Finding 11 Decision Dispatcher Position Workload During Times of Extraordinary Fire Activity

Under current UCT procedures, FDNY Decision Dispatchers may receive alarms from between 60 and 90 NYPD call takers. Current processes and policies are deficient, subject to bottlenecks, and do not provide clear guidance and operational procedures to manage a high-volume event.

There is only one Decision Dispatcher position assigned in each Fire Dispatch Borough operation during normal operations. During periods of unusually high call volumes the Decision Dispatcher can

experience backlogs of incidents waiting in queue for review and dispatch. Many of these incidents are duplicates to incidents already dispatched and could be easily cleared from the queue. While it is possible to designate and configure StarFire to support other positions, such as the Supervisors position, to serve as a second Decision Dispatcher, there are no formal policies or procedures in place directing supervisors when to engage this process or specifically how to utilize multiple Decision Dispatchers in a single borough operation.

Recommendation 11

Fire Dispatch Operations should develop and implement appropriate policies, procedures, and training curriculums to ensure effective and consistent dispatch operations during times of extraordinary fire activity.

Finding 12 Underutilization of Dispatch Process Metrics and Quality Assurance Within Fire Dispatch Operations.

There are some procedures in place that attempt to provide Quality Assurance measures regarding Fire Dispatch Operations. Chief Dispatchers recently began reviewing major incidents (multiple alarm fires, building collapses, etc.) specifically directed at the effectiveness and speed of unit dispatch, relocation of apparatus, and other dispatch and supervisory functions related to the incident.

The migration to the VESTA system provides a new opportunity to assess Fire call taking performance. Speed of call answer as compared to the number of call takers logged into VESTA is an example of a performance metric that could be reviewed by Fire Dispatch management utilizing VESTA reports.

FDNY generates reports that document average processing times however, there are no exception reports generated that capture specific occurrences where overall processing times exceed an established standard.

Recommendation 12

Establish call taking process performance standards, metrics, and procedures, reports and QA oversight to evaluate the performance of the FDNY Fire Dispatch Operations. FDNY does not employ PSAP industry (i.e., APCO, NENA, NAEMS, NFPA, IACP, etc.) standards or guidelines. An example of Industry standards that should be employed includes the National Fire Protection Association (NFPA) Standard 1221 that addresses the following:

Section 7.3.1 from the standard states *"The authority having jurisdiction shall ensure that there are sufficient telecommunicators available to affect the prompt receipt and processing of alarms [emergency calls, business calls do not apply] needed to meet the requirements of Section 7.4"*.

Section 7.4 states that 95% of alarms [emergency calls answer time] shall be answered within 15 seconds, and 99 % of alarms shall be answered within 40 seconds [documentation is required - i.e., monthly and annual performance reports].

Section 7.4.2 states that 90% of emergency alarm processing [dispatch call handling time - time received to time dispatched] shall be completed within 60 seconds, and 99% of alarm processing shall be completed within 90 seconds.

Finding 13 Need for a Formal In-service Training Program for Fire Dispatch

Fire Dispatch Operations has an effective and well-structured training program for newly hired dispatch personnel. There are formalized lesson plans, written and hands-on testing, and criteria for determining acceptable levels of attained knowledge, skills, and abilities and a formalized feedback structure that keeps new employees informed of their progress and areas where they are deficient.

There is however no formalized in-service training program for tenured dispatch personnel. In-service training is conducted by Supervisors utilizing pre-established drills with associated lesson plans. These sessions are held during slack periods during the regular work day and are subject to interruptions, inconsistent training methodology (supervisors do not receive any training and/or certifications to conduct training), and no formalized policies or procedures that capture dispatch personnel's understanding or retention of the material being taught.

There have been significant changes to technologies employed in Fire Dispatch Operations in recent years, however other than initial vendor provided training there has been no follow up training on operation of new technologies including, but not limited to radio and telephone systems.

Recommendation 13

Establish an ongoing dispatch personnel training program which addresses skills, knowledge, and abilities required to operate in the most proficient manner. Review of new policies and procedures as well as scenario based training should be included. Supervisors and training staff who conduct any training sessions whether on or off tour should receive appropriate training and certification to instruct. This can be accomplished through use of internal FDNY training resources or outsourced to organizations such as APCO.

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5.0 Unified Call Taker (UCT) Project

Emergency Communications Transformation Program (ECTP) documentation describes the Unified Call Taker (UCT) Project as:

"The UCT (Unified Call Taker) project is a part of the New York City ECTP (Emergency Communications Transformation Program) which aims to overhaul and consolidate the 9-1-1 communications centers and operational procedures in New York City. The UCT project objective is to have a single, unified call taker for all 9-1-1 calls."

5.1 UCT Background and Original Concept

On May 24, 2009 UCT for Fire incidents was initiated. While the technical interface between the NYPD SPRINT CAD system and the FDNY StarFire CAD system worked as designed, the initial Fire UCT cutover revealed some issues related to 9-1-1 call taking operations specific to fire incidents and the transfer of information from NYPD to FDNY. Additional training was completed post-cutover to address the identified issues.

In response to FDNY's continued concerns regarding UCT issues the initial UCT concept was modified to re-introduce FDNY call takers into the process in November 2009. NYPD call takers would conference FDNY call takers who would have essentially a "listen only" role. Plans to include Emergency Medical call taking into the UCT program were placed on hold pending the successful resolution of the issues raised by FDNY.

From November 2009 to November 2010 additional training was provided to 9-1-1 call takers in an effort to improve the UCT process. On November 24, 2010 a new Fire UCT process was implemented to further resolve identified issues. The new procedure instructed NYPD 9-1-1 call takers to conference FDNY call takers after a fire incident had been "pre-released" to the FDNY Decision Dispatcher.

Finding 14 UCT Issues

It is a finding of this analysis that the UCT process, as currently configured and operated has resulted in documented issues for FDNY Fire Dispatch and field operations. Below is a list of issues that were identified with the current Fire UCT process:

- A combined NYPD and FDNY governance structure was not established to ensure UCT meets NYPD and FDNY objectives, provides overall Quality Assurance of UCT operations, day-to-day management and conflict resolution
- Formal baseline measurements, performance standards, and operational metrics, were not developed prior to the initiation of UCT and post UCT-cutover
- Expert consultant recommendations regarding UCT planning, development and implementation were submitted but for the most part not implemented

- The project was managed as an Information Technology (IT) project and not an operations project
- NYPD and FDNY CAD systems are supported by three separate geofile systems that contain numerous mismatches of street address information
- The UCT process added a significant increase to the workload of the Fire Decision Dispatcher
- NYPD call takers did not receive adequate training for UCT responsibilities and are not proficient at handling FDNY related activity
- FDNY Fire Dispatch personnel did not receive adequate training and have made only nominal adjustments to their pre-UCT business processes
- A review of FDNY UCT complaint forms, interviews with NYPD and FDNY personnel, and direct observation identified problems in the following areas:
 - Wrong address
 - Unclear information provided to FDNY responding units
 - Miscoding of incidents
 - Misrouting of incidents
- Statistical information provided to City Hall management to demonstrate the success of the UCT project contained errors and does not provide a clear picture of the effectiveness of UCT related business processes

Recommendation 14

We recommend the following steps to enhance UCT operations:

- a. Establish a 9-1-1 Call Process Protocols Workgroup that will provide the oversight, structure, and define the corresponding roles, responsibilities and decision processes to provide equal input into the UCT operations by all stakeholders to include City Hall, NYPD, FDNY and OCEC on an ongoing basis
- b. Review and modify UCT business processes/protocols for agency-specific, multi-agency, and high call volume incidents with the goal of ensuring consistent and accurate information is provided by UCT call takers to agency dispatchers. Process should include all stakeholder agencies
- c. Use results of the business process and procedure review and subsequent modifications to develop a UCT call taker training program
- d. Oversee improvements to the call taking and dispatching Quality Assurance (QA) functions in police, fire and EMS to establish ongoing QA analysis of UCT performance

- e. Define specific performance metrics and measurement capabilities to measure the performance of UCT
- f. Consider changing the UCT/Fire call taking process to include changing the order of questions asked by the UCT call takers to include the following steps:

Step 1 - "9-1-1 what is your emergency?"

Step 2 - Determine if the incident is for police, fire or EMS

Step 3 - Immediately conference an EMD or Fire call taker when applicable

Step 4 - Fire or EMD (depending on the what service is required) call taker will manage interrogation of the caller and enter the information into their CAD system while NYPD call taker stays on the line and enters information required by the NYPD CAD.

5.2 UCT Summary Report

Subsequent to the May 4, 2009 UCT cutover, City Hall requested from the UCT Project Team a report to demonstrate the performance of the UCT process. A UCT Summary Report was developed with the beginning date of July 1, 2009. The UCT Summary Report was produced on a monthly basis from July 1, 2009 to April 30, 2010.

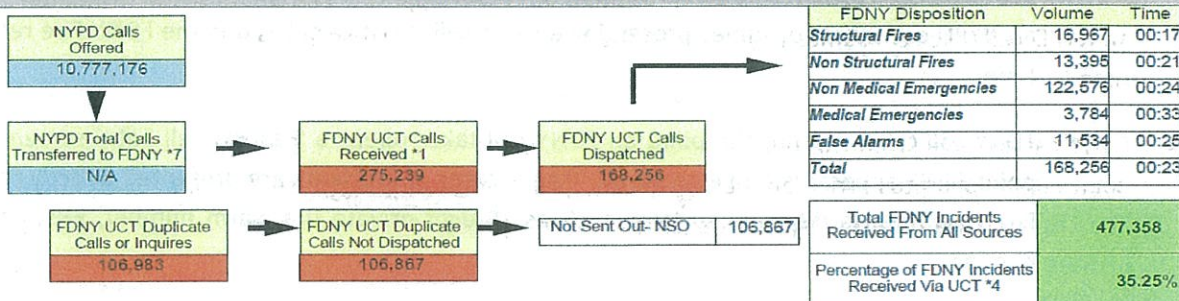
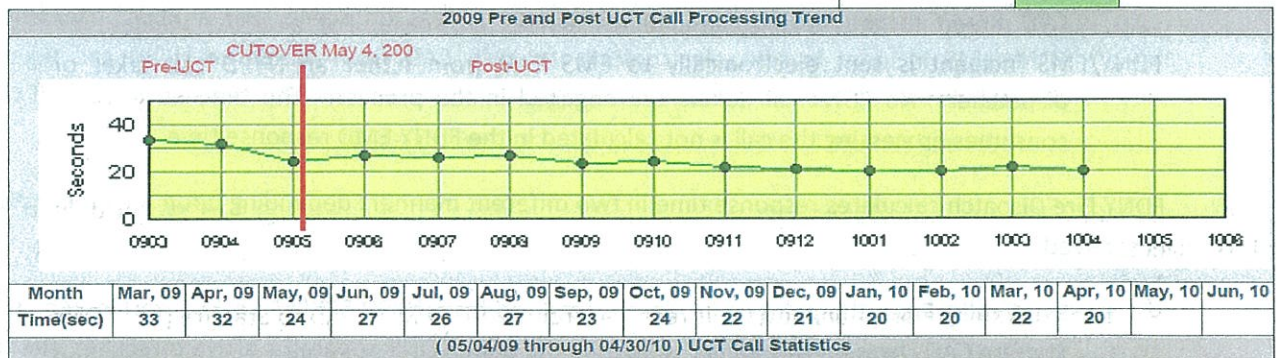
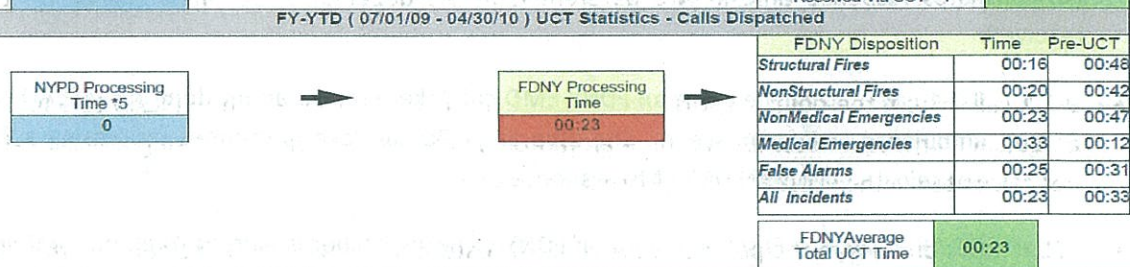
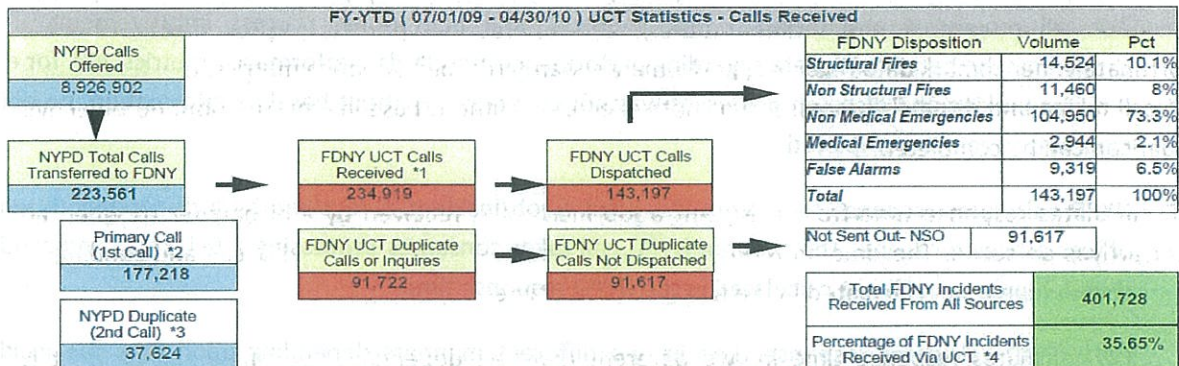
The UCT Summary Report became a critical issue in the analysis of the NYPD and FDNY 9-1-1 call taking business process because the report indicated that the UCT process was saving 10 seconds from the original call taking/dispatch process for FDNY/Fire incidents. Concerns regarding the UCT Summary Report were identified that resulted in a conclusion that the report did not completely or accurately reflect the actual performance of the UCT process and could not be relied upon for UCT validation. The following information supports our analysis.

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Date: 05/03/10 11:03

UCT Summary Report

(07/01/09 - 04/30/10)



- *1 +/- 5% variation expected between NYPD Transferred UCT calls and FDNY UCT calls accounted for through operational differences in managing and defining duplicates
- *2 Represents initial call (baseline UCT call for service - includes NYPD dispatcher requests)
- *3 Same incident (duplicate) defined by NYPD - does not result in new incident
- *4 Medical incidents received via EMS/PO Links, established prior to UCT implementation, are excluded
- *5 NYPD unable to provide this data; potential for improved data collection through Vesta implementation (being investigated)
- *6 Average processing time prior to the May UCT cutover includes ALL FDNY Alarm Sources
- *7 NYPD Duplicate (2nd Calls) not available for May, 2009 stats

Figure 5.2.1 - UCT Summary Report

An objective analysis of the UCT process and reporting data would provide an accurate comparison of pre-UCT and post-UCT performance standards (i.e., quality of the process), performance metrics (i.e., 9-1-1 call processing and dispatch time metrics), and operational process improvements (if any). Unfortunately, benchmark data regarding performance standards, performance metrics, etc. for existing 9-1-1 call taking and dispatch processes was not collected. Without baseline information, no objective comparison can be completed.

NYPD calculates response time from the point a job/incident is received by a dispatcher to when an officer arrives on scene. The time an NYPD call taker consumes processing a 9-1-1 call and sending to dispatch processing is not calculated in the NYPD response time.

FDNY/EMD calculates response time in two different manners depending upon how the incident is received:

- 9-1-1 call – From the point an FDNY EMD call taker creates an incident in EMSCAD to when an ambulance arrives on scene. The time an NYPD call taker consumes processing a 9-1-1 call is not calculated in the FDNY EMD response time.
- RELAY Position – From the point an FDNY EMD dispatcher is alerted to an incident via the EMS CAD RELAY screen to the time an ambulance arrives on scene. For a RELAY incident an FDNY/EMS incident is sent electronically to EMS CAD from either an NYPD call taker or dispatcher. No FDNY call takers are engaged in the process. The time an NYPD call taker consumes processing the call is not calculated in the FDNY EMD response time.

FDNY Fire Dispatch calculates response time in two different manners depending upon how the incident is received:

- 9-1-1 call – From the point an incident is received from NYPD SPRINT CAD to StarFire (i.e., FDNY StarFire CAD Decision Dispatcher queue) to the point FDNY apparatus arrive on scene. The time an NYPD call taker consumes processing a 9-1-1 call is not calculated in the FDNY Fire response time
- FDNY call taker – From the point an FDNY call taker opens a StarFire Call Entry screen to the point FDNY apparatus arrive on scene. These types of incidents are presented directly to FDNY Fire Dispatch via different systems such as 10-digit private fire alarm number, ERS, and BAS phones

As noted in the various response time methodologies, NYPD does not currently include the time an NYPD call taker interacts with the 9-1-1 caller, prior to release of the incident to dispatch. The public

safety industry standard for “response time” is from the point a 9-1-1 call is made to the time responding units arrive on scene.¹¹

As demonstrated in the two below examples, the UCT Summary Report used “N/A” or “0” for NYPD processing time in the UCT process calculation. Since time is in fact consumed by the NYPD call taker, the lack of this time consumption metric produces inaccurate results.

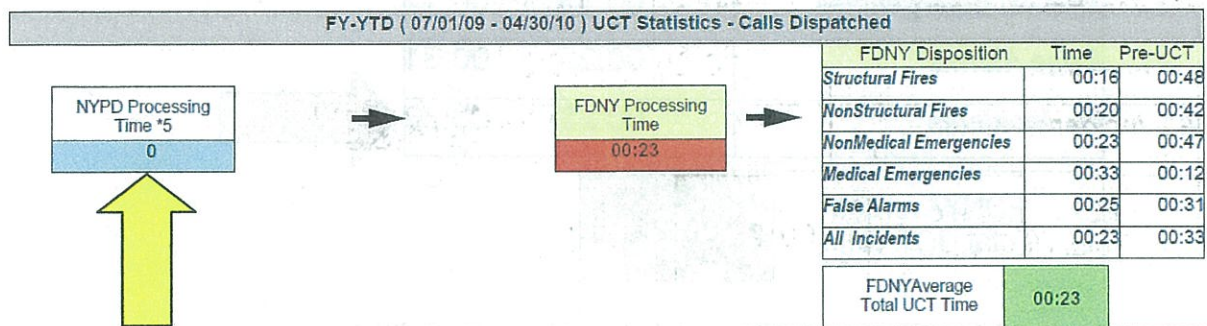


Figure 5.2.2 – Cutout excerpt of UCT Summary Report July 1, 2009 – April 30, 2010

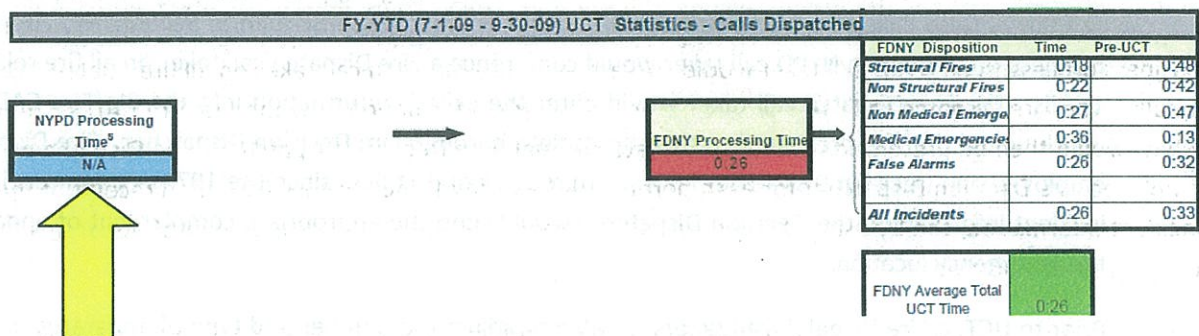


Figure 5.2.3 – Cutout excerpts of UCT Summary Report July 1, 2009 – September 30, 2009

The UCT time used in the below calculation does not include any NYPD call taker processing time therefore the comparison as displayed in the table is not representative of the actual time spent processing the call. The below table infers that 10 seconds was saved as a result of the implementation of the Interim UCT methodology (i.e., 23 seconds for UCT Time versus 33 seconds for Pre-UCT time). That conclusion is not supported by the data contained in the UCT Summary Report.

¹¹ This is the only definition that is meaningful to 9-1-1 callers, the media, and any evaluation regarding how a city performs in the area of emergency response.

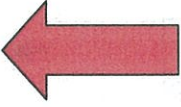
FDNY Disposition	Time	Pre-UCT
Structural Fires	00:16	00:48
NonStructural Fires	00:20	00:42
NonMedical Emergencies	00:23	00:47
Medical Emergencies	00:33	00:12
False Alarms	00:25	00:31
All Incidents	00:23	00:33
		
FDNY Average Total UCT Time	00:23	

Figure 5.2.4 – UCT Summary Report July 1, 2009 – April 30, 2010

5.3 UCT Impact on FDNY Decision Dispatcher

Prior to the UCT initiative, all fire related incidents were routed through approximately 11 Fire Dispatch call takers (also called an Alarm Receipt Dispatcher – ARD). As described in Section 7.6, Fire Dispatch business processes, an NYPD call taker would conference a Fire Dispatch call taker on all fire related 9-1-1 calls. The Fire Dispatch call taker would enter the caller's information into the StarFire CAD system which would then be presented to the appropriate borough Fire Decision Dispatcher. Fire Dispatch has employed one Decision Dispatcher for each borough (total of five) since the 1970s. Upon receipt of the incident information, the Decision Dispatcher would send the appropriate complement of apparatus to the emergency location.

Prior to UCT, a Fire Dispatch call taker was able to adjust the number and type of apparatus designated to respond to an incident using the StarFire CAD call entry screen. This procedure was required due to StarFire limitations and multiple incident types having the same incident CAD code.

For example, both a water leak and stuck elevator are coded as letter "R" in the FDNY StarFire CAD with no other qualifier. However, both incidents may have a different response level which requires the Fire call taker to indicate the correct response on the call entry screen. Table 8.8.1 below provides an example of types of incidents that require a modification to the StarFire CAD system to modify the FDNY response.

Incident Type	StarFire Recommended Response based on UCT Coding	Corrected Response
Water Leak	3 Engines, 2 Ladders and Battalion Chief	1 Ladder
Stuck Occupied Elevator	3 Engines, 2 Ladders and Battalion Chief	1 Ladder
Vehicle Fire	3 Engines, 2 Ladders and Battalion Chief	1 Engine and 1 Ladder
Wires Down	3 Engines, 2 Ladders and Battalion Chief	1 Engine
Carbon Monoxide Alarm	3 Engines, 2 Ladders and Battalion Chief	1 Engine and 1 Ladder
Wash down in the Street	3 Engines, 2 Ladders and Battalion Chief	1 Engine and 1 Ladder
Lock In	3 Engines, 2 Ladders and Battalion Chief	1 Ladder
Tree Down	3 Engines, 2 Ladders and Battalion Chief	1 Ladder

Table 5.3.1 – Decision Dispatcher Assignment Modification based on UCT Coding

The UCT interface was designed to send incident data directly to the Fire Decision Dispatcher bypassing the Fire call taker. The modification of the suggested FDNY apparatus response has therefore shifted from one of the 11 Fire call takers to one of the five Decision Dispatchers.

FDNY's Decision Dispatcher procedure is to send Fire apparatus to an incident as fast as possible. As such, Decision Dispatchers manage incoming incidents at a rapid rate even during normal day-to-day operations and rely on trained and experienced fire call takers to be present them with verified and validated incidents. As a result, there was an expectation that the information presented to the Decision Dispatcher (DD) was substantially correct and there was no need for the DD to perform a detailed review and/or make response modifications. Interviews and direct observation revealed that Decision Dispatchers now either consume additional time making the modification or do not make the modification thereby potentially sending more or fewer apparatus than are actually required based on the type of incident.

The implementation of UCT resulted in a 124% increase in StarFire screens the Decision Dispatcher has to evaluate and take the appropriate action. Under UCT protocols, every time the NYPD call taker adds information to an existing incident, the Decision Dispatcher is presented with a "Potential Duplicate" screen which requires the Decision Dispatcher to indicate if the new information is related to an existing fire incident or a new incident that must be dispatched. Under current procedures the Decision Dispatcher could also be presented with additional screens if during conferencing the Fire call taker changes the incident location or call type. The additional Decision Dispatcher workload and duplicate screen volume can diminish the quality of Decision Dispatcher operations.

5.4 UCT Complaint Forms

Subsequent to the May 4, 2009 implementation of UCT, Fire Dispatch and field operations personnel began verbalizing complaints with respect to the UCT process. In June 2009, the FDNY created a UCT complaint form that was made available to Fire Dispatch and field operations personnel. The purpose of the form was to provide a consistent process for fire dispatchers and field operations personnel to report UCT related errors to the Bureau of Communications.

On July 14, 2009, the complaint form was made available to fire units via the FDNY Intranet and was referenced in Fire Department Order # 59. Submitted UCT complaint forms are reviewed by FDNY Communications Center Management and if deemed appropriate, forwarded to NYPD Communications Center management for investigation and follow up.

There was no FDNY mandatory policy that a UCT complaint form be completed for every UCT problem encountered. Interviews and direct observation revealed both numerous UCT related issues that were not reported on a UCT complaint form and the overuse of some UCT complaint forms by personnel who did not agree with the UCT process.

FDNY's Bureau of Communications (BOC) was assigned responsibility for collecting and investigating documented complaints and preparing summary reports on a monthly basis. BOC and NYPD Communications Section managers agreed that due to the large volume of UCT complaints being received, BOC would screen the complaints and forward to NYPD only those complaints that were considered the most serious for investigation. A formal NYPD and FDNY procedure or documented agreement did not exist regarding the investigation and problem solving process of UCT complaints. FDNY and NYPD conducted independent investigations of the complaints.

Of the UCT complaint forms completed, the vast majority of complaints that were investigated involved errors with incident location or address discrepancies. Other complaint types that were received, involved errors such as the miscoding of incident types, vague or incorrect incident descriptions, or misrouted calls.

During the first eight months of UCT complaint reporting, data provided in BOC's complaint summary was limited to the total number of complaints received and the number of complaints sent to NYPD for investigation. During this period there was no documentation showing NYPD's investigation and/or response to FDNY's UCT complaints.

Beginning in February 2010 the NYPD and FDNY UCT monthly UCT Complaint report contained a more detailed analysis including:

- Number of complaints broken down by source (Field vs. Dispatch)
- Number of complaints sent to NYPD for investigation
- Type of complaint (i.e., address errors, routing errors and incident description errors)

NYPD provided the results of their investigations which were included in the report. The investigation results were further classified as to cause by NYPD.

Some examples of findings based on reviews of summary reports filed for the indicated periods revealed the following:

UCT Complaints between June 2009 and March 2011

Approximately 35%, (1,278 of 3,698) of the total complaints received were forwarded to NYPD for investigation.

UCT Complaints between February 2010 and March 2011

Approximately 65% of complaints were generated by dispatchers with the rest coming from field personnel. Over 86% of the complaints sent to NYPD were related to address errors.

NYPD attributed approximately 54% of the address errors submitted to mistakes made by NYPD call takers (289 of 527).

Approximately 50% of calls not conferenced were attributed to 9-1-1 call taker error (28 of 57).

5.5 Level of Effort Required to Transition EMD Call Taking to NYPD

The National Highway Traffic Safety Administration (NHTSA) governs Emergency Medical Services (EMS) and regulates Emergency Medical Dispatch operations as a component of EMS.

According to NHTSA, *"Emergency Medical Dispatch Programs serve two main purposes: they (1) serve to manage the EMS resources in an organized and effective manner and (2) to provide assistance to callers when needed until trained field response units arrive at the scene."*

NHTSA has established precise goals for an EMD program including:

- *Better management of EMS and public safety resources*
- *Safer emergency responses and safer emergency scenes*
- *Provide help in dealing with time critical events by providing treatment of certain life-threatening medical conditions (like choking, shock, profuse bleeding, respiratory and cardiac arrest, etc.)*
- *Better management of true medical emergencies*

NHTSA has established mandatory standards concerning EMD operations including a directive that EMD programs have a Medical Director and a Quality Assurance (QA) program that is managed by the EMD Medical Director.

New York State 911 Board mandatory PSAP standards include EMD operations:

- *...If the authority has established an Emergency Medical Dispatch (EMD) program at any PSAP, such program shall include and require instruction which meets or exceeds the standard established by the National Highway Traffic Safety Administration (NHTSA) approved program of instruction...*

The implementation of a Computer Triage Application (CTA) is an active project within ECTP2. The Association of Public Safety Communications Officials (APCO) *911 Adviser* computer triage application has been selected for a CTA Proof of Concept project. APCO mandates specific standards, training certifications, Medical Director oversight and a formal Quality Assurance program to implement *911 Adviser*.

FDNY Emergency Medical Dispatch complies with NHTSA, New York State 911 Board and APCO *911 Adviser* EMD standards. Currently, the NYPD Communications Center does not comply with these same EMD standards.

Additional NHTSA information is provided in the Appendix.

A significant level of effort would be required for NYPD to provide EMD call taking operations including:

- A formal NYPD and FDNY governance structure concerning 9-1-1 call taking and dispatching business processes
- Assignment of the FDNY Office of Medial Affairs (OMA) as the Medial Director authority to manage NYPD EMD related call taking policies, procedures, business processes, and Quality Assurance/Improvement, etc
- If NYPD was assigned EMD operations prior to the new NYPD I/CAD system going live:
 - Re-configuration of the legacy NYPD SPRINT CAD system to meet FDNY EMS objectives
 - Re-configuration of the NYPD SPRINT interface with FDNY EMSCAD and StarFire CAD systems to meet EMS objectives
- Re-configuration of the new NYPD I/CAD system to meet FDNY EMS objectives
- Collaboration between NYPD and FDNY concerning a new CAD-To-CAD interface between the new NYPD and FDNY CAD systems
- Design and implementation of a data warehouse to complete end-to-end performance analysis
- Re-configuration of the NYPD Logging & Recording system to allow FDNY OMA to complete Quality Assurance activities
- Development of NYPD EMD business processes, policies, procedures, training curriculums and an EMD QA program
- Potential NYPD Labor Issues - NYPD PCTs and supervisors could request an upgrade in salary commensurate with new EMD certifications and responsibilities

A high-level estimate is that it would require at least 12 NYPD and FDNY FTE Subject Matter Experts (SME) approximately one month of full time work (1,920 FTE hours) to develop the initial business processes, policies, procedures, training curriculums and project plan for NYPD to complete EMD operations.

Additionally, the 1250 NYPD PCTs would be required to achieve APCO *911 Adviser* training certification prior to initiating an NYPD EMD program. The mandatory 88-hour certification course includes:

1. 40 hours Telecommunicator training
2. 8 hours CPR training
3. 8 hours first aid
4. 32 hours EMD training

A high-level estimate to initially train NYPD Communications personnel and complete *APCO 911 Adviser* administration is approximately 110,704 FTE hours. Calculated at a medium overtime rate of \$32.00 per hour the cost is \$3,542,538.00

APCO 911 Adviser requires 24 hours recertification training every two years to maintain EMD certification and also requires CPR certification to be maintained. The two-year NYPD recurring cost is estimated at 35,000 hours which calculates to \$1,120,000 using the same \$32.00 per hour medium overtime rate.

Not calculated into the above Level of Effort and cost is any changes in the basic knowledge, skills and abilities required by NYPD PCTs to successfully obtain an EMD certification and implement EMD procedures as designed.

By contrast, FDNY EMD currently utilizes certified Emergency Medical Technicians (EMTs) as EMD call takers. FDNY EMD personnel have field experience on FDNY ambulances and have a thorough understanding of the NYC EMS system.

FDNY EMD personnel are already certified for EMD operations and only need 32 hours of *APCO 911 Adviser* certification training as compared to the 88 hours for each of the 1250 NYPD PCTs. The total FTE hours required and cost to train 285 FDNY EMD personnel for *APCO 911 Adviser* is significantly less (9,120 hours) than for NYPD (110,704 hours).

The recurring cost to maintain EMD certification is also significantly less for the 285 FDNY EMD employees than for the 1250 NYPD PCTs.

Information provided reveals the NYPD Communications Center has a significantly higher turn-over rate than FDNY EMD. New NYPD PCTs would be required to complete the 88-hour EMD training regimen thereby increasing the annual recurring cost for EMD operations.

Finding 15 Emergency Medical Dispatch Certification Training

The cost and level of effort to train all NYPD 9-1-1 Call Takers as certified Emergency Medical Dispatchers (EMD) may be prohibitive.

Recommendation 15

Continue to have FDNY EMD call takers handle calls for medical emergencies. Immediately engage the 9-1-1 Call Process Workgroup to address the transition to the previously described new call taking process for both Fire and Emergency Medical calls as soon as possible.

6.0 Multi-Agency Incident Assessment

6.1 Multi-Agency Incident Overview

Analysis revealed that the formal policies and procedures between NYPD and FDNY to manage a sudden high volume of 9-1-1 calls for an extraordinary incident like a severe snowstorm are not planned or coordinated between the FDNY and NYPD in relation to 9-1-1 call taking or dispatching. Although, we acknowledge that NYPD and FDNY have extensive policies, procedures, and plans for responding to extraordinary incidents.

6.2 Multi-Agency Incident Assessment

As previously discussed in this report, NYPD initiates a job for all FDNY emergency medical and fire incidents that are reported through 9-1-1. In addition to this NYPD procedure, there are many types of incidents that may require a combined NYPD and FDNY multi-agency response. These same types of incidents may also cause a sudden extraordinary increase in the volume of 9-1-1 calls. Examples of these types of incidents include:

- Building/structural collapse
- High rise fire
- Mass transit incident
- Mass Casualty Incident
- Criminal acts (i.e., Active shooter)
- Act of terrorism
- Weather event:
 - Hurricane/Tropical Storm
 - Thunderstorms
 - High winds
 - Tornadoes
 - Flooding
 - Snow
 - Severe weather - Localized
- Power black-out
- Health hazard/Flu pandemic
- Hazardous materials release

New York City Office of Emergency Management (OEM)

According to the OEM website, OEM was “Established in 1996, the New York City Office of Emergency Management (OEM) plans and prepares for emergencies, educates the public about preparedness, coordinates emergency response and recovery, and collects and disseminates emergency information.”

OEM working with NYPD and FDNY developed a “City Incident Management System” (CIMS) that leverages all New York City government departments’ “core competencies” which OEM defines as:

"...an agency's areas of expertise that relate specifically to an incident. Agencies have the authority to direct operations related to their core competencies. If more than one agency is capable of performing the same operations, the agency assigned the core competency will give tactical direction to other agencies performing operations within that field."

Agency	Core Competencies
FDNY	Fire Suppression
FDNY	Pre-hospital Emergency Medical Care
FDNY	Search and Rescue
FDNY	Structural Evacuation
FDNY	CBRN / Haz-Mat Life Safety and Mass Decontamination
FDNY	Arson Investigation (Cause and Origin)
NYPD	Law Enforcement and Investigation
NYPD	Intelligence Collection and Analysis
NYPD	Crime Scene Processing / Evidence Preservation
NYPD	Site Management
	Perimeter Control
	Traffic Control
	Crowd Control
	Site Security and Force Protection
NYPD	Evacuation (Area and / or Law Enforcement related)
NYPD	Water Search and Rescue
NYPD	CBRN / Haz-Mat Assessment and Investigation (Crime Scene / Terrorism)
NYPD	Accident Investigation
NYPD	VIP Protection
NYPD	Arson Investigation (Major Case)

Table 6.2.1 – New York City OEM Core Competencies

New York City OEM – Incident Command

Based on the core competency of each department, CIMS established both primary and unified Incident Command responsibility for specific types of incidents.

INCIDENT TYPE	PRIMARY AGENCY
Auto Extrication	NYPD/FDNY (First to arrive)
Boat in Distress	NYPD/FDNY (First to arrive)
Citywide Cyber Incident	NYPD and/or DOITT
Civil Disturbance	NYPD
Confined Space Rescue	FDNY
Correctional Facility Disturbance	DOC
Downed Tree	DPR/FDNY
Elevator Incident or Emergency	FDNY
Emotionally Disturbed Person	NYPD
Entrapment/Impalement	FDNY
Explosive Device, Bomb Threat	NYPD
Fire	FDNY
Hostage Incident	NYPD
Sniper Incident	NYPD
Special Event	NYPD
Structural Collapse	FDNY
Suspicious Package	NYPD
Water/Ice Rescue	NYPD

Table 6.2.2 – New York City OEM Primary Incident Command

Incident Type	Primary Agencies	Potential Primary Agencies/Subject Matter Experts
Aviation Incident	FDNY, NYPD	PANYNJ, USCG, NTSB
Chemical, Biological, Radiological or Nuclear (CBRN)/HazMat Incident *	NYPD, FDNY	USCG, DEP, DOHMH
Citywide Public Health Emergency	DOHMH, NYPD, FDNY	HHC, GNYHA
Explosion	FDNY, NYPD	DDC, DOB, HPD
Natural Disaster/Weather Emergency	OEM, NYPD, FDNY, DOT, DSNY	DDC, DEP, DOB, DOHMH, Con Ed, Keyspan/LIPA
Rail Incident	FDNY, NYPD	MTA, PANYNJ, NJT, Amtrak
Utility Incident: Electric	NYPD, FDNY	Con Ed, National Grid/LIPA
Utility Incident: Gas	NYPD, FDNY	Con Ed, National

		Grid/LIPA
Utility Incident: Steam	NYPD, FDNY	Con Ed
Utility Incident:	DEP, FDNY,	Con Ed, National
Water/Wastewater	NYPD	Grid/LIPA
Utility Incident:	DOITT, NYPD,	
Telecommunications	FDNY	Verizon

Table 6.2.3 – Unified Command Incidents

Finding 16 Multi-Agency Incident Management

The 911CPR analysis identified conflicting policies regarding NYPD's and FDNY's roles for specific types of multi-agency incidents in relation to 9-1-1 call processing. For example, OEM City Incident Management System (CIMS) assigns Incident Command responsibility of an "Elevator Incident or Emergency" to FDNY. However, there is confusion in both NYPD and FDNY regarding which agency is the primary responder for an elevator related incident. FDNY's Bureau of Communication (BOC) Unified Call Taker Guide (May 30, 2009) conflicts with OEM guidelines in the *UCT Training Drill* section:

FDNY BOC UCT Training Guide

"9. Why aren't we going to as many stuck occupied elevators?"

Stuck Occupied Elevators (sic) are the normal responsibility of the NYPD and FD is only routed the call when requested by the caller or; if after a certain period of time ESU is unable to respond and requests the run be given to FD. This was a policy prior to UCT."

Interviews with FDNY Fire Dispatch personnel revealed that they believed NYPD was the primary responding agency for elevator related incidents. NYPD does not have a clear policy which agency is primarily responsible for responding to stuck elevator incidents. Interviews and direct observation with NYPD personnel revealed multiple ways in which NYPD call takers manage a stuck elevator incident including:

1. Assign the job to NYPD only
2. Assign the job to NYPD and manually route to FDNY
3. Assign the job to FDNY as the primary responder (similar to a structure fire)

NYPD and FDNY Communications Centers do not have agreed upon policies, procedures, or training curricula regarding a coordinated response to a surge of 9-1-1 calls and/or multi-agency response incident. The only document either agency could provide concerning a surge of 9-1-1 calls is a September 2, 2010 email from the NYPD Communications Center to Fire Dispatch concerning "Emergency Contingency Plan for Trees Down." The email states:

"In the event the storm hits the NYC area, NYPD Communications and NYPD Patrol will address the influx of trees down incidents as follows:

- a. *Call takers will refer all trees down incidents with no extenuating circumstances to the 311 announcement.*
- b. *Dispatchers will carefully review all trees down incidents, in the event an incident does not propose immediate danger, the incident will be deferred (held) for a supervisor's review.*
- c. *Supervisors will call the complainant to advise them to call 311, to report the incident.*
- d. *Patrol units who responds to a tree down incident, and there is no imminent danger, will advise the complainant to call 311 to report the incident.*
- e. *NYPD Communications or NYPD Patrol will not call 311 to report the incident."*

Recommendation 16

Formal policies, procedures, and training curricula should be developed to ensure NYPD and FDNY 9-1-1 operations operate in a coordinated manner to achieve maximum operational capacity and effectiveness during an incident that causes an extraordinary surge in 9-1-1 call volume.

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7.0 VESTA 9-1-1, Logging and Recording, CAD Systems & GIS

7.1 Cassidian VESTA DMS 100

Starting in 2005, a major component of the ECTP project was the design, configuration, and implementation of the VESTA DMS 100 9-1-1 system. To complete the 911CPR analysis, we focused solely on the operational aspects that the VESTA 9-1-1 system will provide NYC public safety and completed no analysis concerning the technical reliability, maximum operational capacity, etc. of the VESTA application.

NYC procured two separate VESTA 9-1-1 systems: 1) VESTA system for NYPD and 2) VESTA system for FDNY EMD/Fire. Both systems are based on the same VESTA software release. There was no NYC technical requirement or technical limitation that demanded two instances of the VESTA application be purchased. As can be seen in Figure 7.1.1, a single VESTA system to handle all 9-1-1 activity would have provided an integrated solution.

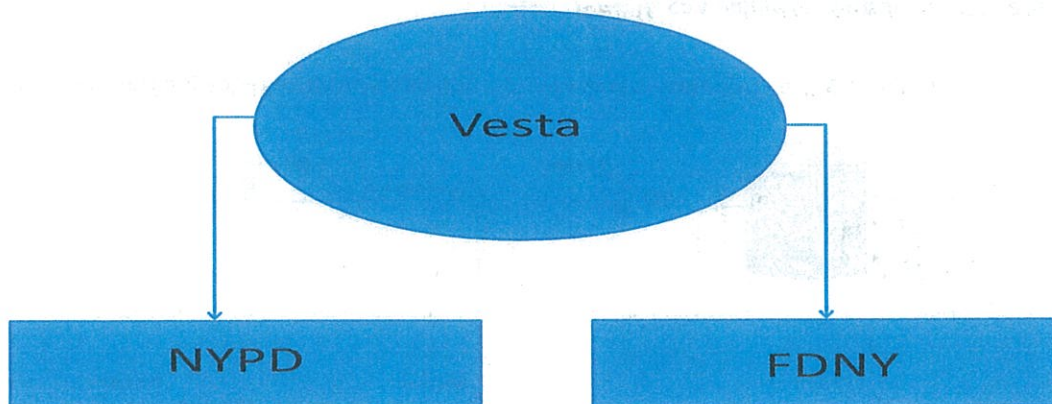


Figure 7.1.1 – Example of Single VESTA 9-1-1 System

The only infrastructure commonality between the NYPD and FDNY VESTA systems is that they both share the same DMS 100 telephone switches. NYPD and FDNY independently designed and configured their VESTA systems to meet each agency's specific requirements without any requirement from a global 9-1-1 perspective. The NYPD and FDNY VESTA systems are on completely separate networks and servers.

The VESTA systems were not designed for interoperability, data sharing or to support cohesive end-to-end 9-1-1 metrics (Figures 7.1.2 and 7.1.3). For example, there is currently no capability to complete combined NYPD and FDNY 9-1-1 performance metric queries.

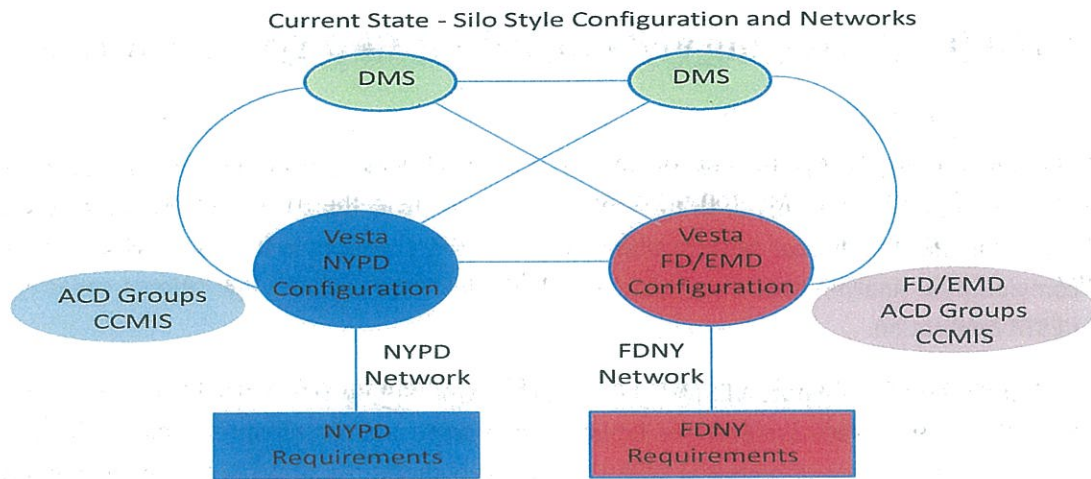


Figure 7.1.2 – Example of Single VESTA 9-1-1 System

Current State - Separate databases do not allow multi-agency incident review

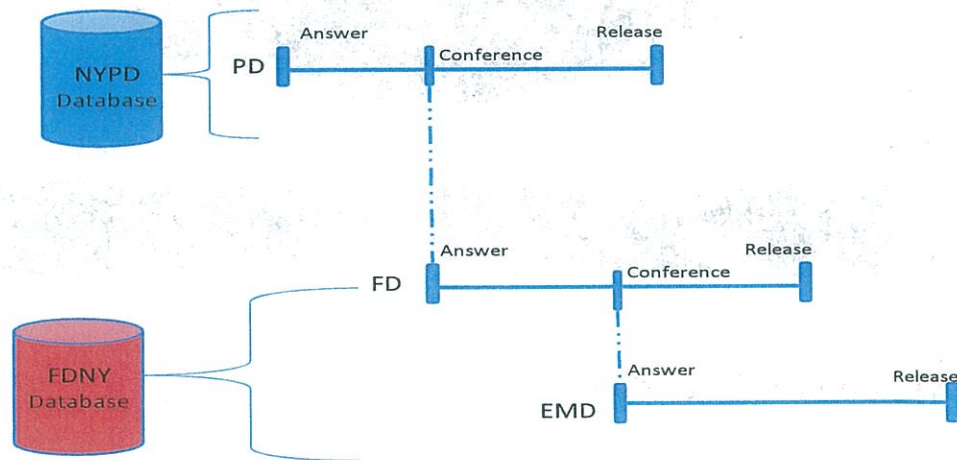


Figure 7.1.3 – Current State Separate VESTA Databases

Even within the FDNY, there are separate VESTA systems. While FDNY Fire and EMD share the same VESTA server at PSAC1, the FDNY Bronx and Queens Communications Office's (COs) have their own separate VESTA Fire servers. However, although these systems are separate, there is consolidated data

available from the systems to develop performance metrics on queries that involve both Fire and EMD operations.

NetClock Time Stamps

The NYPD and FDNY VESTA networks and servers are on separate NetClock systems. If all the systems operate normally, NYPD and FDNY 9-1-1 time stamps should be close to each other i.e., accurate enough for performance metric calculations). However, if a single network or server goes down or is disconnected from their assigned NetClock, NYPD and FDNY time stamps could be different which could impact statistical calculations.

Processing a 9-1-1 Call

The VESTA systems are designed to ensure NYPD and FDNY call takers will receive normal 9-1-1 data such as:

- Automatic Number Identification (ANI)
- Automatic Location Identification (ALI) based on the Master Street Address Guide (MSAG) from a landline telephone
- ANI/ALI information based on FCC Phase I & II wireless requirements (i.e., latitude and longitude of the 9-1-1 caller)

However, there are implications concerning the conferencing of 9-1-1 calls since no 9-1-1 data is transferred from NYPD to FDNY through the VESTA system. For example, when NYPD conferences FDNY EMD or Fire Dispatch, the FDNY VESTA system will operate as if the 9-1-1 call is new and will seek new ALI information from the ALISA database based on the ANI of the 911 call. The bidding for new ALI information from landline 9-1-1 calls should have no negative impact as street addresses associated with a landline telephone are normally static and not subject to frequent changes.

For wireless 9-1-1 calls, of which the current NYC level is approximately 60% of the total 9-1-1 workload, there could be a difference in the ALI information that FDNY EMD/Fire receives from its VESTA system as compared to what the NYPD VESTA system originally received. This is due to the "re-bidding" of the 9-1-1 call. If the 9-1-1 caller is moving or the cellular transaction moves from one cell tower to another, the location of the 9-1-1 caller (i.e., latitude/longitude) could be different from the location information originally received by NYPD.

9-1-1 Performance Metrics

NYPD and FDNY designed and configured the various Management Information Systems (MIS): VESTA MagIC, Call Center Management Information System (CCMIS), and VESTA View for their own department's requirements and not cross-agency utilization. Even FDNY Fire and EMD have separate configurations. While the MagIC enterprise application can be designed for all NYC 9-1-1 data, it was partitioned to allow NYPD and FDNY to have stand alone operations.

CAD System Interface

For NYPD:

There is no interface between VESTA and the NYPD SPRINT CAD system. ANI/ALI information is manually transferred from VESTA to SPRINT via cutting and pasting the information.

There will be an interface between VESTA and the I/CAD (Intergraph) system. The interface is being configured to support three primary areas:

1. ANI/ALI data transfer
2. Dial out capability from ICAD
3. TTY Transcript information into CAD

For FDNY:

There is no interface between VESTA and the StarFire CAD system.

There is an interface between VESTA and the EMSCAD system. The interface provides ANI/ALI data from VESTA to EMSCAD.

There is a requirement to interface VESTA with the new FDNY CAD system that has yet to be procured.

Finding 17 Inability to Analyze 9-1-1 Performance Data

The current design and configuration of the NYPD and FDNY VESTA systems do not provide the ability to complete comprehensive and cohesive end-to-end 9-1-1 performance metric calculations. The ability to complete end-to-end NYC 9-1-1 performance measurements is a minimum mandatory requirement to understand the performance of the 9-1-1 system and NYC 9-1-1 call taking operations. For example, 9-1-1 calls that require FDNY EMD/Fire Dispatch to be conferenced can be measured as a single unit:

- Time 9-1-1 call was made (DMS 100 switch time)
- Time 9-1-1 call was in the NYPD ACD queue
- NYPD queue time answer
- Length of NYPD call processing time prior to conferencing FDNY EMD/Fire Dispatch
- Time 9-1-1 call was introduced to FDNY EMD/Fire ACD
- Time 9-1-1 call was in the FDNY EMD/Fire ACD queue
- Length of FDNY EMD/Fire Dispatch call processing time

Recommendation 17

Design and implement a 9-1-1 data warehouse solution that leverages the 9-1-1 data collected by the two VESTA systems. As can be seen in Figure 10.1.4 below, data from both the NYPD and FDNY VESTA systems can be combined in a data warehouse to be queried as a single data set.

Recommended - Combined database to allow real-time multi-agency incident review

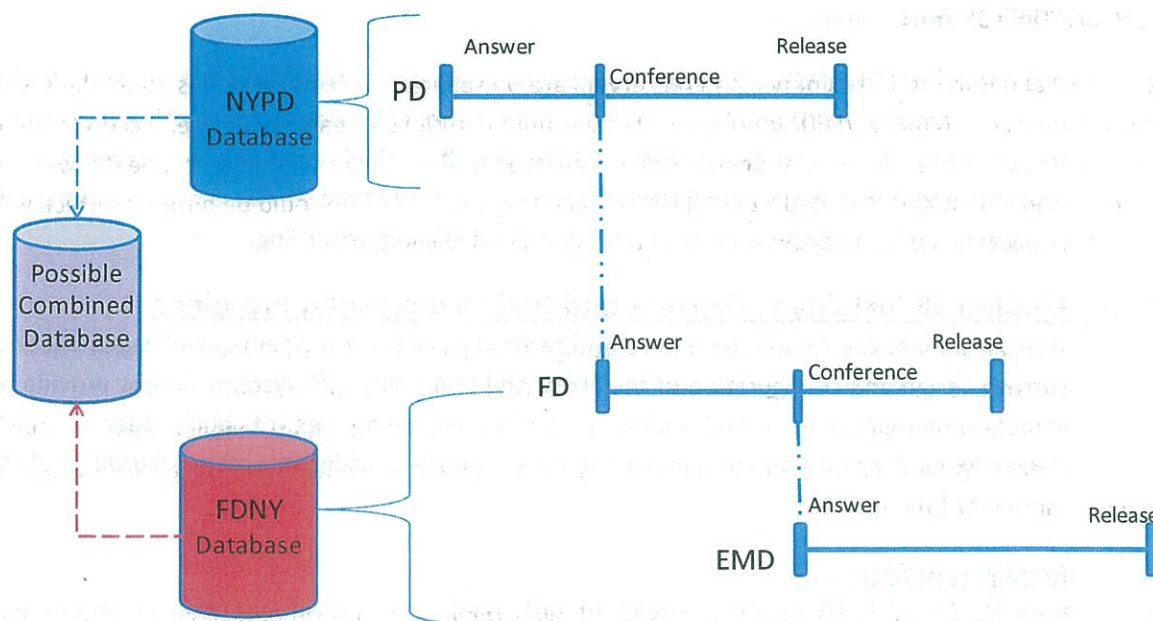


Figure 7.1.4 – Combined NYPD/FDNY Database Approach

7.2 Logging and Recording

Starting in 2005, a major component of the ECTP project has been the design, configuration and implementation of the logging and recording systems supporting NYPD and FDNY operations. Similar to the analysis of the VESTA 9-1-1 system, the 911CPR team focused solely on the operational aspects that the logging and recording system will provide NYC public safety and completed no analysis concerning the technical reliability, maximum operational capacity, etc. of the selected logging and recording (L & R) solution.

NYC procured two separate applications of the NICE Logging & Recording system, one for NYPD and one for FDNY EMD/Fire. As with the VESTA solution the reason for two NICE L & R systems appears to be part of NYPD and FDNY's desire to maintain separate recording systems. The only commonality between the NYPD and FDNY L & R systems is that both agencies have been supplied with a product supplied by NICE Systems. The NYPD and FDNY NICE L & R systems are on completely separate networks and servers.

The NICE L & R systems were not designed for interoperability, data sharing, or to develop cohesive end-to-end 9-1-1 recording capabilities. For example, there is currently no capability to provide a combined

NYPD and FDNY recording of a 9-1-1 incident without separate recordings being provided by each agency which would then be pieced together.

NetClock Time Stamps

The NYPD and FDNY NICE L/R networks and servers are on separate NetClock systems. If all the systems operate normally, NYPD and FDNY L/R time stamps should be close to each other (i.e., accurate enough for performance metric calculations). However, if a single network or server goes down or is disconnected from their assigned NetClock, NYPD and FDNY time stamps could be different which would impact the ability to provide an accurate end to end incident recording.

Finding 18 Inability to Provide End-to-End Incident Recordings

There is an inability to provide end to end recordings of 9-1-1 incidents involving NYPD and FDNY. The current design and configuration of the NYPD and FDNY NICE L/R systems do not provide the ability to complete comprehensive and cohesive end-to-end recordings of multi agency 9-1-1 incidents. Currently, each agency has to contact the other agency in order to obtain recordings of that agency's segment of the incident.

Recommendation 18

Both NYPD and FDNY recently purchased and installed their own independent logging and recording systems via the ECTP project. NYPD and FDNY should develop a methodology to combine 9-1-1 recordings and associated data (i.e., time stamps) to provide the capability to evaluate a 9-1-1 incident as efficiently and effectively as possible. The planned methodology should include a process that continuously documents the time stamp differences between the two systems.

No significant upgrades to either system should be considered without a strategic plan that addresses:

- A business case for two independent L/R systems
- The ability for NYC to produce NYPD and FDNY end-to-end 9-1-1 recordings in a seamless manner is of

7.3 Geofile/GIS Systems

A CAD system's geofile is the primary tool utilized by 9-1-1 call takers to validate the address of an incident. Additionally the location of the incident can be determined by other indicators such as:

- Vanity address
- Common name
- Business name
- Alias/Historical name
- Landmark name
- Intersections

The names of a location are directly correlated to a specific street address. It is imperative that the CAD system's geofile be accurate as it will have a direct impact on sending responding units to the correct

incident location. As discussed in Chapter 5 (UCT), the current SPRINT, StarFire and EMSCAD systems have disparate geofiles that can cause “mismatches” when an address from one CAD system is sent to another CAD system that does not contain that specific address or location name. Additionally, there are no formal protocols that ensure when NYPD or FDNY make a change to their geofile the other agency is notified of the change.

Finding 19 Disparate Geofile/GIS Systems

By employing a Primary PSAP model, in which all 9-1-1 calls are routed to the NYPD Communications Center it is of critical importance that the NYPD and FDNY EMD and Fire CAD systems operate from the same geofile and location naming methodology. NYC has this capability via the DoITT CSCL GIS system.

NYPD and FDNY independently developed their own GIS/mapping plans. There is no NYC public safety GIS/mapping strategic plan even though for the most part, both NYPD and FDNY need the same type of GIS/mapping information.

Recommendation 19

NYPD and FDNY should develop and implement a single geofile and GIS/mapping solution. There are numerous benefits that can be obtained from a single plan including:

- Single maintenance of the geofile and GIS/mapping application ensuring accurate and consistent information to all agencies
- NYPD and FDNY EMD and Fire would all benefit from CSCL, NYPD, FDNY/Fire and EMD input
- Enhanced ability to manage address changes via a single public safety process
- Ability to share mapping layers such as:
 - Premise History Alerts – Address specific
 - Safety hazards
 - Hazardous materials
 - Emotionally Disturbed/Violent Persons
 - Dangerous threats
 - GIS/Mapping layers and information
 - Building foot prints
 - Blueprints and schematics
 - Pictures and video
 - Detailed information concerning the location
- Enhanced capability for situational awareness and command and control
- Enhanced Emergency Management capabilities
- Creating a foundation to leverage NG9-1-1 data

8.0 Governance of the 9-1-1 System

8.1 Governance Overview

From the inception of the Emergency Communications Transformation Project (ECTP) in 2004, there has been a consistent recommendation from numerous public safety stakeholders and subject matter experts concerning the governance of a consolidated Public Safety Answering Center (PSAC); to successfully design, implement, and manage a consolidated 9-1-1/PSAC there must be a formal governance structure mandated by Executive Order.

There are many types of governance models that are used in public safety that manage 9-1-1 operations where multiple agencies and jurisdictions are involved. New York City's ECTP Program has reviewed many examples of consolidated 9-1-1 dispatch centers throughout the United States.

Finding 20 ECTP Governance Structure

Throughout the history of the ECTP Program from 2004 to 2011, establishment of an integrated governance structure to manage emergency communications has consistently been a challenge. Although attempts were made to improve governance such as the creation of an ECTP Executive Steering Committee and the formation of the Mayor's Office of Citywide Emergency Communication (OCEC) in 2010; our analysis revealed that while these attempts were a positive step forward, especially the creation of OCEC, the initiatives did not resolve all of the governance issues. There is still a need to form a governance structure involving all the public safety agencies in order to effectively manage New York City's 9-1-1 system on an on-going basis.

Recommendation 20

Mandate by Mayoral Executive Order the creation of a 9-1-1 multi-agency governance structure that would include the Deputy Mayor of Operations, NYPD, FDNY, OCEC, and OEM.

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Appendices

Summary of Findings and Recommendations

Section	Finding	Recommendation
Executive Summary 1	9-1-1 PSAC Governance Structure- The City of New York needs a unified strategic vision, plan, or agreement regarding 9-1-1/PSAC operations.	Mandate by Mayoral Executive Order the creation of a 9-1-1 multi-agency governance structure that would include the Deputy Mayor of Operations, NYPD, FDNY, OCEC, and OEM.
Executive Summary 2	9-1-1 Call Process Protocols Workgroup - Currently there is no combined NYPD, FDNY and OCEC work group with a sole focus on 9-1-1/PSAC operations.	To continue to achieve ECTP goals, we are recommending the formation of a 9-1-1 Call Process Protocols Workgroup to address all recommendations made. The workgroup would be chaired by the Deputy Mayor of Operations and include NYPD, FDNY, OCEC and other stakeholders as required.
Executive Summary 3	Unified Call Taker - Analysis of current PSAC operations identified areas that require improvement. Some of the issues include: 1. NYPD and FDNY call takers consume valuable time asking duplicative questions and taking identical actions for the same 9-1-1 caller 2. There are inconsistent question and answer procedures employed with 9-1-1 callers 3. As initially implemented UCT processes resulted in FDNY emergency response units being sent to incorrect addresses, and	Recommendation: We recommend the following steps to enhance UCT operations: a. Establish the 9-1-1 Call Process Protocols Workgroup that will provide the oversight, structure define the corresponding roles, responsibilities and decision processes to provide equal input into the UCT operations by all stakeholders to include City Hall, NYPD, FDNY and OCEC on an ongoing basis b. Review and modify UCT

Section	Finding	Recommendation
	the misrouting, miscoding, and input of inaccurate incident information. Some of these problems continue to exist in the current modified UCT process	business processes, including all stakeholder agencies, related to agency-specific, multi-agency, and high call volume incidents with the goal of ensuring consistent, accurate information is provided by UCT call takers to agency dispatchers
	4. The current Computer Aided Dispatch (CAD) systems do not have the technical capability for The current Computer Aided Dispatch (CAD) systems do not have the technical capability for NYPD call takers to modify a fire response when required	c. Use results of the business process and procedure review and modification process to develop a UCT call taker training program
	5. The current processes slow the ability of FDNY/Emergency Medical Dispatchers to provide pre-arrival instructions to 9-1-1 callers.	d. Oversee improvements to the call taking and dispatching Quality Assurance (QA) functions in police, fire and EMS to establish ongoing QA analysis of UCT performance
		e. Define specific performance metrics and measurement capabilities to measure the performance of UCT
		f. Consider the following interim operational changes to the current UCT operation: Change the UCT call taking process to include changing the order of questions asked by the UCT call takers to include the following steps:
		Step 1 - "9-1-1 <u>what</u> is your emergency?"

Section	Finding	Recommendation
		<p>Step 2 - Determine if the incident is police, fire or EMS</p> <p>Step 3 – Immediately conference an EMD or Fire call taker when applicable</p> <p>Step 4 – Fire or EMD (depending on the what service is required) call taker will manage interrogation of the caller and enter the information into their CAD system while NYPD call taker stays on the line and enters information required by the NYPD CAD.</p>
Executive Summary 4	High 9-1-1 Call Volume Event - Currently, the NYPD and FDNY (Fire/EMD) Communications Centers' developed their 9-1-1 surge response plans independent of each other. A critical incident typically requires a multi-agency response.	Develop and implement appropriate and integrated policies, procedures, and training curriculums to successfully address single or multiple simultaneous crisis events. In the case of a major disaster such as a severe weather event the NYPD and FDNY Communications' Centers procedures should aligned with the City's Critical Incident Management System (CIMS) where appropriate.
Executive Summary 5	Reduction of Accidental 9-1-1 Calls - There is a need to develop activities, policies or procedures to determine causes of accidental/short call workload or initiatives to reduce the short call volume. The identification of a 9-1-1 accidental/short call	Develop and implement an initiative to mitigate accidental 9-1-1 calls including the identification of trends and patterns and a public awareness campaign. It is an industry best practice to educate the public

Section	Finding	Recommendation
	workload source provides the ability to develop a response to mitigate the workload caused by these types of calls.	concerning accidental 9-1-1 calls. Many Public Safety Answering Points (PSAPs) utilize call back procedures, websites, public service announcements, direct mailings, and other forms of marketing campaigns to educate the citizens of their jurisdiction.
Executive Summary 6	EMD – Relay Workload - Approximately 15% of all 9-1-1 reported FDNY/EMS incidents are electronically routed from the NYPD SPRINT CAD to the FDNY EMS CAD without the caller being conferenced with an EMD call taker. These incidents are reviewed at the FDNY/EMD “RELAY” position in a First-In/First-Out (FIFO) process. NYPD call takers receive no training in emergency medical call taking and cannot provide a priority code to the incident nor do they provide “pre- arrival” medical instructions.	Conduct a thorough analysis to confirm the origin of calls being sent to FDNY/EMD RELAY. If there is a confirmation that there is an issue with FDNY/EMD call taker availability then a subsequent staffing analysis should be undertaken. This issue is also relevant concerning the recommended transition to the new Call Taking model as described in Recommendation #8 (pg 72).
Executive Summary 7	9-1-1 Call Processing Guide Cards - NYPD and FDNY/Fire call takers do not consistently and systematically employ standard questions, nor are the questions asked in the same disciplined sequence on each call. The result is inconsistent call taking operations that can have an impact on response times and may also lead to incorrect resources being sent to an incident.	Implement a call taking Guide Card Project to enhance current 9-1-1 call taking operations. 9-1-1 call taking guide cards are a Public Safety Answering Point (PSAP) industry standard and can provide excellent benefits to PSAC operations.

Section	Finding	Recommendation
Executive Summary 8	9-1-1 Performance Metrics - NYC public safety agencies need uniform definitions and standards concerning police, fire and EMS performance metrics. NYPD and FDNY fire and EMS do not employ PSAP industry standards concerning performance metrics. NYPD and FDNY Fire and EMS utilize different formulas to calculate Response Times. NYPD does not measure overall 9-1-1 call taking processing time. This practice inhibits the ability of FDNY Fire and EMS to generate accurate Response Time information.	Establish uniform police, fire and EMS performance measurement definitions, methodologies and procedures to accurately measure 9-1-1/PSAC performance metrics for including Response Times. The migration of NYPD and FDNY to the VESTA 9-1-1 systems provides an opportunity for NYC to develop 9-1-1 performance measurements not previously available.
Executive Summary 9	VESTA/MapStar/FDNY Map - While the recent migration to VESTA, MapStar and the FDNY Map have significantly enhanced the capabilities of NYPD and FDNY call takers, further enhancements are required concerning the utilization of ANI/ALI data that is automatically provided by the VESTA system. The NYPD and FDNY do not have formal procedures or challenge questions if a 9-1-1 caller's location is different from the incident location (i.e., "Are you at the incident location?").	Institute policies, procedures, and training related to the utilization of mapping systems. Leverage VESTA/MapStar 9-1-1 system and ANI/ALI capabilities to accurately obtain the incident location.
Executive Summary	Duplicate Technology Systems - Primary goals of the ECTP program include the consolidation of 9-1-	Research the feasibility and cost effectiveness to employ a solution to integrate the duplicate systems

Section	Finding	Recommendation
10	1/PSAC related technology systems and the development of an environment in which police, fire and EMS workload can be measured and analyzed as a single public safety system in an "end-to-end" format. The current systems prevent these goals from being achieved.	such as a data warehouse solution. Assign responsibility for interoperability and information sharing objectives to the previously recommended unified 9-1-1/PSAC governance group to ensure integrated systems are procured, configured and implemented.

**Executive
Summary**

11

Automatic Vehicle Location System

- AVL is operational on all FDNY EMS and Fire apparatus. The AVL system provides an operational enhancement to FDNY EMD through an interface with EMS CAD. The AVL system is used regularly to dispatch ambulances by EMD however, the current system which has proven to be very effective in reducing ambulance response times can still be improved ensuring that the nearest available ambulance is always dispatched to high priority incidents. The AVL system is installed on all fire apparatus, although the AVL system is not currently used in the dispatch of fire apparatus. The NYPD has not implemented an AVL system in any of their vehicles. Nationwide, AVL systems have been proven to provide public safety departments a dramatically improved ability to allocate and deploy resources in a

Consider expanding FDNY's use of AVL for Fire units. Identify and implement AVL related protocols to assist in dispatch of FDNY Fire Units. Consider utilizing "nearest unit" dispatch for fire apparatus in addition to current static "run card" assignments. Enhance the EMS AVL system to ensure nearest available units are always recommended for dispatch to high priority incidents.

Section	Finding	Recommendation
	more effective manner, as well as enhancing the safety of first responders.	
Executive Summary 12	<p>Geofile Synchronization - NYC</p> <p>Public Safety currently employs three CAD systems: NYPD SPRINT, FDNY StarFire and FDNY EMSCAD. All three CAD systems are interfaced and emergency incidents and information are transmitted from one CAD system to another on a 24/7 basis. The three CAD systems each employ their own separate geofile database.</p> <p>The three geofile databases have disparate information that can cause a mismatch when an address from one CAD system is sent to another CAD system. Disparate geofile and mismatch issues can adversely impact 9-1-1 call taking and dispatch operations by delaying the assignment of apparatus while mismatches are being resolved or if responding units are sent to wrong addresses. Additionally, there are no formal protocols that ensure when NYPD or FDNY make a change to their geofile the other agency is notified of the precise change in a timely manner.</p>	<p>Develop a single NYC Public Safety Geofile plan including the following areas:</p> <ol style="list-style-type: none"> 1. Establish protocols to ensure coordination between NYPD or FDNY when one agency makes a change to their geofile 2. Develop unified geofile standards and definitions for NYPD and FDNY 3. For the three legacy CAD systems, improve the utilization of geofile information 4. Develop a single geofile methodology for the new NYPD I/CAD and future FDNY CAD systems 5. Develop methodology for maintenance and updating of a single NYC public safety geofile
Executive Summary 13	<p>Geographic Information System/Mapping - NYPD, FDNY and OEM</p> <p>developed their GIS/Mapping solutions independent of each</p>	<p>NYPD and FDNY should develop and implement a single NYC public safety GIS/mapping solution. There are numerous benefits that can be</p>

Section	Finding	Recommendation
	other. There is no NYC public safety GIS/mapping strategic plan even though NYPD, FDNY and OEM need the same type of GIS/mapping information. This is especially true when dealing with multi-agency, complex and significant (i.e., severe weather, natural disaster, terrorism) incidents.	obtained from a single GIS solution.
Executive Summary 14	Training and Quality Assurance/Improvement - NYPD and FDNY Fire and EMD Quality Assurance/Improvement (QA/I) management and in service training is inconsistent and should be enhanced.	NYPD and FDNY should improve the QA/I process at multiple levels (i.e., first line supervisor, section administration and executive management). NYPD and FDNY should collaborate and coordinate on the development of training curriculums for all multi-agency related incidents.
Finding 1	Accidental and Short Calls - A significant number of 9-1-1 short calls was identified.	NYC Public Safety should develop and implement an initiative to mitigate accidental 9-1-1 calls including the implementation of a call back policy, identification of trends and patterns, and a public awareness campaign. An initiative to mitigate accidental 9-1-1 calls could significantly decrease the workload on the 9-1-1 system and increase call taker availability (i.e., Average Speed of Answer).
Finding 2	NYPD Operator Number in 9-1-1 Announcement - NYPD call takers include their operator number with	Eliminate the NYPD operator number with 9-1-1 announcement. If an operator number is needed it

Section	Finding	Recommendation
	the initial 9-1-1 announcement. Previous logging and recording systems required this action to be able to identify the call taker that managed a specific 9-1-1 call. NYPD's current logging and recording, CAD and the VESTA Computer Telephone Integration (CTI) systems require a log-on process that eliminates the need for an up-front operator number announcement.	can be employed at the end of the 9-1-1 call when urgency is no longer an issue. Eliminating the operator number can save one to three seconds.
Finding 3	Inconsistent Call Processing Procedures - Subsequent to the 9-1-1 announcement and operator number, NYPD call takers employ a wide diversity of questions and processes to complete the call taking operation. Although call takers should be provided some discretion and flexibility to utilize different processes depending upon the circumstances, there should be a consistently applied protocol.	Update procedures, introduce Guide Cards, enhance training, and improve the Quality Assurance (QA) programs to achieve more consistent call taking operations.
Finding 4	Automatic Location Information (ALI) Information is Underutilized - Direct observation, interviews, and data analysis revealed that the NYPD Communications Center underutilizes ALI information.	There is a mission-critical need for the NYPD Communications Centers to leverage ALI data to the greatest extent possible. Besides employing PSAP industry best practices there are substantial reasons to leverage ALI data.
Finding 5	The Mapping of Phase II Data is Underutilized - Prior to the	Phase II mapping must be an essential component of NYPD call

Section	Finding	Recommendation
	<p>migration to the 3rd floor of PSAC 1 in December 2011, the NYPD's non-utilization of ALI data adversely impacted the value of the iXP map for Phase II data. However, there were operational reasons the iXP map was under-employed. Activating the iXP map covered the SPRINT CAD screen prohibiting call takers from entering data. Since December 2011, 9-1-1 call takers now have a map displayed on a separate monitor that automatically displays the location of the incoming call. This is a significant improvement as it does not require any action on the operator's part and does not obscure their CAD screen as in the legacy system.</p>	<p>taking processes. The national average for wireless 9-1-1 calls is 70%. New York City has realized a consistent growth in the number of wireless 9-1-1 calls (up to 60%) and that number is certain to increase. Process and Procedures should be uniformly implemented to take full advantage of the new technologies available to call takers and dispatchers since the December 2011 migration to the 3rd floor of PSAC.</p>

Finding 6	<p>NYPD Does Not Measure Total Call Taking Processing Time - 9-1-1 call processing time is an important component of the total public safety response time. PSAP industry best practices define Public Safety Response Time as the total time from the point a 9-1-1 call is made to the arrival of responding units.</p>	<p>A) Establish a methodology and associated procedures to measure and evaluate 9-1-1 call processing time. 9-1-1 call processing time measurements provide a tangible metric concerning individual, management, training, and overall PSAP operations.</p> <p>B) Establish call taking process performance standards, metrics, and procedures to evaluate the performance of the NYPD Communications Center. PSAP industry standards (i.e., APCO, NENA, IACP, NFPA, etc.) and guidelines should be utilized as</p>
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Section	Finding	Recommendation
		applicable.
Finding 7	Continuing Need for Coordinated Policies Regarding EMD related 9-1-1 Calls - There is a need for jointly prepared and agreed-to policies and procedures between NYPD and FDNY concerning emergency medical incident specifically, 9-1-1 call taking business processes, performance standards, performance metrics, Quality Assurance (QA), and problem identification and resolution. Of significance, neither EMD managers nor FDNY EMS leadership were involved in the development, training, and implementation of numerous NYPD Communications Center procedures related to emergency medical incidents that impact FDNY EMD and EMS operations.	All NYPD Communications Center policies and procedures that impact FDNY operations should be created through a formal process involving all requisite NYPD and FDNY subject matter experts.
Finding 8	NYPD Redundant Operations - NYPD call takers enter data into the SPRINT CAD system prior to conferencing FDNY EMD - For a medical emergency, the NYPD is not the primary responding agency.	The NYPD should consider changing the order of the questions asked the caller to ask "What is your emergency", prior to determining location. No data entry into the SPRINT CAD system would be completed by NYPD call takers prior to conferencing FDNY EMD or Fire Dispatch. NYPD call takers would stay on the line to initiate a SPRINT job simultaneously with FDNY EMD or Fire Dispatch.

Section	Finding	Recommendation
Finding 9	<p>Utilization of Triage Cards - Triage and Pre Arrival instruction "Flip Cards" are not consistently used by EMD call takers. EMD call takers perform medical questioning and triage and offer pre-arrival medical instructions based on their knowledge and experience as EMTs. They do not consistently employ standardized questioning trees or scripted pre-arrival instructions. This can lead to inconsistent incident coding and affect ambulance response times to high priority incidents.</p>	<p>Enforce the consistent use of the supplied medical triage and pre-arrival instruction "flip cards" by EMD call takers. Focus supervisory oversight and Quality Assurance efforts on call taker compliance. Explore the inclusion of a computerized triage product for the new CAD system.</p>
Finding 10	<p>ALI Information and Associated MapStar Mapping is Underutilized in Fire Call Taking - When NYPD conferences a FDNY call taker, the receiving FDNY call taker obtains fresh ANI/ALI information. This feature has been available to FD call takers since 2009. Each fire call taker is also provided with a VESTA MapStar map which displays the location of the caller or the cell site (for wireless calls).</p> <p>During the initial observation of fire call taking and related document review, there were no policies or procedures in place directing personnel on how to use ANI/ALI data in the call taking process. Personnel did not review ALI data</p>	<p>There is a mission-critical need for the FDNY Communications Centers to leverage ALI data to its maximum capability. Besides employing PSAP industry best practices, there are substantial reasons to leverage ALI data.</p>

Section	Finding	Recommendation
	and when queried about Phase II wireless data were unaware of the procedure for obtaining a "re-bid" using VESTA.	
Finding 11	<p>Decision Dispatcher Position Workload Increase - Under current UCT procedures, FDNY Decision Dispatchers may receive alarms from between 60 and 90 NYPD call takers. During periods of unusually high call volumes the Decision Dispatcher can experience backlogs of incidents waiting in queue for review and dispatch. Many of these incidents are duplicates to incidents already dispatched and could be easily cleared from the queue.</p>	Fire Dispatch Operations should develop and implement appropriate policies, procedures, and training curriculums to ensure effective and consistent dispatch operations during times of extraordinary fire activity.
Finding 12	<p>Underutilization of Dispatch Process Metrics and Quality Assurance within Fire Dispatch Operations - There are some procedures in place that attempt to provide Quality Assurance measures regarding Fire Dispatch Operations. Chief Dispatchers recently began reviewing major incidents (multiple alarm fires, building collapses, etc.) specifically directed at the effectiveness and speed of unit dispatch, relocation of apparatus, and other dispatch and supervisory functions related to the incident.</p> <p>The migration to the VESTA system provides a new opportunity to assess Fire call taking performance.</p>	Establish call taking process performance standards, metrics, and procedures, reports and QA oversight to evaluate the performance of the FDNY Fire Dispatch Operations. FDNY does not employ PSAP industry (i.e., APCO, NENA, NAEMS, NFPA, IACP, etc.) standards or guidelines. An example of Industry.

Section	Finding	Recommendation
	Speed of call answer as compared to the number of call takers logged into VESTA is an example of a performance metric that could be reviewed by Fire Dispatch management utilizing VESTA reports.	
Finding 13	<p>Need for a Formal In-Service Training Program for Fire Dispatch</p> <p>– While Fire Dispatch Operations has an effective and well structured training program for newly hired dispatch personnel there is however no formalized in-service training program for tenured dispatch personnel.</p>	<p>Establish an ongoing dispatch personnel training program which addresses skills, knowledge, and abilities required to operate in the most proficient manner. Review of new policies and procedures as well as scenario based training should be included. Supervisors and training staff who conduct any training sessions whether on or off tour should receive appropriate training and certification to instruct. This can be accomplished through use of internal FDNY training resources or outsourced to organizations such as APCO.</p>
Finding 14	<p>UCT Issues - It is a finding of this analysis that the UCT process, as currently configured and operated has resulted in documented issues for FDNY Fire Dispatch and field operations. Below is a list of issues that were identified with the current Fire UCT process:</p> <ul style="list-style-type: none"> • A combined NYPD and FDNY governance structure was not established to ensure UCT meets NYPD and FDNY 	<p>We recommend the following steps to enhance UCT operations:</p> <ol style="list-style-type: none"> Establish a 9-1-1 Call Process Protocols Workgroup that will provide the oversight, structure, and define the corresponding roles, responsibilities and decision processes to provide equal input into the UCT operations by all

Section	Finding	Recommendation
	objectives, provides overall Quality Assurance of UCT operations, day-to-day management and conflict resolution	stakeholders to include City Hall, NYPD, FDNY and OCEC on an ongoing basis
	<ul style="list-style-type: none"> Formal baseline measurements, performance standards, and operational metrics, were not developed prior to the initiation of UCT and post UCT-cutover Expert consultant recommendations regarding UCT planning, development and implementation were submitted but for the most part not implemented The project was managed as an Information Technology (IT) project and not an operations project NYPD and FDNY CAD systems are supported by three separate geofile systems that contain numerous mismatches of street address information The UCT process added a significant increase to the workload of the Fire Decision Dispatcher NYPD call takers did not receive adequate training for 	<ul style="list-style-type: none"> b. Review and modify UCT business processes/protocols for agency-specific, multi-agency, and high call volume incidents with the goal of ensuring consistent and accurate information is provided by UCT call takers to agency dispatchers. Process should include all stakeholder agencies c. Use results of the business process and procedure review and subsequent modifications to develop a UCT call taker training program d. Oversee improvements to the call taking and dispatching Quality Assurance (QA) functions in police, fire and EMS to establish ongoing QA analysis of UCT performance e. Define specific performance metrics and measurement capabilities to measure the performance of UCT f. Consider changing the UCT/Fire call taking process

Section	Finding	Recommendation
	UCT responsibilities and are not proficient at handling FDNY related activity	to include changing the order of questions asked by the UCT call takers to include the following steps:
	<ul style="list-style-type: none"> FDNY Fire Dispatch personnel did not receive adequate training and have made only nominal adjustments to their pre-UCT business processes 	<p>Step 1 - "9-1-1 <u>what</u> is your emergency?"</p> <p>Step 2 - Determine if the incident is for police, fire or EMS</p>
	<ul style="list-style-type: none"> A review of FDNY UCT complaint forms, interviews with NYPD and FDNY personnel, and direct observation identified problems in the following areas: <ul style="list-style-type: none"> Wrong address Unclear information provided to FDNY responding units Miscoding of incidents Misrouting of incidents 	<p>Step 3 – Immediately conference an EMD or Fire call taker when applicable</p> <p>Step 4 – Fire or EMD (depending on the what service is required) call taker will manage interrogation of the caller and enter the information into their CAD system while NYPD call taker stays on the line and enters information required by the NYPD CAD.</p>
	<ul style="list-style-type: none"> Statistical information provided to City Hall management to demonstrate the success of the UCT project contained errors and does not provide a clear picture of the effectiveness of UCT related 	

Section	Finding	Recommendation
	business processes	
Finding 15	Emergency Medical Dispatch Certification Training - The cost and level of effort to train all NYPD 9-1-1 Call Takers as certified Emergency Medical Dispatchers (EMD) may be prohibitive.	Continue to have FDNY EMD call takers handle calls for medical emergencies. Immediately engage the 9-1-1 Call Process Workgroup to address the transition to the previously described new call taking process for both Fire and Emergency Medical calls as soon as possible.
Finding 16	Multi-Agency Incident Management - The 911CPR analysis identified conflicting policies regarding NYPD's and FDNY's roles for specific types of multi-agency incidents in relation to 9-1-1 call processing. The 911CPR analysis identified conflicting policies regarding NYPD and FDNY's roles for specific types of incidents. NYPD and FDNY Communications Centers do not have agreed upon policies, procedures, or training curriculums regarding a coordinated response to a surge of 9-1-1 calls and/or multi-agency response incident.	Formal policies, procedures, and training curricula should be developed to ensure NYPD and FDNY 9-1-1 operations operate in a coordinated manner to achieve maximum operational capacity and effectiveness during an incident that causes an extraordinary surge in 9-1-1 call volume.
Finding 17	Inability to Analyze 9-1-1 Performance Data - The current design and configuration of the NYPD and FDNY VESTA systems do not provide the ability to complete comprehensive and cohesive end-to-end 9-1-1 performance metric calculations.	Develop a 9-1-1 Data Warehouse Solution. Design and implement a 9-1-1 data warehouse solution that leverages the 9-1-1 data collected by the two VESTA systems.

Section	Finding	Recommendation
Finding 18	<p>Inability to Provide End-to-End Incident Recordings - There is an inability ability to provide end to end recordings of 9-1-1 incidents involving NYPD and FDNY. The current design and configuration of the NYPD and FDNY NICE L/R systems do not provide the ability to complete comprehensive and cohesive end-to-end recordings of multi agency 9-1-1 incidents. Currently, each agency has to contact the other agency in order to obtain recordings of that agency's segment of the incident.</p>	<p>Both NYPD and FDNY recently purchased and installed their own independent logging and recording systems via the ECTP project. NYPD and FDNY should develop a methodology to combine 9-1-1 recordings and associated data (i.e., time stamps) to provide the capability to evaluate a 9-1-1 incident as efficiently and effectively as possible. The planned methodology should include a process that continuously documents the time stamp differences between the two systems.</p>
Finding 19	<p>Disparate Geofile/GIS Systems - By employing a Primary PSAP model, in which all 9-1-1 calls are routed to the NYPD Communications Center it is of critical importance that the NYPD and FDNY EMD and Fire CAD systems operate from the same geofile and location naming methodology. NYC has this capability via the DoITT CSCL GIS system.</p> <p>NYPD and FDNY independently developed their own GIS/mapping plans. There is no NYC public safety GIS/mapping strategic plan even though for the most part, both NYPD and FDNY need the same type of GIS/mapping information.</p>	<p>NYPD and FDNY should develop and implement a single geofile and GIS/mapping solution. There are numerous benefits that can be obtained from a single plan.</p>

Section	Finding	Recommendation
Finding 20	ECTP Governance Structure - Throughout the history of the ECTP Program, establishment of an integrated governance structure to manage emergency communications has consistently been a challenge. Although attempts were made to improve governance such as the creation of an ECTP Executive Steering Committee and the formation of the Mayor's Office of Citywide Emergency Communication (OCEC) in 2010; our analysis revealed that while these attempts were a positive step forward, especially the creation of OCEC, the initiatives did not resolve all of the governance issues. There is still a need to form a governance structure involving of all the public safety agencies in order to effectively manage New York City's 9-1-1 system on an on-going basis.	Mandate by Mayoral Executive Order the creation of a 9-1-1 multi-agency governance structure that would include the Deputy Mayor of Operations, NYPD, FDNY, OCEC, and OEM.

Appendix A – PSAP Guide Cards

For this report, we have used four Association of Public Safety Communications Officials International (APCO) police and fire guide card examples.

<p>General Questions</p> <p>Are you in a safe place? If inside a building, where inside the building? When did this happen? What is happening right now? Are they currently shooting? Has the shooting stopped? Where is the suspect now? Do you know who the suspect is? Is there more than one suspect? How many are there? What are their descriptions? What type of weapon(s) are they using? How many weapons do they have? Are there any explosive devices? Where are they? Are there any hostages? How many are there? Where are they? Are there any injuries? How many are injured? What type of injuries are they? What is the extent of the injuries? What is the location of the victim(s)? Is victim conscious? Is the victim breathing normally? Is there excessive bleeding? Has the suspect(s) fled scene? If YES: What is the mode and direction of travel? What is the vehicle description? Is there someone familiar with the building or facility on the scene? (maintenance person, manager or owner) If not, have they been notified?</p>	<p>Active Shooter</p> <p>Call Taker Actions</p> <p>Run a stolen and registration check on license numbers obtained. Notify the Emergency Communications Center Manager. If possible stay on the line, until response unit arrives.</p> <p>Pre-Arrival Instructions</p> <p>Advise caller to stay with the victim. Advise caller not to disturb anything. Move to a safe location. If suspect(s) is still on the scene, do not confront the suspect(s). If possible have someone meet and direct responding units to the scene. Call back if anything changes.</p>
<p>Dispatcher Actions</p> <p>Dispatch appropriate EMS units.</p> <p>Dispatch officer assigned to the area or nearest available unit.</p> <p>Dispatch backup units if necessary.</p> <p>Notify the Senior Police Officer on duty.</p> <p>If deliberate and suspects have fled, broadcast a BOLO message as needed.</p> <p>Comply with subsequent supervisor instructions.</p>	<p>Follow up/Special Considerations</p>

General Questions

Are you in a safe place?
What time is the bomb supposed to explode?
Who received the call and spoke to the person making treat?
Is the building being evacuated?
Background noises?
If caller is "bomber", keep on line as long as possible.
What is the exact location of the bomb?
What type of device is it? (Size, Shape)

Third party:

Where is the bomb supposed to explode?
What is the exact location of the bomb?
In what area of the building?
What time is the bomb supposed to explode?
Do you have a description of the device?
How was the device discovered?
Who received the call and spoke to the person?
What is your address?

Bomb Threats

Call Taker Actions

Do not recommend an evacuation. Advise them to follow their procedures.
Obtain name of person(s) to contact.
Recommend that the following be available for interview by officers:
Owner/manager of building
Person familiar with the building and it's contents.
Person who received the call
Attempt to keep the caller on the phone as long as possible.

Pre-Arrival Instructions

Do not endanger yourself.
Have someone meet and direct responding units to the scene.
Call back if anything changes.

Dispatcher Actions

Clear "Emergency Traffic" if in progress or just occurred.

Dispatch officer assigned to the area or nearest available unit.

Notify Senior Police Officer on duty.

Dispatch backup according to agency SOP.

Comply with subsequent instructions from supervisors.

Dispatch EMS and Police as required for injuries.

Broadcast BOLO message to area units and agencies if necessary.

Follow up/Special Considerations

11

Structure Fires - High Rise Buildings

Alarm Types

Buildings having occupied floors higher than 75 feet above lowest level of fire department vehicle access

Structures over specific height determined by jurisdiction

Vital Points Questions

Are you in a safe place?
Can you escape?
What is the exact location, including cross street?
What type of building? (residential, office, parking garage, other)
Where exactly in the building is the fire located?
What section of the building?
What floor? How many floors is the building?
Are sprinklers working?
Are flames visible or only smoke?
Is there anyone inside?
Where? (Exact locations)
Are people evacuating the building now?
Are there any known injuries?
Are there any hazardous materials stored in or near the building?
Is there an internal alarm system?
Is it working?
Is there an internal paging system to warn people to evacuate?
Was there an explosion?
Were any people or vehicles seen in the area?
Can you give a description?
Have they left the area?
What were they driving?
In what direction were they traveling?

Scripted Dispatch

Preliminary Dispatch

[Units/Stations to Respond] report of a hi-rise structure fire at [Location to include building names, cross streets, etc]. Fire is located on the [Floor Number] floor.

Supplemental Dispatch

[Units/Stations Responding] caller reports [flames visible, entrapment, etc] nearest hydrant is [Location], standpipe/sprinkler connection located at [Location].

Pre-Arrival Instructions

Do not endanger yourself.
Sound an alarm.
Get out of the building.
Have someone meet and direct responding units to the scene.
Keep people away.
Do not go back in to the building.
Close stairway doors.
Do not use elevators.
Do not jump from upper floor windows.
Call back from a safe place if situation changes before units arrive.

Supplemental Resources

Utility Companies:
Power Company
Water Company
Gas Company

Other:
EMS
Law Enforcement
Red Cross
Salvation Army

Short Report

Elevator Rescues

Alarm Types

Any emergency involving an occupied elevator that has stopped or is otherwise preventing exit of passengers

Vital Points Questions

Where are you calling from?
 Location and building?
 Where is the elevator located in the building?
 Where is the elevator stuck?
 What Floor?
 Is the elevator accessible?
 How?
 How many people are stuck in the elevator?
 What is their condition?
 Are there any injuries?
 What are they?
 Are there any unusual hazards?
 Do you have lights and power?

Scripted Dispatch

Preliminary Dispatch

[Units/Stations to Respond] report of [stuck elevator, elevator passenger in trouble, etc] at [Location to include building name].

Supplemental Dispatch

[Units/Stations Responding] caller reports elevator stopped at [floor number] and accessible at [access point].
 [Number of occupants] on board.

Pre-Arrival Instructions

Do not endanger yourself.
 If trapped, stay in the elevator.

If outside or 3rd party caller:

Have someone meet and direct responding units to the scene.
 Determine location of elevator equipment room.
 If elevator is between floors, do not attempt rescue.
 Call back if situation changes before units arrive.

Supplemental Resources

EMS
 Law Enforcement
 Rescue
 Engineers
 Building Inspectors
 Building Maintenance or Security

Short Report

Appendix B – National Highway Traffic Safety Administration

National Highway Traffic Safety Administration EMD Guidelines

- The National Highway Traffic Safety Administration (NHTSA) under the U.S. Department of Health & Human Services has national jurisdiction over all Emergency Medical Services (EMS) and Emergency Medical Dispatch (EMD) programs
- The NHTSA established minimum mandatory EMD standards and certifications starting in August 1995 via the *Emergency Medical Dispatch: National Standard Curriculum – Managers Guide*
- In association with the NHTSA, EMD standards were created by:
 1. National Association of Emergency Medical Services Physicians (NAEMSP)
 2. American Society for Testing and Materials (ASTM)
- The NHTSA *EMD Program and Implementation Guide* mandates:
 1. *...Dispatchers working primarily with requests for medical assistance require specialized training in caller questioning, emergency medical resource allocation, caller management and provision of medical instructions via the telephone*
 2. *Dispatchers must also understand the differences between Advanced Life-Support (ALS) and Basic Life-Support (BLS) and require specific training in the use of the tool known as the Emergency Medical Dispatch Protocol Reference System (EMDPRS)*
 3. *All EMDs require this training in addition to their basic, solid foundation in general telecommunications education and training in telecommunications techniques*
- NHTSA Goals of EMD Programs:
 1. Better management of EMS and public safety resources through the proper interrogation and situation assessment by the call taker
 2. Better patient care through the delivery of post-dispatch/pre-arrival instructions given to the caller to assist the patient until pre-hospital care providers arrive on scene
 3. Improve patient outcome and have better prepared patients through the provision of post-dispatch/pre-arrival instructions...
 4. Better management of true medical emergencies through medically approved practices using preplanned emergency scenarios, planned by the medical Adviser and EMS administration and incorporated into the EMDPRS for application by the EMD
 5. Safer emergency responses and safer emergency scenes by sending the right type of resources in the correct and safest mode depending upon the severity of the incident type...
 6. Establish pre-configured responses...Responses are locally determined and customized by local medical oversight and built into the EMDPRS...
 7. Provide help in dealing with time critical events by providing treatment of certain life-threatening serious medical conditions (like choking, shock, profuse bleeding, respiratory and cardiac arrest, etc.)...

8. Identifying the EMD as the "First of the First Responders;"...With the advent and advancement of EMD principles and practices it is now an accepted fact that patient treatment can begin the moment the dispatcher answers the request for EMS via telephone assisted first aid, and in more serious cases, CPR choking and childbirth instructions. This makes the EMD a true "first responder" by providing early treatment prior to the arrival of dispatched medical resources.

- NHTSA EMD Program Medical Oversight

It has long been recognized in the medical community that the consistent delivery of good medical care requires a system of ongoing quality controls. The components of medical oversight in dispatch include observation and evaluation of dispatch and analysis of dispatch data. Medical oversight is not just having a medical director, it is a multifaceted process performed by all those personnel in the Department that indirectly influence or directly affect patient care.

1. *First Level of Quality Assurance. The first level of quality control must be at the field level. It is the responsibility of the EMS provider agency itself, in this case the EMS Communications Center, to police the quality of medical care that is provided. This is done at the direction of the Medical Director. There is no other agency or entity that can do this effectively, because it means monitoring each call as it comes in and having the authority to make meaningful and appropriate decisions. Activities such as telephone care rendered by EMDs, must be observed for compliance with (or deviation from) defined standards.*
2. *Second Level of Quality Assurance. The second level of quality assurance must be at the administrative level. The EMD program's QA Unit should review EMS reports or other recordings of patient care to compare performance against medical standards of practice. Through this administrative quality control, trends and patterns of telephone patient care can be systematically recognized. When trends and patterns are identified that do not conform to defined policy or procedure, recommendations can be made for system adjustment.*
3. *Third Level of Quality Assurance. The third level of quality assurance must come from the management level. The EMS manager must direct and coordinate the elements of medical oversight and be responsible and accountable for the entire medical oversight process in dispatch.*

New York State 911 Board

NOTICE OF ADOPTION OF MINIMUM STANDARDS

The New York State 911 Board is established pursuant to County Law §326. The Board is charged with assisting local governments, service suppliers, wireless telephone service suppliers and appropriate state agencies by facilitating the most efficient and effective routing of wireless 911

emergency calls; developing minimum standards for public safety answering points; promoting the exchange of information, including emerging technologies; and encouraging the use of best practice standards among the public safety answering point community. The Board is exempt from the requirements of the New York State Administrative Procedure Act, but is required to publish its proposed and final standards pursuant to the provisions of County Law §327. This Notice is published pursuant to those provisions.

§ 5201.1 Definitions.

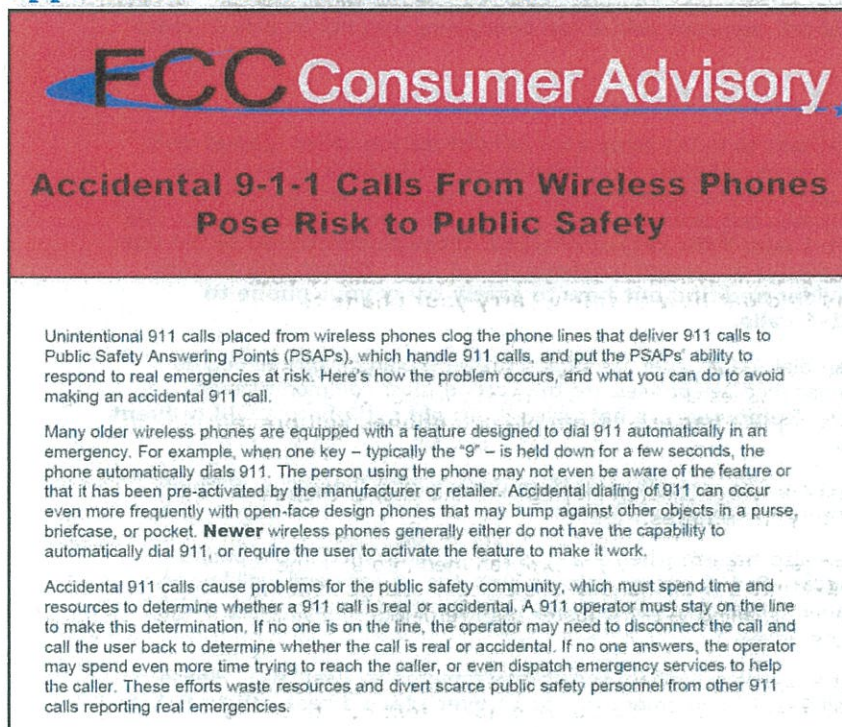
- (a) "PSAP" means Public Safety Answering Point, a site designated and operated by a governmental entity for the purpose of receiving emergency calls from customers of a wireless telephone service supplier.*
- (b) "Board" means the New York State 911 Board.*
- (c) "Call-taker/dispatcher" means any person employed by or in any local or state government agency either full or part-time whose duties include the answering of emergency telephone calls and/or the dispatching of emergency services personnel.*
- (d) "ESDTEP" means Emergency Services Dispatch Training/Evaluation Program.*
- (e) "Trainer" means any individual designated by the authority to train call-takers/dispatchers.*
- (f) "Trainee" means a call-taker/dispatcher who is currently being trained.*
- (g) "Authority" means the local governmental authority operating the PSAP.*

§ 5201.5 Specialty training.

(a) The authority may identify positions for which specialized technical and job-specific training is to be required, and shall require completion of such training pursuant to the protocol established within that job specialty.

(b) If the authority has established an Emergency Medical Dispatch (EMD) program at any PSAP, such program shall include and require instruction which meets or exceeds the standard established by the National Highway Traffic Safety Administration (NHTSA) approved program of instruction. All persons employed therein shall complete training for such program within 12 months of the date of appointment. The Board may establish a list of approved EMD training programs.

Appendix C – Accidental 9-1-1 Calls



FCC Consumer Advisory

Accidental 9-1-1 Calls From Wireless Phones Pose Risk to Public Safety

Unintentional 911 calls placed from wireless phones clog the phone lines that deliver 911 calls to Public Safety Answering Points (PSAPs), which handle 911 calls, and put the PSAPs' ability to respond to real emergencies at risk. Here's how the problem occurs, and what you can do to avoid making an accidental 911 call.

Many older wireless phones are equipped with a feature designed to dial 911 automatically in an emergency. For example, when one key – typically the "9" – is held down for a few seconds, the phone automatically dials 911. The person using the phone may not even be aware of the feature or that it has been pre-activated by the manufacturer or retailer. Accidental dialing of 911 can occur even more frequently with open-face design phones that may bump against other objects in a purse, briefcase, or pocket. **Newer** wireless phones generally either do not have the capability to automatically dial 911, or require the user to activate the feature to make it work.

Accidental 911 calls cause problems for the public safety community, which must spend time and resources to determine whether a 911 call is real or accidental. A 911 operator must stay on the line to make this determination. If no one is on the line, the operator may need to disconnect the call and call the user back to determine whether the call is real or accidental. If no one answers, the operator may spend even more time trying to reach the caller, or even dispatch emergency services to help the caller. These efforts waste resources and divert scarce public safety personnel from other 911 calls reporting real emergencies.

Exhibit C-1 – November 2008 FCC Consumer Advisory

9-1-1 Needs YOU!

9-1-1 Needs You to Prevent Accidental 911 Calls

Did you know your **pocket** can dial 9-1-1? Did you know a **toddler** can?

Of the over 400,000 9-1-1 calls that Public Safety Communications receives every year, about 30% of them are accidental calls, where someone did not mean to call 9-1-1 and does not have an emergency. That's over 300 accidental calls **every day**. This is a huge problem that ties up resources and may prevent people with real emergencies from reaching 9-1-1.

Every single 9-1-1 call that comes in to PSC is answered and attended to, including the over 300 accidental and hang-up we receive every day. Emergency Communications Officers always call back every hang-up call to see if emergency services are needed. If there is no answer and the call was made from a cell phone, a message is left advising that your cell phone dialled 9-1-1. If the accidental call came from a home phone, the police will be dispatched to check on the welfare of the occupants of the house.

Accidental 9-1-1 calls cost the City of Calgary a significant amount of money and resources every year. They also tie up emergency services and phone lines. When we're dealing with an accidental call, someone with a real emergency may not be able to reach us.

How can you help?

The majority of accidental calls to 9-1-1 come from cell phones –so called "pocket dials." 9-1-1 needs you to safely store and carry your cell phone. A cell phone in your purse, pocket or backpack can call 9-1-1 sometimes EVEN if the keypad is locked. Some phones have a feature to prevent this, but others, such as Blackberries, have an "Emergency Call" function that can dial 9-1-1 even if the keypad is locked. These phones should be put into "standby" or carried in a holster to prevent accidental 9-1-1 calls. **Please talk to your cell phone service provider and find out how to safely carry your phone to prevent accidental 9-1-1 calls.**

An inactive cell phone can dial 9-1-1, even if you don't have a plan or 'pay as you go' minutes. Calls from unsubscribed cell phones are the second most common type of accidental calls we receive. **Removing the batteries from old cell phones will prevent accidental 9-1-1 calls.**

We also get a lot of 9-1-1 calls as a result of children playing with the phone. **Please don't allow children to play with your phones.**

Accidental 9-1-1 calls can also happen when 9-1-1 is pre-programmed into a phone. **Please do not pre-program 9-1-1** into any phone. 9-1-1 is an easy and well known emergency number. In an emergency, dialling 9-1-1 is faster than remembering which speed dial code you programmed.

Children who learn about 9-1-1 in school are sometimes tempted to "test" 911. Please teach your children to call 9-1-1 in an emergency and **never place a test call to 9-1-1.**

What if I accidentally call 911?

If you accidentally dial 9-1-1, from your home or cell phone **stay on the line** and tell the Emergency Communications Officer what happened. If you hang up, we have to call you back and that could tie up a line for someone who really needs it. **Hanging up is a real hang up for 9-1-1.**

Exhibit C-2- City of Calgary Website Information Concerning Accidental 9-1-1 Calls

Accidental 9-1-1 calls are tying up phone lines needed for urgent care or help!

IS YOUR CELL PHONE CAUSING A 9-1-1 Crisis?

THE PROBLEM

Cell phones can call 9-1-1 without the owner knowing that a 9-1-1 call has been made.

- Accidental 9-1-1 calls occur when the phone is placed in a pocket, belt clip or purse, and the "9" or a pre-programmed emergency button is bumped.
- Even cell phones without a dial tone or active service can still call 9-1-1. Before an old cell phone is given to children to play with as a toy, remove the phone battery.

For more information, contact Washington State Enhanced 9-1-1 Office at 1-800-562-6108 or visit our Web site at: www.cnd.wa.gov

Washington Military Department
Emergency Management Division
Enhanced 9-1-1 Program
Camp Murray, WA 98430-5122
January 2006



Exhibit C-3 - Example of a Community Brochure Concerning Accidental 9-1-1 Calls

1. The first part of the document is a list of the names of the persons who have been appointed to the various offices of the city.

2. The second part of the document is a list of the names of the persons who have been appointed to the various offices of the city.

3. The third part of the document is a list of the names of the persons who have been appointed to the various offices of the city.