New York City Department of Investigation
Report Regarding the Emergency Response to Accident
Involving Ariel Russo and the City's 911 System

ROSE GILL HEARN
COMMISSIONER

December 2013

Executive Summary

Within the City's 911 system, a request for an emergency medical response made by police officers at an incident scene begins with a radio call within the Police Department, followed by the transmission of information to the Fire Department's Emergency Medical Dispatch Center (EMD), which deploys the appropriate resources. DOI's investigation collected and this Report presents the information related to the incident in which Ariel Russo was injured and died, including the emergency medical response from end-to-end, and this Report by extension gives an overview of the 911 system. The Report also reviews various "outages" the 911 system experienced in May and July 2013, none of which played a part in this event. This is a summary only of facts and findings.

1. Based on a review of system logs and the analysis of system experts, there appear to have been no outages or other relevant technical problems with the City's 911 system on June 4, 2013, the day Ariel Russo died after being hit on West 97th Street and Amsterdam Avenue by a SUV driven by an unlicensed teenager.

2. Ariel was critically injured at approximately 8:15 a.m. when she was hit by the SUV that crushed her up against the metal gate of a restaurant front. Police responded to the accident scene immediately. Ariel's grandmother was also struck by the SUV and thrown onto the sidewalk. While her injuries were serious, they were not as critical as Ariel's.

3. The first response to Ariel from the FDNY was a Firefighter, who was a certified first responder, who at the time of the incident was on his way to work at his command, Engine 76 on the Upper West Side of Manhattan. The Firefighter stopped, identified himself to the police officers, and attended to Ariel by approximately 8:17 a.m.[1]

4. The second response from the FDNY was from an EMS Basic Life Support (BLS) ambulance, Unit 11F, which was flagged down by the police officers on the scene at approximately 8:22 a.m. When it was flagged down, Unit 11F was taking a patient with head injuries from a bike accident, to nearby St. Luke's-Roosevelt Hospital. While one EMT in Unit 11F remained with the biker, the other EMT ascertained what had taken place with Ariel and her grandmother and what was needed; he had discussions with the Firefighter who was at Ariel's side; the EMT retrieved equipment to stabilize and transport Ariel. Along with the Firefighter and a Good Samaritan, the EMT attended to Ariel who he said was lying supine and unconscious on a bed of shattered glass.

5. The third response from the FDNY was the arrival at approximately 8:23:10 a.m. of a fire truck from Engine 76, a certified first responder company that had been dispatched to the scene by the 911 system based on the radio calls from the police officers on the scene. The company began to attend to Ariel and her grandmother. The fourth response from the FDNY was a St. Luke's Hospital Advanced Life Support (ALS) ambulance (Unit 11V) that had been dispatched by the 911 system and arrived at the scene at about 8:23:50 a.m. A paramedic from Unit 11V observed Ariel and her grandmother on the

---

[1] The Firefighter stated that when he arrived, a woman wearing what appeared to be medical or nursing attire had already stopped to assist at the scene (the Good Samaritan).

sidewalk, and assessed that Ariel was in gravely critical condition, unconscious and not breathing. He observed lacerations on her forehead exposing her skull.[2] The two paramedics from 11V began to bring equipment from the ALS needed to treat and transport Ariel.[3] The 11V paramedic attempted to address Ariel's breathing difficulty; he observed bruises and discoloration on her chest and abdominal area; accordingly, the paramedics, EMTs, FDNY personnel and police officers raced to get Ariel to the Emergency Room of St. Luke's Hospital. The total time that elapsed from when the 11V paramedics arrived at Ariel's side, equipped her for transport, moved her into the ambulance, and were en route to the hospital, was approximately 4 minutes. To facilitate, the Unit 11V ambulance was driven to the hospital by a Firefighter from Engine 76 so that the two paramedics from 11V along with an NYPD Emergency Services Unit paramedic could all attend to Ariel who had been placed into the back of 11V. While en route to the hospital, the paramedic attempted to intubate Ariel but was unsuccessful due to bleeding in her airway. He assessed that her heart rate was less than needed to sustain her. It took approximately one minute for the ambulance, led by a police escort, to get to St. Luke's Hospital at Amsterdam Avenue and 114th Street. Notwithstanding the collective efforts of all those who responded, Ariel went into cardiac arrest in the ambulance and was subsequently pronounced dead at St. Luke's.

6. At the same time that this response to Ariel and her grandmother was underway at the scene, EMS personnel at the EMD were handling the call from the field that ultimately resulted in the arrival of Engine 76 and ALS Unit 11V. According to the audio recording of NYPD radio calls to dispatch, shortly after 8:15 a.m., requests were made by the police officers on scene regarding a person struck by a vehicle and in need of a "bus" or ambulance. As a result of those radio calls, information about the incident was digitally transferred from the Police Department to the EMSCAD[4] system and to an EMS Assignment Receiving Dispatcher (ARD) working on the Relay Desk in Room 310 at the EMD, whose job it was to receive data relating to incidents coming from the NYPD ICAD system.[5] The information is viewed on terminals at the ARD's work station, and entered by the ARD into the EMSCAD system to be routed to EMS Dispatch, which, in turn, deploys the appropriate resources including ambulances. The ARD on the Relay Desk where information about the Ariel Russo incident had begun to be received at approximately 8:15:40 according to the call logs did not take steps to view and process the incident, *i.e.*, she did not enter it to the EMSCAD system. Instead, several minutes later, the ARD, who asserts that the call was not there or she did not see it, went on a break while the notification about the Ariel incident was still pending. The "Relief" EMT filled in for her at her workstation when she took that break at approximately 8:19 a.m. The Relief EMT, who had logged into the Relay Desk at approximately 8:19 a.m., acted on the pending call that was related to the Ariel Russo incident within seconds. The end result of the steps taken by the Relief EMT was the arrival of the aforementioned Fire Engine 76 and ALS to the scene of the incident at approximately 8:23:50.

---

[2] He also observed Ariel's grandmother was crying and speaking to responders; her ankle appeared to be badly injured. He focused his attention on Ariel because her condition was far more severe.

[3] At that point, Police, FDNY from Engine 76, the EMTs from the BLS, and the paramedics from the ALS were collectively attending to Ariel and her grandmother.

[4] The Emergency Medical Services Computer Aided Dispatch system (EMSCAD) is an FDNY system.

[5] Intergraph Computer Aided Dispatch system (NYPD ICAD).

7. The volume of calls on the Relay Desk on this shift was not heavy. The ARD on the Relay Desk was on the second hour of her shift; she had not worked the previous shift and thus was not on overtime. During the FDNY's internal inquiry of this matter, the ARD denied that she had used her cell phone during that shift. However, the ARD's cell phone records obtained by subpoena show she had used her cell phone during the shift approximately five times before the Ariel incident; although the cell phone records do not reflect any calls during the relevant time that the information about the Ariel incident was coming in to the EMSCAD system.[6] According to the FDNY, cell phones are not permitted to be in use while dispatchers are working at their positions, including the Relay Desk, so there are no distractions while they are on duty responding to calls.[7]

8. The EMS lieutenant on duty, who was seated right next to the Relay Desk in Room 310 of the EMD on the morning of June 4th, was responsible for supervising the ARDs in that Room. His duties included, *inter alia*, monitoring and supervising dispatcher calls on the Relay Desk, which are also displayed on his console at his workstation along with all the calls that are coming into the EMD from the NYPD ICAD system, and responding to any situation that might arise, including a call not being promptly responded to by a dispatcher. The lieutenant took no supervisory action when the call was visible on the screen for approximately four minutes. He said he did not see or hear the ARD talking on her cell phone at her Relay Desk workstation during the shift.

9. The pending call related to Ariel would have been visible to various other dispatchers and supervisors at the EMD, including when it became a call "pending" unattended to for more than three minutes visible on screens and monitors throughout the EMD. The lieutenant on duty in Room 306 of the EMD, who had his own group of dispatchers in that Room to supervise, was alerted to the call by a dispatcher in Room 306 who saw the call pending on her screen (the same call that the ARD on the Relay Desk claimed she did not see before she took her break). Upon being alerted to it and seeing the pending call himself on a large monitor screen in Room 306, the lieutenant in Room 306 walked down the corridor to Room 310 (which is on videotape) to inquire about the handling of the pending call and to ascertain if some assistance was needed. When the lieutenant from Room 306 entered Room 310 and made that inquiry, the lieutenant for Room 310 was sitting at his work station next to the Relay Desk. The EMT on the Relay Desk had taken a break and had been replaced by the Relief EMT. The Relief EMT stated that he had handled the call.

10. In sum, the responses to Ariel and her grandmother by trained certified responders were, variously, from the time of the accident approximately 2 minutes (the Engine 76 Firefighter), 7:41 minutes (BLS Unit 11F), 8:10 minutes (Engine 76 fire truck), and 8:50 minutes (ALS Unit 11V).[8] According to the Fiscal Year 2013 Mayor's Management Report, the average response time for "life-threatening medical emergencies by ambulance units" was 9 minutes, 22 seconds. (Sept. 2013 MMR, p. 12.)

11. When Fire Department officials made internal inquiries about the Ariel call, there were issues with respect to the way information was gathered. For example, the Relay Desk ARD who did not handle the call under questionable circumstances and the Relief EMT who ultimately processed the call (*i.e.*, key

---

[6] The ARD also made four calls with her cell phone later in the afternoon of that shift while at her work station.

[7] ARDs receive four 30-minute breaks per 8-hour shift. They work 90 minutes and get 30 minutes off.

[8] An additional BLS responded shortly thereafter but was not needed.

staff members involved in the inquiry about the incident) were permitted to sign off as witness to one another's statements; and the call history was given to the ARD in conjunction with being asked to write up a statement about why she did not handle the call.

12. Staffing issues at the EMD are discussed herein although staffing was not an issue on June 4th; there was no evidence that the relevant shift was short-staffed on June 4th, and none of the relevant personnel at the EMD had worked double-shifts. FDNY officials also discussed recruitment limitations as they relate to staffing for the EMD.

13. System issues relating to several outages that took place in May and July 2013 are also discussed. Specifically, EMSCAD experienced outages on May 29th, May 31st, July 22nd and July 24th. During those incidents, the EMSCAD system, the interface to ICAD and mobile units running EMSCAD, were not available for various durations ranging from approximately 25 minutes to two hours. In sum:

> The May outages were caused by failed hardware related to one server, designated ECAD3, and efforts to troubleshoot the hardware issues. Specifically, a disk drive and disk controller card failed. These components were replaced. To limit the likelihood of recurrence of such issues, technical personnel at the FDNY have recommended some specific newer hardware.

> The July outages were caused by two hardware failures, respectively, a failing disk drive and, in the second incident, a problematic switch in a backup network connection to the repaired ECAD 3 server as it was being reconnected to the EMSCAD system. The hardware that caused both outages was replaced. The FDNY's procedure for connecting or reconnecting any new or repaired server to the network has been revised to ensure, in advance, that all connections are working properly. Some additional technical staffing for the Computer Operations Center and additional training of existing Computer Operations staff are suggested.

Chronology of Events Surrounding Ariel Russo Emergency Calls[9]

7:36 – 8:08 a.m.	*ARD Edna Pringle uses her cell phone five times: making 4 cell phone calls and receiving one, all at the Relay Desk.*
8:13:02 a.m.	*Pringle completes a job at her Relay Desk terminal.*
8:15 a.m.	Ariel Russo critically injured when hit by SUV driven by unlicensed teenager; her grandmother also seriously injured.
8:15 – 8:19 a.m.	Several NYPD officers make multiple radio calls to NYPD Dispatch.
8:15:38 a.m.	*NYPD Dispatch Center enters call into ICAD and transfers to EMSCAD.*
8:15:40 to 8:19:37 a.m.	*Russo incident info received by EMSCAD; EMSCAD records show the Ariel Russo call is the only call pending for the Relay Desk.*
8:15:45 a.m.	*EMSCAD receives additional incident details,including address of accident.*
8:17 a.m.	Off-duty Firefighter Gerard Lambert from Engine 76 is driving to work and stops at scene of accident to assist.
8:19:08 a.m.	*ARD Pringle has not opened the Russo job, and later says it was not there or she did not see it. She logs off system to go on break.*
8:19:34 a.m.	*EMT Vadim Lopatine, who replaces Pringle while she is on break, logs onto system at the Relay Desk.*
8:19:37 a.m.	*EMT Vadim Lopatine opens the Russo job, views it, and changes the job from NYPD to EMS code indicating a police officer needs assistance.*
8:19:42 a.m.	*Lopatine transmits the Russo job via EMSCAD to an EMS Radio Dispatcher.*
8:19 – 8:20	*Lt. Jose Gonzalez walks from room 306 to 310 to check if Relay is handling the job.*
8:19:58 a.m.	*Lopatine views the additional line of data (3YO STRUCK BY VECH) and upgrades the priority of incident from a "PD13" priority 7 (assigns a BLS response) to a "PedSTR" priority 3 (also a BLS response). Based on the upgrading, EMSCAD sends job to FDNY's StarFire system.*

---

[9] All times approximate. Yellow highlight indicates activity that took place at the EMD Center, while the activity at the accident scene is referenced without highlight.

Engine 76, a certified first response company, is assigned to respond.

8:20:17 a.m.   *EMS Radio Dispatcher assigns Basic Life Support (BLS) ambulance (Unit 10F), to respond.*

8:21:19 a.m.   *EMS Radio Dispatcher then also assigns Advanced Life Support (ALS) ambulance (Unit 11V) to respond.*

8:22 a.m.   BLS ambulance (Unit 11F) flagged down while en route to St. Luke's-Roosevelt Hospital with a patient.

8:23:10 a.m.   Engine 76 arrives on scene.

8:23:45 a.m.   NYPD ESU arrives on scene.

8:23:50 a.m.   ALS ambulance (Unit 11V) arrives on scene.

8:27:49 a.m.   BLS 10F arrives on scene but it is not needed given arrival of other responders

8:29 a.m.   ALS ambulance (Unit 11V) ambulance leaves scene for hospital.

8:30 a.m.   ALS ambulance (Unit 11V) arrives at St. Luke's-Roosevelt Hospital with Ariel.

8:30 a.m.   BLS ambulance (Unit 11F), transporting Ariel's grandmother and another patient, arrives at St. Luke's-Roosevelt Hospital.

Investigation

As part of this investigation, in light of the highly specialized and sophisticated nature of the City's 911 emergency response system, at the outset DOI took a tour and spent hours at the EMD at 11 Metrotech in Brooklyn observing the operation so we could understand what witnesses would be describing and have their context.[10] DOI also collected the relevant reports and data relating to the Ariel Russo incident, including statements that had been made to Fire department officials, and forensic analysis relating to the computer system for the date in question, and conducted hundreds of hours of interviews.

I.   Overview: June 4, 2013 Ariel Russo struck by SUV

On June 4, 2013, at approximately 8:14 a.m., NYPD officers assigned to the 24th Precinct attempted to stop a black Nissan Frontier SUV driven by 17-year-old Franklin Reyes by using strobe lights and sirens. Reyes was driving alone at the time; he did not have a driver's license, but rather, he had been issued only a learner's permit. According to the NYPD, when the officers stopped and attempted to approach the SUV, Reyes sped off continuing northbound on Amsterdam Avenue. The officers returned to their patrol cars to pursue the SUV. Less than a minute thereafter, Reyes turned left at a high rate of speed onto West 97th Street and lost control of his vehicle, running it up onto the sidewalk in front of a restaurant on the northwest corner. In doing so, he struck two pedestrians, four-year-old Ariel Russo and her grandmother, 58 year-old Katia Gutierrez. The SUV slammed into Ariel at approximately 8:15 a.m. pinning her against the restaurant's metal security gate. Thus, Ariel's injuries stemmed from both being hit by the SUV and being thrown into the metal security gate. Gutierrez was also struck by the SUV and thrown nearby on the sidewalk.[11] After striking Ariel and Gutierrez, Reyes put his vehicle in reverse and crashed into a parked car on the opposite side of the street. NYPD patrol cars quickly arrived at the scene and Reyes was taken into custody. Ariel and Gutierrez were immediately attended to by the police officers as well as, according to responding officials, a "Good Samaritan" at the scene.[12] In addition, Gerard Lambert, an off-duty Firefighter assigned to a nearby engine company, was driving to work on Amsterdam Avenue at the time of the accident when he stopped his car to see if he could be of assistance, identified himself to the police, and became the first Fire Department official to assist Ariel. That was at approximately 8:17 a.m.

---

[10] The EMD is part of the Public Safety Answering Center (PSAC 1).

[11] Gutierrez was conscious at the scene, according to responding officials, and survived her injuries.

[12] Witnesses gave varying accounts about the Good Samaritan possibly having some medical training.

Theodore Parisenne/Splash News

A.   8:14-8:19 a.m.

i.   The immediate on-scene response

Following the incident, at 8:15 a.m. and for several minutes thereafter, recordings of radio transmissions between NYPD officers at the accident scene and the NYPD Dispatch Center indicate that NYPD officers made multiple urgent calls for an ambulance.

Before an ambulance arrived on scene, Ariel and Gutierrez were attended to by the NYPD officers, the Good Samaritan, as well as Firefighter Lambert, a certified first responder, which means that he had undergone training to provide medical care at accident scenes. That training includes triaging at accident scenes, patient stabilization, neck and back stabilization, treating wounds, CPR, etc.[13] According to surveillance video taken from the northwest corner of West 97th Street and Amsterdam Avenue, Lambert arrived at the accident scene at approximately 8:17 a.m. In testimony given to DOI, Lambert said, in sum and substance, that when he arrived at the accident scene, he saw Gutierrez lying on the sidewalk and not moving. Lambert said Ariel was lying in a fetal position, on a bed of broken glass, against the restaurant's security gate. With the assistance of a police officer, Lambert rolled Ariel onto her back in order to stabilize her neck and maintain or establish an airway.[14] Lambert testified that Ariel's breathing was agonized and that she had a very weak pulse. He described

---

[13] Lambert is assigned to Engine 76 located at 145 West 100th Street between Amsterdam and Columbus Avenues. Engine 76 covers the area that encompasses the location where the accident occurred and was subsequently assigned to respond to the incident.

[14] Lambert stated that they were assisted by a Good Samaritan who indicated she was a nurse; he indicated she was wearing medical or nursing attire.

her complexion as very pale, and said that she had significant head trauma (*i.e.*, lacerations that left her skull exposed), broken teeth and blood in her nose and mouth.

Lambert said that, at this point, his assessment was that he needed a cervical collar to stabilize Ariel's neck, a backboard to stabilize and transport the patient, and a bag valve mask (BVM) to provide oxygen. He asked a police officer if there was an ambulance on the way, and based on his assessment of the severity of Ariel's injuries, Lambert told the officer to request that an Advanced Life Support (ALS) ambulance be assigned to respond.[15] Additionally, Lambert told the officer to "put a rush" on the ambulance because of the gravity of her condition.

ii.   NYPD and EMS Communications pertaining to Ariel Russo

According to recordings of NYPD radio transmissions, in the four minutes following the accident at approximately 8:15 a.m., several police officers on scene radioed multiple requests to the NYPD Dispatch Center for an ambulance. The NYPD Dispatch Center then made entries into the Intergraph Computer Aided Dispatch (ICAD) system based on the calls/requests they received from the police officers.[16] Examples of the radio transmissions, which occurred between shortly after 8:15 and through 8:19 a.m., are as follows:
- "I need you to rush a bus [meaning ambulance] 97th and Amsterdam! We have two pedestrians struck."
- "Get me a bus, there is a little girl unconscious!"
- "Where's the bus?"
- "I need two buses."

A dispatcher at the NYPD Dispatch Center entered the information regarding the incident into the ICAD system at approximately 8:15:38 a.m., and electronically transmitted the information to the EMS Computer Aided Dispatch (EMSCAD) system, according to ICAD records received from the NYPD. The dispatcher's entries gave the location of the accident ("W 97 St/Amsterdam Ave") and the NYPD call type ("13X2 – Assist Police Officer"). The NYPD dispatcher also entered the message, "3YO STRUCK BY VECH" in the field reserved for comments.[17]

Similarly, EMSCAD records show that the EMSCAD system received the Ariel Russo job at approximately 8:15:40 a.m., two seconds after the ICAD records show that it was sent by the NYPD

---

[15] An ALS ambulance, operated by paramedics, is equipped to provide "definitive acute medical care" and "advanced life support." NY Public Health Law Section 3001(11) (2013). ALS units are dispatched/needed for more serious cases. By contrast, a Basic Life Support ambulance, (BLS), operated by EMTs, is equipped to provide CPR, bleeding control, oxygen administration, foreign body airway obstruction removal, spinal immobilization, etc., but not more advanced or acute medical care. Paramedics can administer drugs while EMTs cannot. Pursuant to EMS regulations, the incident type "pedestrian struck" is automatically assigned to a BLS ambulance.

[16] The NYPD's ICAD system, as more fully discussed below, electronically processes information regarding emergency incidents and transmits the information to the Fire Department including EMS.

[17] Although the NYPD dispatcher's message stated that a three-year-old had been struck by a vehicle, hospital records confirm that Ariel was four years old at the time of the accident.

dispatcher.[18] Each incident received by the EMSCAD system is assigned to an EMS Assignment Receiving Dispatcher (ARD), a certified EMT whose role is to assess the required medical response before transferring the incident to an EMS Radio Dispatcher.[19] ARDs are stationed at the EMS Emergency Dispatch Center (EMD Center), located at 11 Metrotech in Brooklyn. Further, medical emergencies that are reported to the NYPD by a uniformed member of service via radio communication, as in Ariel's case, are entered into ICAD and transferred to EMSCAD as "data-only incidents" or "Relay Calls."[20] All Relay Calls are handled by a specific ARD at 11 Metrotech (the Relay Operator) who occupies a "specialty" position (the Relay Desk) in the EMD Center.[21] On June 4, 2013, EMT Edna Pringle was the ARD assigned to work at the Relay Desk handling data-only incidents or Relay Calls from 7:00 a.m. until 3:00 p.m. EMSCAD records confirm that she was logged onto the system at 8:15 a.m. when the Russo job came in. That was toward the beginning of her only shift that day.[22]

iii.   The ARD Operator Assigned to the Relay Desk on June 4: Edna Pringle

As the Relay Desk ARD, Pringle was required to monitor and display the "Pending PD Jobs" area of her screen. With respect to the Russo job, EMSCAD records show that it came in on the Pending PD Jobs portion of Pringle's screen as a so-called "LOST" call, with a number assigned to it from the ICAD system "I404707." According to Carla Murphy, the EMSCAD Programming Manager, the term "LOST" does not mean that the data/information about the incident was actually lost or not received by the EMSCAD system. Rather, the term "LOST" means that the EMSCAD system received information incrementally regarding an incident. For example, in the Russo job, EMSCAD received the comment "3YO STRUCK BY VECH," followed by the initial complaint data, such as the address associated with the incident ("W 97/Amsterdam Ave") and the incident type ("13X2" which means officer needs assistance).[23] The call is delineated "LOST" because pieces of information about it are synchronizing, or coming through to the EMSCAD system. Notably, the time it took for the Russo call to fully synchronize was five seconds, according to the EMSCAD records. The Relay Desk ARD would see "LOST" displayed on the "Pending PD Jobs" portion of her screen in the fields reserved for

---

[18] The EMSCAD system maintains a record of each incident received by the system in the form of a complaint history. In addition to recording the time that an incident is received, the complaint history documents all action taken in regard to an incident until it is closed in the EMSCAD system.

[19] The EMS Radio Dispatcher (RD) is an operator who then assigns one or more ambulances to respond to the incident pursuant to information received from ARDs.

[20] For medical emergencies that come from a 911 caller, the NYPD dispatcher telephonically connects the caller with an ARD at EMS in addition to transferring the data entered into ICAD.

[21] Relay Operators are ARDs who have received additional training on processing data-only incidents.

[22] Pringle was not working a double shift on June 4th, and in the month preceding June 4th she worked no double shifts, according to time records. During that same time frame, Pringle worked periods of overtime ranging from 2 to 6 hours, and she worked a single shift on two separate days off.

[23] According to a technical user manual, by design, "The initial complaint data is the first step in setting up a cross-reference between a PD complaint and an EMS complaint. The initial complaint data will be sent when the operator at PD enters the PD complaint into the [ICAD] system." The user manual lists location information and incident type code among the "initial complaint data."
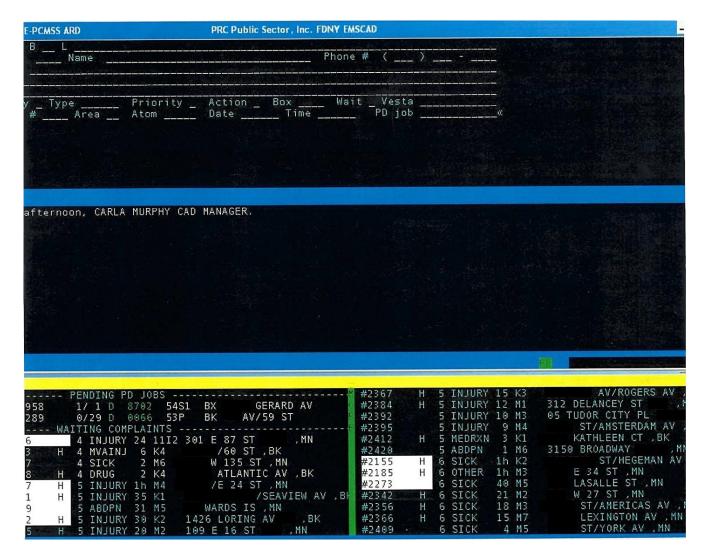
forthcoming information. However, by entering a "GET" command on her keyboard, all available information, including any comments associated with the call, would be displayed on the Pending PD Job portion of her screen. The comment entered into EMSCAD pertaining to the Russo job was "3YO STRUCK BY VECH." Once received, the initial complaint data, such as the location and job type, would populate onto the Relay ARD's screen without the ARD taking any steps. However, only by entering the GET command would the ARD be able to view comments associated with a job. Thus, by entering the GET command the Relay ARD would have been able to view the comment pertaining to the Russo job, "3YO STRUCK BY VECH."

In sum and substance, Murphy indicated that the EMSCAD system designated as "LOST" any incident or job in which additional data is forthcoming. Thus, the ARD's screen would display the word "LOST" in the field(s) reserved for the missing information.[24]

With regard to the Russo job, the EMSCAD system received the message, "3YO STRUCK BY VECH," before receiving the initial complaint data (*e.g.* the location of the accident). According to Murphy, upon receiving the Russo job, the EMSCAD system would have displayed the job on the "Pending PD Jobs" section of Pringle's computer screen.[25] An example of the screen that an ARD views, taken from training materials that ARDs receive, is pictured below (with addresses redacted):

---

[24] According to Murphy, in September 2013, EMS replaced the term "LOST" with the word "SYNC," because it more accurately describes this interaction between the ICAD and EMSCAD systems that would sometimes cause EMSCAD to momentarily receive data about a call out of sequence, or out of "sync." That circumstance has now been addressed such that there are many fewer out of sequence (formerly known as "LOST") jobs, even though this should never have hampered an ARD from responding to any of these calls. Moreover, the FDNY stated that they informed ARD staff that "LOST" is now "SYNC" and how to respond to a "SYNC" item on their screens.

[25] ARDs interact with the EMSCAD system by logging in to the program from their computer terminals. Their screens are divided into the following sections: *Entry Screen* that is used to display, enter and update data related to a job; the *Command Line*, the field in which ARDs use keystrokes to retrieve jobs from the Pending PD Jobs section, among other actions; the *Message Window*, which shows additional information regarding an incident beyond that displayed in the Entry Screen, including the full PD History; the *Status Monitor*, which lists both the Pending PD Jobs (jobs that are sent by the ICAD system and are waiting to be processed by an ARD) and the *Waiting Complaints* (jobs processed by an ARD and awaiting an EMS RD to assign emergency response resources).

```
E-PCMSS ARD                    PRC Public Sector, Inc. FDNY EMSCAD                    -
 B __ L  _____
    ____ Name  _____  Phone # ( ___ ) ___ - ____
    ----------------------------------------------------------------------------
    ----------------------------------------------------------------------------
 y _ Type _____   Priority _   Action _   Box ____   Wait _ Vesta _____
   # ____  Area __   Atom _____   Date _____   Time _____   PD job _____«


afternoon, CARLA MURPHY CAD MANAGER.




                                                                    E

------ PENDING PD JOBS -------------------------------◄ #2367   H  5 INJURY 15 K3        AV/ROGERS AV
958     1/ 1 D  8702   54S1  BX       GERARD AV         #2384   H  5 INJURY 12 M1   312 DELANCEY ST
289     0/29 D  0066   53P   BK   AV/59 ST              #2392      5 INJURY 10 M3   05 TUDOR CITY PL
---- WAITING COMPLAINTS -----------------------------  #2395      5 INJURY  9 M4       ST/AMSTERDAM AV
6          4 INJURY 24 11I2 301 E 87 ST     ,MN        #2412   H  5 MEDRXN  3 K1      KATHLEEN CT ,BK
3     H    4 MVAINJ  6 K4      /60 ST ,BK               #2420      5 ABDPN   1 M6   3150 BROADWAY      ,MN
7          4 SICK    2 M6    W 135 ST ,MN               #2155   H  6 SICK   1h K2       ST/HEGEMAN AV
8     H    4 DRUG    2 K4     ATLANTIC AV ,BK           #2185   H  6 OTHER  1h M3   E 34 ST ,MN
7     H    5 INJURY 1h M4    /E 24 ST ,MN               #2273      6 SICK   40 M5      LASALLE ST ,MN
1     H    5 INJURY 35 K1          /SEAVIEW AV ,BK      #2342   H  6 SICK   21 M2   W 27 ST ,MN
9          5 ABDPN  31 M5     WARDS IS ,MN              #2356   H  6 SICK   18 M3       ST/AMERICAS AV
2     H    5 INJURY 30 K2   1426 LORING AV    ,BK       #2366   H  6 SICK   15 M7      LEXINGTON AV ,MN
5     H    5 INJURY 20 M2   109 E 16 ST     ,MN         #2409   ·  6 SICK    4 M5       ST/YORK AV ,MN
```

As the Relay Desk ARD, Pringle is required to display and monitor the Pending PD Jobs area of her computer screen. According to Murphy and documentary evidence, at 8:15:40 a.m., when the EMSCAD system received the Russo job, Pringle would have seen the following data in the Pending PD Jobs section of her computer screen:[26]

---

[26] All incidents received by EMSCAD are displayed in the Pending PD Jobs section of an ARD's computer screen in columns, or fields, in the format illustrated by the table. The information contained in each field is entered by an NYPD dispatcher, transferred by ICAD to EMSCAD and displayed for the EMS ARD assigned to respond to the incident. The first field displays the unique NYPD identification number assigned to the incident (*e.g.,* I404707); the second field shows the time elapsed since NYPD created the job in ICAD; the third field (blank above) displays a "D" once the job has been viewed by the EMS ARD; the fourth field, displaying the word "LOST," should contain the unique identification number of the EMS ARD to whom the incident was assigned (when the NYPD transmits data-only incidents, the word RELAY appears in this field); the fifth field, displaying the word "LOST," should contain the NYPD code corresponding to the type of incident (*e.g.,* "13X2" for "Assist Police Officer"); the sixth field shows the borough in which the incident occurred ("LOST" incidents are automatically categorized as citywide, or "CW"); and the seventh field, displaying the word "LOST," should contain the address of the incident.

I404707	0		LOST	LOST	CW	LOST

Additionally, the message entered by the NYPD dispatcher, "3YO STRUCK BY VECH," (*i.e.*, three-year-old struck) would have become visible as an additional line of data in the Entry Screen section of the EMSCAD Client, once Pringle opened the I404707 job (above) on her computer by entering a "GET" command in the Command Line of her computer screen as required. However, EMSCAD records for June 4 show that the Russo job was not opened by Pringle, or anyone at the EMD Center, until approximately four minutes after it was transmitted by ICAD.

Moreover, at 8:15:45 a.m., five seconds after initially receiving the Ariel Russo job, EMSCAD records show that the EMSCAD system received additional incident details, including the address of the accident. Those details would have replaced the word LOST in certain fields in the Pending PD Jobs section of the Relay Desk screen – regardless of whether Pringle had opened the original I404707 job as discussed above. The additional information would have appeared as follows on the Pending PD Jobs section of the Relay Desk screen:[27]

I404707	0		LOST	13X2	MN	W 97 ST /AMSTERDAMAV

At this point, Pringle would have had access, in multiple areas of her computer screen, to relevant information that she needed to send the Russo job to the EMS Radio Dispatcher. First, the Pending PD Jobs section would have had the incident type and the location of the accident. Additionally, had she entered the "GET" command as described above, the line of data indicating that a three-year-old was struck would have appeared in the Entry Screen portion of her computer. Moreover, she would have been able to view the full PD History in the Message Window had she entered another command in the EMSCAD Client.[28] According to EMSCAD records, messages within the full PD History included the following:

- "RUSH EMS TO LOC 2 PED STRUCK AT LOC"
- "CIVILIAN STRUCK BY A VEH NEED 2ND BUS TO LOC"
- "2 PEDESTRIAN STRUCK VEH … RUSH EMS TO LOC"

---

[27] The EMSCAD system received the out-of-sequence data five seconds after it received the Russo job from ICAD. It immediately populated the information so that the ARD's screen would have shown, in the following order: the NYPD incident number; the time elapsed since the NYPD was notified about the accident; a "D," which appears after the job has been viewed (blank above); the word "LOST" in the field reserved for the ARD operator number; the NYPD code 13X2 (*i.e.,* to "Police Need Assistance"); the borough in which the incident occurred (MN for Manhattan); and the address associated with the incident (West 97th Street and Amsterdam Ave).

[28] According to Murphy, a condensed version of the PD History, containing the relevant information needed to process a job, appears in the ARD's Entry Screen after the ARD opens the job in the EMSCAD Client. In general, the full PD History is viewed by the ARDs only when they believe they need additional information to accurately process an incident.

With the above-described information, contained in various sections of the EMSCAD Client, Pringle would have been able to enter a request for an EMS Radio Dispatcher to send the appropriate resources, including an ambulance. However, EMSCAD records indicate that Pringle never opened the Russo job. Rather, EMT Vadim Lopatine, a Relay-trained ARD, opened the Russo job at 8:19:37 a.m., immediately after relieving Pringle for her break.[29]

B. 8:19-8:30 a.m.

i. EMS Communication and Dispatch of Resources

The EMSCAD system, which maintains a record of every time a user logs in to or out of an EMSCAD Client (the System History), shows that Pringle logged onto the system at 6:58:34 a.m. and logged off the EMSCAD system for a break at 8:19:08 a.m. As noted, Pringle had not opened the Ariel Russo job at the time she logged off the EMSCAD system. The System History shows that EMT Lopatine, the ARD assigned to the Relief position that day, logged on to the EMSCAD system at the Relay Desk at 8:19:34 a.m. replacing Pringle.[30] Lopatine confirmed in his testimony that he relieved Pringle for her break at that time.[31] EMSCAD records show that he opened and viewed the Russo job on his computer screen at the Relay Desk at 8:19:37 a.m. Lopatine said that, after viewing the incident in the Entry Screen portion of his computer, he used a series of keystrokes to change the Russo job type from 13X2 (a PD code indicating that a police officer needs assistance) to PD13 (an EMS code indicating that a police officer needs assistance).[32] At 8:19:42 a.m., he transmitted the Russo job, via the EMSCAD system, to an EMS Radio Dispatcher. In sum, records from the EMSCAD system verify, that Lopatine processed the Russo job within eight seconds of logging on to the EMSCAD system.

Lopatine testified and EMSCAD records confirm that, at 8:19:58 a.m., he viewed the additional line of data (*i.e.,* "3YO STRUCK BY VECH") in the Entry Screen section of his computer and changed the Russo job type from a PD13 (*i.e.,* officer needs assistance, priority 7, which assigns a BLS) to a PEDSTR (*i.e.,* pedestrian struck, a priority 3, which also assigns a BLS). Lopatine then transmitted the new job type to EMS radio dispatch. Because the priority of the incident was upgraded, at 8:20:11 a.m.

---

[29] The EMSCAD system time stamps various actions taken in regard to an incident, including the first time an incident is viewed by an ARD at the EMD Center. The entry "PDADR-VIEWED" appears at 8:19:37am in the Russo complaint history, indicating that the incident was first opened at that time.

[30] The Relay Desk, staffed 24/7, requires the Relief ARD to replace the Relay ARD and other ARDs so they can take breaks.

[31] ARDs, including the Relay ARD, receive extensive breaks throughout a shift as required by the applicable Citywide Agreement relating to Video Data Terminal (VDT) Operators. ARDs are included in the definition of VDT Operators.

[32] The NYPD and EMS use different codes to describe various incidents. While some of the incidents are similarly described (*e.g.* Assist Police Officer), the codes vary (*e.g.* the NYPD codes "Assist Police Officer" as "13X2," while EMS codes it as "PD13"). An important function of the ARD assigned to the Relay Desk is to convert the NYPD code to the EMS code used by EMS dispatchers, so that they can interpret the incident and dispatch the appropriate resources.

the EMSCAD system also sent the job to the FDNY's StarFire system, which is why the certified first responder, Engine 76, was assigned to the scene.

EMSCAD records indicate that at 8:20:17 a.m., an EMS Radio Dispatcher assigned Unit 10F, a BLS ambulance, to respond to the accident. Pursuant to predetermined EMS Authorized Call Types, "pedestrian struck" is among the type of incidents automatically assigned to a BLS ambulance. The EMS Radio Dispatcher assigned Unit 10F by communicating with the ambulance's EMTs via radio and electronically transmitting information regarding the Russo job to the Mobile Data Terminal (MDT) within their ambulance. [33] Five seconds later, at 8:20:22 a.m., the 10F EMTs notified the dispatcher that they had received the Russo assignment by pressing a command on the MDT touchscreen. At 8:20:49 a.m., Unit 10F EMTs pressed a second command on the MDT touchscreen to indicate that they were en route to the accident scene. However, EMSCAD projected their arrival at the accident location to be 8:30:16 a.m. Unit 10F ultimately arrived at 8:27:49, after other ambulances had already responded, as described below.

EMSCAD records indicate that at 8:21:19 a.m., an EMS Radio Dispatcher assigned Unit 11V, an ALS ambulance, to respond to the accident scene. The paramedics in Unit 11V, Lansing Hinrichs and David West, testified and records confirm, that they pressed commands on the MDT touchscreen at 8:21:30 a.m. to indicate that they had received the assignment. At 8:21:43 a.m., they pressed a second command to indicate that they were en route to the accident scene. Lansing and West testified that at the time they received the job, they were parked at W 102nd Street and Riverside Drive and arrived at the accident scene approximately two minutes later (*i.e.*, at 8:23:50 a.m.), before Unit 10F and after another ambulance had arrived.

ii.   Accident Scene: FDNY and EMS Response

EMTs Eugene Daniels and Pablo Laboy, assigned to ambulance Unit 11F, testified that on June 4 at approximately 8:22 a.m., they were transporting a patient injured in a bike accident to St. Luke's Hospital when they were flagged down by a police officer directing traffic on Amsterdam Avenue near the Russo accident scene.[34] EMSCAD records confirm that the EMTs from 11F used the MDT touchscreen to indicate that they had been flagged down for a pedestrian struck. Daniels, who was driving the ambulance, said that the police officer told him that a child had been struck by a vehicle. Daniels said that he observed numerous police officers on scene, and radioed EMS dispatch to request backup medical assistance. Daniels informed Laboy, who was the EMT in the back of 11F attending to the biker, that they had been flagged down and to get the back of the ambulance ready to receive a second patient.

---

[33] All EMS ambulances are equipped with a Mobile Data Terminal (MDT), a touchscreen computer that runs the EMSCAD program. The MDTs allow paramedics and EMTs to document their actions in the EMSCAD system and to update EMS Radio Dispatchers regarding their movements. Actions entered into EMSCAD using the MDT are automatically incorporated into the complaint history for every incident.

[34] The bicyclist was stable, conscious and attended to by an EMT for the duration of the flagged down stop. Pursuant to EMS OGP 106-2, On-Scene Operations: General Regulations, § 4.1.10, when an ambulance is flagged down while in route to the hospital "with a stable or potentially unstable patient, members shall stop at the scene and assess the situation and render assistance." The regulation further states, "Continuity of care of the original patient must be maintained. One member must stay with the original patient." Here, Laboy remained in the ambulance and attended to the bicyclist while Daniels assisted with Ariel and her grandmother.

Daniels said that when he got out of the ambulance, several police officers ran up to him and asked for medical equipment. Daniels provided a backboard from the back of the ambulance. Laboy testified that he handed Daniels a pediatric BVM. Daniels said, and recordings of EMS radio transmissions confirm, that after he went to assess the accident scene and realized that there were two patients requiring medical attention, he again radioed EMS dispatch to request backup. Daniels said that he observed Ariel lying supine on the ground, parallel to the front of the restaurant. He said Ariel was unconscious, but he was told Ariel was breathing. Daniels also said that he did not assess Ariel's injuries, but provided instructions to those assisting her.

According to testimony from various first responders, Ariel was placed on the backboard provided by Unit 11F. Lambert said that someone handed him a cervical collar, and he was later told the collar came from Unit 11F. Lambert said that he told the Good Samaritan to relieve him at head stabilization (C-spine) so that he could put the collar on Ariel. The Good Samaritan then placed her hands over Lambert's and maintained C-spine while Lambert attempted to put the collar on Ariel. Daniels said that as he watched Lambert attempt to put the collar on Ariel, he noticed the backboard he provided did not have straps attached. Daniels then walked back to the ambulance, retrieved the straps and returned to Ariel. At that point, he noticed Lambert was having difficulty placing the collar on Ariel. He instructed Lambert and the Good Samaritan to move Ariel's neck into a neutral position, which they did, and the collar slid on. Lambert said that after putting the collar on Ariel, he relieved the Good Samaritan at head stabilization. Daniels said that he put the straps on the backboard. Both Lambert and Daniels testified that Engine 76 and ambulance Unit 11V arrived at the accident scene around that time.

EMSCAD records indicate that Engine 76 arrived at the accident scene at 8:23:10 a.m., while Unit 11V arrived 40 seconds later, at 8:23:50 a.m. David West testified that when 11V arrived at the accident location, various NYPD police units, including the Emergency Services Unit (ESU), were already on scene.[35] West said that upon arriving, he immediately went to the back of the ambulance to retrieve medical equipment, while Hinrichs went to assess the scene. West retrieved a stretcher, a backboard, a "first in" bag and an oxygen bag and took the equipment over to his partner, who had begun assisting Ariel.

Hinrichs said that upon arriving to the accident scene, he first saw Gutierrez and noticed that she had a "severe ankle deformity." He then saw Ariel, lying against the front of the restaurant. Hinrichs said that Ariel was unconscious and not breathing when he arrived.[36] He said that she had vertical lacerations to her forehead and blood in her nostrils and mouth. Hinrichs said that he took over C-spine from the Good Samaritan and, once the cervical collar was affixed, determined that Ariel was not breathing and did not have a pulse.

West said that after bringing the equipment to Hinrichs, he realized he needed a pediatric BVM in order to ventilate Ariel. West then went back to the ambulance, retrieved the pediatric BVM and delivered it to Hinrichs, who applied the BVM and began ventilating Ariel. Hinrichs, with the assistance of other first responders, then lifted Ariel onto the stretcher. Paramedics Hinrichs and West, EMT

---

[35] The NYPD ESU arrived at 8:23:45 a.m. and had an officer on board who was trained as a paramedic.

[36] West's testimony corroborated Hinrichs's observations with respect to the condition of Gutierrez and Ariel.

Daniels, off-duty firefighter Lambert and other members of Engine 76 and the NYPD then wheeled Ariel to ambulance 11V. Photographs of the first responders rendering medical care to Ariel and Gutierrez appear below:

David Torres for the *New York Daily News*, June 6, 2013.
Pictured from left to right: EMT Eugene Daniels (Ambulance 11F); Unidentified NYPD Officer; Paramedic Lansing Hinrichs (Ambulance 11V); Unidentified NYPD Officer 1; Firefighter Peter Jacobson (Engine 76); Firefighter Gerard Lambert (Engine 76); Unidentified NYPD Officer 2; Unidentified NYPD Officer 3; Firefighter Carlos Delgado (Engine 76); Firefighter William Hennessey. The patient on the stretcher is Ariel Russo; the patient on the sidewalk is Katia Gutierrez.

David Torres for the *New York Post*, June 4, 2013.
Pictured from left to right: EMT Eugene Daniels (Ambulance Unit 11F); Paramedic Lansing Hinrichs (Ambulance Unit 11V); Firefighter Peter Jacobson (Engine 76); Unidentified NYPD Officer; Firefighter Gerard Lambert (Engine 76). The patient in the image is Ariel Russo.

Hinrichs and West said that they got into the back of the ambulance and, along with Robert Goldstein, a paramedic and member of the NYPD ESU team that responded to the accident, continued to administer medical care to Ariel. Hinrichs and West told the first responders standing outside the ambulance that they needed someone to drive them to the hospital so that they could stay in the back of the ambulance and continue assisting Ariel. They stated that a Firefighter from Engine 76 got in the driver's seat and took them to St. Luke's, which was nearby on Amsterdam Avenue at 114th Street and was as Hinrichs testified the closest hospital to the accident scene. The GPS in Unit 11V indicated that the ambulance left the accident scene at approximately 8:29 a.m.

Hinrichs said that as the ambulance began moving, he assessed his ability to intubate Ariel given the breathing difficulty she was experiencing from her injuries. He observed bleeding in her airway, and although Hinrichs suctioned her airway, he testified that there was no ability to intubate Ariel. Her heart rate, he said, was not enough to sustain human life. Also during his examination of Ariel while en route to the hospital, he observed discoloration to her abdomen and chest wall, indicative of severe blunt trauma (Ariel was thrown by the SUV up against the metal gate of the restaurant). He also stated that Ariel was never conscious or reactive at any point while he was treating her, nor did she recover the ability to breathe. He also said that she was "never alert to painful stimuli," and "never made any reactions to anything at all" while he was treating her. Hinrichs and West stated that while in the ambulance they attached a cardiac monitor to Ariel and, after determining that her heart rate was less than 60 beats per minute, began CPR. They said that they also inserted an intraosseous needle in Ariel's leg to administer fluids to her as the ambulance was arriving at St. Luke's. The GPS in Unit 11V

indicated that the ambulance arrived at St. Luke's at approximately 8:30 a.m. Unit 11F, transporting Ariel's grandmother, arrived immediately thereafter, according to testimony.

West said that as the ambulance was backing into the ambulance bay at St. Luke's, he jumped out to notify the emergency room (ER) staff that they were arriving with a pediatric arrest. He then went back to the ambulance and assisted Hinrichs and Goldstein in moving Ariel, on the stretcher, from the ambulance into the ER. Hinrichs and West said that they assisted the ER staff in performing CPR on Ariel for approximately 15-20 minutes. Ariel ultimately succumbed to her injuries and the medical examiner subsequently determined the official cause of death to be blunt force trauma to the head and torso.

C. Subsequent Investigation: EMS Four-Minute Delay in Processing the Ariel Incident

Over the course of the investigation, DOI learned that during an eight-hour tour, the EMD Center is meant to be staffed with 20 ARDs. The ARDs are divided between two rooms, 306 and 310, separated by a hallway of approximately 66 feet. Each room has terminals (*i.e.*, desks with phones and computers that operate the EMSCAD Client) for 10 ARDs and room 310 has an additional terminal, the Relay Desk, specifically designated for the Relay ARD. Two lieutenants, one in each room, are assigned to supervise the ARDs. In room 310, the Relay Desk is located directly adjacent to the supervising lieutenant's terminal. [37]

While on duty, all ARDs and lieutenants can see the Status Monitor, which lists the Pending PD Jobs and the Waiting Jobs, upon opening the EMSCAD Client on their computer screens as required. Additionally, rooms 306 and 310 are each equipped with two, 64-inch monitors, mounted side-by-side on a wall and visible to all staff in the room. According to Michael Fitton, the Chief of the EMD Center, one wall monitor in each room is typically tuned to a news station, such as NY1, while the other is required to display the Status Monitor as back up to the ARD and Lieutenant's individual Status Monitors at their work stations.

On June 4, Pringle was assigned to the Relay Desk from 7:00 a.m. through 3:00 p.m. Based on the break schedule created by her lieutenant at the beginning of her tour, Pringle was scheduled to take mandated 30-minute breaks beginning at 8:30, 10:30, 12:30 and 2:30. Pringle testified, and the EMSCAD System History confirms, that she logged on to the EMSCAD Client at the Relay Desk at the beginning of her tour (at 6:58:35 a.m.) and did not log off until Lopatine relieved her for a break at 8:19:08 a.m. Additionally, Pringle has repeatedly acknowledged in her testimony that she was sitting at the Relay desk at 8:15:40 a.m., when the Russo job would have appeared on her computer screen, and for approximately four minutes thereafter, but has maintained that the job was not on her Status Monitor during that time. She did, however, concede in writing and in her testimony, that the Russo job does in fact appear on the EMS history report and that Lopatine entered the job without incident within seconds of relieving her for her break at 8:19:08.

---

[37] The EMD Center is also staffed with FDNY Radio Dispatchers (RDs) responsible for assigning appropriate medical and related resources.

On June 5, 2013, Pringle accepted a Command Discipline after her supervising captain, Elizabeth Ambrosino, determined that the Russo job "was on the relay screen for 4 minutes without being processed."[38] Prior to issuing Pringle a Command Discipline, Ambrosino had Pringle and Lopatine write statements relating to the Russo call. DOI learned from Pringle that Ambrosino gave Pringle a copy of the relevant complaint history, which she used to prepare her statement and learned from both Pringle and Lopatine that they witnessed each other's written statements. Although Pringle immediately signed and accepted the Command Discipline, she maintained, in testimony to DOI and the FDNY Bureau of Investigations and Trials (BITS), that the Russo job was never on her computer screen.[39]

i. No Technical Errors on June 4th

As noted, despite her acceptance of the Command Discipline, Pringle has maintained in testimony that the Russo job was never on her computer screen. Carla Murphy, the EMSCAD Programming Manager, conducted a forensic analysis by taking the data received by the EMSCAD system from 7:55 a.m. through 8:35 a.m. on June 4 and running it through a simulator program, thereby recreating all the messages and incidents sent and received by the EMSCAD system during that time period. Specifically, she did so to determine if the information was "getting stuck or slowed down" at a particular point during the transmission from ICAD to EMSCAD. She testified, and documentary evidence confirmed, that she ran the data through the simulator on multiple occasions and each time the information was sent and received by EMSCAD without issue.

In addition to running the above-described data through the simulator, Murphy testified that she further verified that no system outages occurred on June 4th because there were no error reports generated by the EMSCAD system for June 4th. Multiple/numerous error reports, Murphy said, are generated when there are system issues/outages. Logs from the EMSCAD system corroborated that system did not generate any error reports on June 4th. Murphy provided examples of EMSCAD error reports to illustrate what the system would have generated had an error occurred. Murphy also testified that the process by which the EMSCAD system logs error messages was functioning on June 4. She said that, in addition to logging error messages, the EMSCAD system logs information messages and generates status reports containing those messages in 15-minute increments. Murphy testified, and documentary evidence confirmed, that EMSCAD status reports exist for June 4. Had the process by which EMSCAD logs messages and generates reports regarding the functionality of the system failed on June 4, no such reports would exist for that day. Thus, the existence of informational messages contained in the incremental status reports, and the absence of system outages, indicate that the EMSCAD system was functional on June 4th.

Although EMSCAD experienced a total of four outages between May and July 2013, as discussed in Section III below, no such outages occurred on June 4th.

---

[38] EMS Command Complaint Report, Details of Violation, dated 6/5/13 and signed by Captain Elizabeth Ambrosino.

[39] Pringle later said that she signed and accepted the Command Discipline because she was "nervous," and "felt pressured." She ultimately acknowledged that she signed the command discipline by her own will. Pringle also testified to DOI that she "probably" could have taken until the next day to sign the Command Discipline.

In addition, Eugene Martinez, the FDNY Systems Manager responsible for, among other duties, maintaining the hardware that runs the EMSCAD program, testified that no hardware failures occurred on June 4th. Specifically, Martinez testified that he examined the four EMSCAD servers and confirmed that no crash or error reports were generated on June 4th. Additionally, Murphy confirmed that no ARDs reported any issues with respect to their individual EMSCAD Clients or the computers at their terminals on June 4th.

Both members of the Mayor's Office of Data Analytics (MODA) and the Office of Citywide Emergency Communications (OCEC) independently gathered and reviewed data related to the Russo job from the ICAD and EMSCAD systems and testified to DOI that no technical failures occurred with either system on June 4th.[40]

ii. Independent Confirmation that the Ariel Russo Job was Received by EMSCAD

In addition to the absence of evidence indicating that a technical error occurred in the EMSCAD system on June 4, multiple witnesses, whose testimony is corroborated by video surveillance and documentary evidence, confirmed seeing the Russo job in the EMSCAD system on that day.

As part of its investigation, DOI and BITS interviewed other ARDs and lieutenants on duty at the time the Russo job was received by the EMSCAD system on June 4. One of the ARDs interviewed, Simone Quashie, testified that she was working in room 306 on June 4 and remembered noticing a call on the Status Monitor. The EMSCAD system has a feature called "reverse highlight" by which an aging call is displayed in dark text on a white background, rather than the standard display of white on dark. On June 4th, aging calls reverse-highlighted after three minutes, thus the Russo job would have reverse-highlighted at approximately 8:18:40 a.m.[41] An example of this white "reverse-highlight" feature can be seen on the lower left and lower right-hand portions of the sample EMSCAD screen shown on page 12. Although Quashie could not remember why her attention was drawn to that call, she said that it "could have been the timer" (*i.e.*, the length of time the call had been pending). Quashie said that she pointed out a call to the lieutenant, Jose Gonzalez, who was supervising room 306 that day. Gonzalez testified that Quashie told him there was an aging job in the Status Monitor. According to Gonzalez, Quashie specifically told him, "There is a job up there, it is "LOST." It is a PD 13." Gonzalez further said that he looked up at that the large screen wall monitor and saw the call in the "Pending PD Jobs" area with the word "LOST" in the operator field, and the address "W 97/Amsterdam."

While Gonzalez said that he told Quashie not to worry about the call because the Relay Desk would process it, he nonetheless walked down the hall from room 306 to room 310 in order to make sure the Relay ARD was handling the job. Surveillance video from the EMD Center for June 4 shows Gonzalez walking down the hall from room 306 toward room 310 at approximately 8:19 a.m. Gonzalez said that when he entered room 310, he saw Stephen Valladares, the lieutenant on duty in room 310,

---

[40] The length of time and effort that was required to investigate a claim that a call was not on a screen, or to investigate any given call for any operational reason, or to investigate/diagnose a system problem, would be greatly facilitated by a screen capture function, as discussed in Section IV.G below. DOI was told that such a feature was discussed at some point in the past.

[41] Computer staff at EMD have since made a change to the feature so that aging calls reverse-highlight after two minutes.

sitting at his workstation and Lopatine sitting at the Relay Desk. Gonzalez asked Lopatine if he was handling the job, and Lopatine replied that he was. Gonzalez, to confirm that they were referring to the same job, asked if it was a PD13. Lopatine said that it was. Gonzalez said that after confirming Lopatine was handling the job, he walked back to room 306. Gonzalez said that he did not see Pringle in room 310 or in the hallway before or after he spoke to Lopatine.

Lopatine later testified that he did not remember Gonzalez asking him about a job on June 4. Additionally, in his testimony to BITS in June 2013, Lopatine said that there were no jobs pending for the Relay Desk when he logged on to the EMSCAD System at the Relay Desk on June 4th. Specifically, Lopatine testified that 30-40 seconds after he logged on, the Russo job (a PD13 with an address of 97th and Amsterdam) appeared in the Pending PD Jobs list. In fact, even after BITS showed him the EMSCAD records for June 4 that show the Russo job had been pending for approximately four minutes before he logged on to the EMSCAD system at 8:19:34 a.m. and viewed the Russo job at 8:19:37 a.m., he maintained that there were no jobs pending for him when he relieved Pringle. However, in testimony to DOI in October 2013, Lopatine admitted that, "It's possible" the Russo job was on the Relay Desk computer screen in the Pending PD Jobs column when he logged on to the EMSCAD system at 8:19:34 a.m. on June 4.

Additionally, DOI obtained from an FDNY official a photograph of the Russo job displayed on the screen of ambulance Unit 11V's MDT on June 4. As described in Section I.B above, after EMS dispatch assigns an incident to an ambulance unit, the Radio Dispatcher transmits the relevant EMSCAD history for that incident to the MDT within that unit. Unit 11V, as one of the ambulances assigned to respond to the Russo job, received the EMSCAD history for the incident on its MDT. The photograph of the MDT, taken at St. Luke's Hospital after the accident on June 4, shows that the Russo job was received by the EMSCAD system at 8:15:40 a.m.:

iii. Pringle and Valladares

As stated previously, Pringle was assigned and logged on to the Relay position on June 4. DOI learned from various EMS witnesses, including Pringle, that she was physically seated at the Relay Desk until her break at 8:19:08. Pringle's specific actions between 8:15:40 a.m., when the Russo job was received by the EMSCAD system, and 8:19:08 a.m., when she logged off of the system without processing the job, are unknown. However, DOI has made several findings of fact regarding Pringle's activity, and the activity of her supervisor, Lieutenant Valladares, on the morning of June 4.

a. Relay Desk Call Volume

DOI reviewed the number of jobs processed by the Relay Desk on June 4 prior to 8:15:40 a.m. to determine whether the position was inundated with calls at the time the Ariel job came in. It was not. From 7:14:48 a.m. through 8:13:02 a.m., Pringle, sitting at the Relay Desk, processed 31 jobs in the EMSCAD system. Pringle testified at DOI that during busy periods, the Relay Desk receives upwards of 50 calls per hour. Further, she told DOI that the volume on the June 4th shift was "normal" and "Relay was not busy." EMSCAD records also show that Pringle completed a job at 8:13:02 a.m. and had no further activity in the EMSCAD system until 8:19:08. Additionally, EMSCAD records show that from 8:15:40 a.m. through 8:19:37 a.m., the Ariel Russo job was the only job in the Relay queue.[42]

Lieutenant Valladares, assigned to supervise room 310 on June 4, testified to DOI that, in general, ARDs are expected to enter and process a job within three minutes of its arrival in the EMSCAD system. Valladares also noted that if the Relay Operator has only one call pending in his or her queue, he expects that the call should be processed in under one minute. Valladares also said that if an ARD has assigned jobs that have been pending for longer than the allowed period of time, his practice is to approach the ARD and ask if he or she needs assistance. With respect to the Russo job on June 4, Valladares testified that he was unaware of any problems associated with the call until the next day, when he was asked to submit a written statement regarding the job. He said that he never saw the Russo job on the Status Monitor because he was busy with administrative paperwork; specifically, he said that he was completing calendar cards, which track employee attendance, absence and lateness, for the ARDs on duty.[43] In his written statement dated June 5, 2013 and provided to EMD, Valladares said that he was unaware of any problems associated with the Russo job. He further stated, "At no time did I notice that ARD Pringle ... was in any way inattentive to her duties as the ARD assigned to the RELAY position."[44]

Valladares testified as to the volume of paperwork he is required to complete as the lieutenant in room 310, and said that when he is absorbed in paperwork, he may not check the Status Monitor for 15

---

[42] According to records, on June 4th the Relay Desk handled 1059 calls, which according to witnesses is less than the average busy day of about 1,200 per day.

[43] In addition to calendar cards, the lieutenant assigned to room 310 is responsible for sign in sheets, the break schedule, assigning people to the Relay Desk and monitoring the ARDs, including the Relay ARD, in room 310.

[44] Valladares made no mention in his written statement of doing paperwork at his workstation during the relevant time frame on June 4th.

to 20 minutes at a time.[45] Valladares said that if an issue arises while he is occupied with his paperwork, he expects the ARDs he supervises or a lieutenant working in another room to bring the issue to his attention. However, he also said that he does not recall Gonzalez entering room 310 on June 4 at approximately 8:19 a.m. and calling over him to ask Lopatine if he was processing the Russo job.

b.   Pringle's Cell Phone Use on June 4th

In her sworn interviews in June 2013 with BITS, Pringle denied being distracted by anything, including her cellular telephone, and further stated that she was "working consistently" on the morning of June 4th. With respect to her cell phone use, Pringle denied using her cell phone during her shift, stating, "We don't use cell phones in the [EMD] center, we're not allowed." However, telephone records obtained by a DOI-issued subpoena of Pringle's cell phone usage for June 4, 2013 show that she made or received a total of 9 phone calls during her 8-hour shift on June 4th while she was assigned to the Relay Desk and logged onto the EMSCAD system. Specifically, these records show that she made or received five phone calls between 7:36 a.m. and 8:08 a.m. while at the Relay Desk and logged on to system.[46] Moreover, the cell site data relating to Pringle's cell phone for June 4th, obtained by DOI pursuant to court order, is consistent with her use of the phone in the EMD Center.[47] In October 2013, DOI showed Pringle the records of her cell phone use for June 4th, and for the first time, she admitted to placing or receiving all five phone calls from the Relay Desk minutes before the Russo job was received by the EMSCAD system. She told DOI that those calls were all to or from her son and that they did not involve an emergency.[48] However, she denied using or being distracted by her phone at 8:15 a.m., when the Russo job was received.

In testimony to DOI, Pringle admitted that EMD Center policy prohibits employees from using cell phones in rooms 306 or 310 and, specifically, at the Relay Desk.[49] However, Pringle also said that while employees are supposed to step out of the ARD rooms to use their cell phones, the lieutenants

---

[45] Although Valladares is required to complete paperwork as part of his duties as the lieutenant in room 310, the EMD Center also has an administrative lieutenant on duty during every shift. The administrative lieutenant is responsible for checking the daily tour schedules, confirming that they match the monthly master schedule and ensuring that all assigned staff is there. The administrative lieutenant is also responsible for preparing the schedule for the following tour. If there are fewer employees than needed, the administrative lieutenant will call people or ask volunteers to stay for overtime. The administrative lieutenant also assists radio dispatchers if another lieutenant is not assigned to cover the dispatch floor.

[46] Pringle also admitted to making or receiving an additional four phone calls, between 1:06 p.m. and 1:35 p.m., while physically seated at the Relay Desk on June 4.

[47] Cell site data provides the location of the cell phone tower nearest to the cell phone when it is in use for any given call. In this case, DOI analyzed the calls made from 7:36 a.m. to 8:08 a.m., and the cell site data showed the cell phone tower in use for those calls was in close proximity to the EMD Center.

[48] DOI was told that arrangements can be made for ARDs to utilize the landline phones in their work areas for family/school or personal emergencies; Pringle acknowledged knowing the landline number could be provided for emergencies. DOI obtained records showing that Pringle provided to her son's school the landline number assigned to the EMD Relay Desk as her emergency contact number.

[49] Emergency Medical Dispatch Order: Restriction of Electronic Devices, dated 4/6/10.

allow ARDs to make "quick calls" from their desks. For longer calls, she said, ARDs use their cell phones while on breaks.

Valladares told DOI that cell phone use is not permitted in either room 306 or 310, regardless of the length of the call. He said that when he observes an employee using a cell phone in an ARD room, he instructs him or her to put the phone away. With respect to Pringle's cell phone use on June 4, Valladares testified that did not observe Pringle using her cell phone at the Relay Desk at all that day and, specifically, he did not observe any of the five calls she made between 7:36 a.m. and 8:08 a.m. [50]

Thus, the facts gathered during DOI's investigation indicates that the four-minute delay in processing the Russo call at the Relay Desk was the result of human error, rather than any issue or technical problem with the EMSCAD system or any associated hardware or software.

Since, as noted above, there were several outages of the EMSCAD system in May and July 2013, DOI undertook an analysis of those outages to determine whether the circumstances surrounding them represent a threat to public safety. We begin by describing the technology environment in which EMSCAD exists.

II.   City's Emergency Communication Transformation Program (ECTP)

Launched in 2004, ECTP is a multi-year initiative to enhance call taking and dispatch operations for NYPD, FDNY and FDNY EMS. The program includes upgrades to computer dispatch systems, improved integration and data sharing between agencies, new 911 telephony networks and software, and other improvements. ECTP includes a portfolio of projects, all related to the 911 system, including:

1.   Telephony, which is provided by Verizon through the Vesta system. The cutover to Vesta occurred in December 2011 for NYPD and February 2012 for EMD.

2.   Colocation of NYPD, FDNY and EMS in the Public Safety Answering Center (PSAC1) at 11 Metrotech.

3.   Logging and audio recording of 911 calls by the vendor NICE Systems (NICE).

4.   The consolidation of the CAD systems; currently there are three separate systems: (i) NYPD uses Intergraph's ICAD; (ii) FDNY uses Starfire (40 years old); and (iii) EMS uses EMSCAD (30 years old). The goal under ECTP has been to unify all three systems. According to the Office of Citywide Emergency Communications (OCEC), the plan is to cut Starfire and EMSCAD over to ICAD either in the fourth quarter of 2014 or the beginning of 2015.

5.   Construction of the Public Safety Answering Center 2 (PSAC2) in the Bronx. According to OCEC the goal is to have the physical plant for PSAC 2 ready by the end of 2014 and to have the technology implemented and operational (known as "first call") by the end of 2015.

---

[50] The EMD Order on the Restriction of Electronic Devices requires supervisors to ensure that no electronic devices are used on the dispatch floor, which includes the ARD rooms.

A.   Unified Call Taking (UCT)

In or about May 2009, the City implemented the first phase of ECTP, Unified Call Taking (UCT). UCT was intended to streamline the call taking process to reduce call handling time for fire calls and allow first responders to reach New Yorkers in an emergency more quickly. Under UCT, all calls come into NYPD call takers at 11 Metrotech. Those NYPD call takers direct calls according to the type and seriousness of the emergency. If medical assistance is required, the call is conferenced to EMD. If it is a fire call, there is an early release of emergency resources where an FDNY dispatcher is conferenced in immediately, *i.e.*, before the call is conferenced to EMD.

Previously, when an emergency caller phoned 911, the call was answered by an NYPD call taker who collected caller and incident information. If the caller was reporting a fire, the police call taker would initiate a conference call with an FDNY call taker and repeat the information-gathering process. The FDNY call taker would collect similar FDNY-related information from the caller and forward that information to a third person, an FDNY Dispatcher, to trigger the appropriate response. By contrast, UCT was designed to allow the NYPD call taker to collect both NYPD and FDNY incident information at the same time, and then electronically share and coordinate the appropriate emergency response with dispatchers from either agency. UCT eliminates the need for the caller to provide the relevant information at multiple times to multiple call takers.

B.   Cutover to ICAD – May 29, 2013

The current NYPD Computer Aided Dispatch (CAD) system is ICAD, which went live on May 29, 2013. ICAD replaced Sprint, the former NYPD CAD system, which was built in the 1960s on infrastructure used for airline reservations. ICAD requires far less maintenance than the prior system.

After the cutover to ICAD, there were reports from NYPD call takers that some ICAD screens were going blank, and the 911 operators reverted to receiving and dispatching calls using paper slips out of caution during two service interruptions in the first two days after the May 29th cutover. According to NYPD Captain Wayne Simone, Program Manager for ICAD, there were some workstation resets at the NYPD Dispatch Center during the first couple of days after the ICAD cutover.[51] During this time, the application closed on its own for 30 to 60 seconds for an unknown reason before coming back up. On the first day, there were approximately 30 to 40 such occurrences. According to Simone, during these resets, neither data, nor voice communication was lost.

Although "LOST" calls existed prior to the cutover to ICAD, the number of "LOST" calls increased after the cutover. According to the Director of OCEC, the increase in the number of LOST calls was a result of issues regarding the interface between ICAD and EMSCAD. There were hundreds more "LOST" calls per day for several days after the cutover. After learning of the increase, additional testing was done. According to several witnesses, including technical experts and ARDs, the number of "LOST" calls is now down to a few per day, but most often none.

---

[51] According to Simone, on May 29, 2013, at 4:16 p.m., many dispatch workstations experienced application errors, which required the application to be restarted. In the early morning of May 30, 2013, Intergraph tested and installed a software patch/fix, which resolved the issue.

EMSCAD reported a temporary increase in calls erroneously being sent to the Relay Desk after the cutover. NYPD reported to EMD that the increase was partly due to user error. This included a 911 call taker inputting the operator number in the wrong field or putting non-numeric information in the operator field, which resulted in the call being sent to Relay. According to EMSCAD, the quantity of such calls diminished after the issue was reported to NYPD.

Post cutover, EMD also received complaints that some ARDs were receiving calls from NYPD with no comments. EMD is now tracking when that happens and why that is. Thus far, it does not appear to be a technical problem related to the interface; it appears to be an operational or usage-related problem, which is being addressed by the working group set up between EMD and NYPD to manage issues related to the ICAD cutover.

III.   System Outages

During May and July 2013, the EMSCAD system experienced several outages during which it was offline for various lengths of time. The time, duration, and causes, as well as the measures being taken to prevent recurrence, are summarized below.

A.   May 29, 2013

On May 29, 2013, at approximately 1:45 p.m., a few hours after the ICAD cutover, there were a series of problems that caused an outage of the EMSCAD system. The various issues and causes of that outage were subsequently researched by the FDNY and are discussed in a detailed report prepared by the FDNY's Bureau of Technology Development Systems (BTDS).[52] Among other issues, in sum, EMSCAD was not communicating with ICAD, and for approximately one hour ambulance personnel had no access to EMSCAD in their ambulances. For that hour the work of ARDs was uninterrupted and they could continue to process calls in the ordinary course receiving data via ICAD and entering calls into EMSCAD to be sent to dispatch. However, the impact of the disruption/outage was that the RDs in the dispatch center of the EMD had to communicate with ambulance personnel via radio to give them assignments.

Among the issues discovered on May 29th, was that when a Computer Operator approached the ECAD3 server to provide a second tape for the routine daily backup process, he discovered that server was non-responsive. Attempts to get it to respond were unsuccessful. Efforts to restart ECAD3 made by the Systems Manager were also unsuccessful, and so it was powered off and remained offline/dormant while the Systems Manager contacted Hewlett Packard (HP), the vendor.

Although there were several different possible causes of the outage discussed, it was determined and confirmed by HP that a disk drive and disk controller card had failed. These components were subsequently replaced. In addition, officials have requested that the servers running EMSCAD be upgraded from HP servers using an Alpha CPU to servers using an Integrity CPU, a faster processor.

While the Systems Manager and operations personnel were troubleshooting ECAD3, there was only one employee staffing the Computer Operations Center, which is also responsible for supporting

---

[52] See EMSCAD Downtime Report May 2013, BTDS.

other systems, such as the StarFire dispatch servers, the Unisys mainframe running FPIMS (Fire Prevention Information Management System), the electronic patient care reporting system (EPCR) and New York's Fire Incident Reporting System (NYFIRS). According to FDNY managers, the staffing for the Computer Operations Center has diminished in size over the years. Additional staffing needs are discussed *infra*.

Lastly, FDNY managers stated that the Computer Operations staff should have further specialized training to diagnose and troubleshoot hardware failures, including proper procedures for bringing servers back online.

B.   May 31, 2013

On May 31, 2013, starting at approximately 12:34 p.m., EMSCAD was not operable for approximately 20 minutes, and another five minutes was needed to re-engage two of the systems that interface with EMSCAD, specifically ICAD and the MDTs (the mobile terminals that ambulances are equipped with). After approximately 25 minutes, users were again able to access EMSCAD.

According to witnesses, the outage that occurred on May 31st was caused by the difficulties in diagnosing and repairing the hardware problems that occurred beginning on May 29th. When the server unexpectedly restarted, it attempted to rejoin the cluster and perform shadow copying, a process used to resynchronize its data with that of the other servers in the system to allow them to work together. However, disk freezing was occurring, the server was not functioning properly, and the Systems Manager and HP shut it down to keep it from further disturbing the production environment.

The EMSCAD Programming Manager stated, in sum and substance, that the EMSCAD dispatch system then restarted itself, which corrected the outage. By design, several critical interfaces cannot and did not automatically restart (MDTs and ICAD interface), instead, they have to be manually restarted to ensure they are restarted in the correct sequence. The employee on duty in the Operations Center, however, apparently was uncertain as to how to restart these systems, so the Programming Manager walked the employee through the process. The need for conducting additional training of Computer Operations staff stemming from this scenario is discussed *infra*.

During the outage, ARDs and RDs reverted to the established back-up protocol by which calls are processed via telephone and/or radio communications, written on paper, and resources are thereafter dispatched.

C.   July 22, 2013

On July 22, 2013, between approximately 7 a.m. and 1 p.m., the EMSCAD system experienced a series of intermittent outages.

According to Systems Manager Eugene Martinez, one of the five hard drives in the disk storage array shared by the ECAD1/ECAD2 EMSCAD servers began to experience pre-failure issues (it was later determined). Four of these drives are tied together and used to create logical drives, with the fifth used as a "hot" spare. The logical drives are used to operate the ECAD1 and 2 servers. As a result of these pre-failure disruptions, ranging from 3 to not more than 14 minutes, there was a total of

approximately 63 minutes of outages.[53] These issues were so brief that the system storage controller did not recognize them as a failure or potential failure, which would have prompted the storage controller to remove that faltering drive and transfer its function to the remaining drives. When the drive did fail several hours later, the controller did redistribute that drive's function to the remaining drives, which permitted the system to function normally. The failed drive was removed from the storage array and replaced with a new drive by the vendor and the storage array reconfigured itself to the normal environment.   The new procedure now is that when those same issues are occurring (*i.e.*, a freezing or faltering, the cause of which cannot be determined), operations personnel will, at the direction of the application manager, proactively switch to an EMSCAD server in a different building location with a different set of drives, network connections, etc.

During the outage, ARDs and RDs reverted to the established back-up protocol by which calls are processed via telephone and/or radio communications, written on paper, and resources are thereafter dispatched.

D. July 24, 2013

An outage that totaled approximately 27 minutes occurred on July 24th in the EMSCAD system that was traced to some of the steps taken to address the outage of May 29th. The July 24th problem was caused by a faulty fiber connection to the ECAD3 server located at 9 Metrotech that was not permitting full-speed communication. The ECAD3 server had been powered off and disconnected from the network since the outage of May 29th, as a result of the prior incident.   When ECAD3 was reconnected on or about July 24th, the fiber connection did not restart and a default Ethernet pathway did work but was too slow to handle the load. The outage was addressed by powering off ECAD3, removing the issue, and the dispatch system was otherwise able to operate normally after approximately 27 minutes of disruption (most of this time was spent diagnosing what was causing the disruption).[54] Going forward, whenever adding a new or repaired server to the online environment, that server and all its connections to the network environment will be checked to ensure they are all working properly. The need for troubleshooting such issues in this very complicated system highlights the fact that the service contract that the FDNY maintains should always be with the most qualified provider, not the lowest priced provider.

During the outage, ARDs and RDs reverted to the established back-up protocol by which calls are processed via telephone and/or radio communications, written on paper, and resources are thereafter dispatched.

E. Other Remedial Measures Taken To Address Various Problems Raised By the Outages

The FDNY has created and circulated an internal document to summarize, assign and track each response required when an outage or other issues arise. The FDNY has also added troubleshooting information to the technical support documentation for the Vesta interface, revised the crash procedure

---

[53] There was an additional 48 minutes of troubleshooting during which there was also a needed disruption to the system, for a total of 111 minutes of outages.

[54] The causes of the problem, including the fiber connection and inadequate capacity of the default pathway, were discovered on July 25th. HP confirmed this assessment.

for certain troubleshooting steps during a system lockup, and moved GPS message processing to its own module to improve system performance.

IV.   EMS Communications: Administrative Issues and Screen Capture

A.   Staffing

According to various FDNY officials, including several chiefs, the EMD Center is understaffed. Specifically, on the ARD side, the optimal number of ARDs is 20 per tour, and the FDNY has regularly been using overtime in an effort to reach that number. Moreover, even with overtime, at times the staffing level does not reach 20 ARDs.[55]

BTDS is also reportedly understaffed. According to FDNY witnesses, in the last four to five years BTDS staff has gone down with very few being replaced. For example, when Martinez was hired as the VMS Systems manager, there had already been a significant reduction in VMS personnel. Since his start at FDNY, Martinez's responsibilities have evolved to include management of several other FDNY systems; however no additional VMS staff has been brought on to support him.

Additionally, according to Martinez and Murphy, there is no FDNY employee available to fill in on the VMS system when Martinez is unavailable. Currently, Murphy serves as his *de facto* backup because she has relevant experience working for the EMSCAD vendor. There are also vendors on call for urgent issues with the servers. However, Murphy has her own full portfolio of responsibilities in her area. Further, Martinez is eligible for retirement in three years, and so planning well in advance of his departure should be done.

B.   Recruitment

According to FDNY officials, pursuant to a collective bargaining agreement, only certified EMTs may be considered for ARD and RD assignments, which limits the applicant pool. Additionally, EMTs apparently seek transfers to EMD due to injuries or disabilities that leave them unable to continue working in the field. As a result, some ARDs are frequently out on sick or medical leave. Expanding recruitment outside the Bureau of Emergency Medical Service to other medical professionals such as Registered Nurses, Licensed Professional Nurses and Physician's Assistants would significantly enlarge the applicant pool from which EMD draws.

Further, there were union issues relating to the training space at Metrotech, resulting in a decrease in the number of ARDs and RDs being trained and assigned to the EMD. DOI was informed that significant renovations of the space have apparently now been conducted at 1 Metrotech resolving most of those issues.

---

[55] On June 4th at the time of the Ariel incident, 19 ARS were on duty in the EMD.

C.   Overtime

According to Chief Fitton, with respect to overtime (OT), the general rule is that EMTs are limited to two tours of OT per week and that those members who work two tours of OT during a calendar week are exempt from mandatory OT for that week.   At EMD, members of service are routinely permitted to exceed that voluntarily to staff minimum numbers.   Members are not permitted to work more than 16 consecutive hours and often, when individuals stay for OT, they will not work an entire tour, but instead will choose to work two, four or six hours.

The voluntary overtime program, known as the "KVO program,"[56] allows FDNY to staff the EMD center with employees who volunteer to do three overtime tours per month. Those people are then exempt from forced overtime. If the Chief of Communications were to declare a staffing emergency, or a significant event were to take place in some part of the City causing a high demand at the EMD, the KVO program could be suspended and employees could be mandated to do forced overtime. That does not occur often, however, according to various of the FDNY officials interviewed including Chief Fitton.

D.   Lieutenant Responsibilities

Scheduled on each shift is an administrative lieutenant who handles the bulk of paperwork relating to the ARD activities such as reports, disseminating orders during roll call, etc. However, the other EMD lieutenants who are supervising ARDs are also responsible for doing paperwork relating to schedules, assignments, attendance, among other things. In addition to these administrative duties, EMD lieutenants are, of course, also responsible for supervising and assisting ARDs as they process emergency calls.[57]

Lieutenant Valladares, the supervisor in room 310 on June 4, 2013, asserted that he did not see the Ariel Russo call on his terminal at his workstation, did not see it on the large screen in room 310, did not see it when it reverse highlighted when it was pending for 3 minutes, and did not remember hearing Lt. Gonzalez, who had walked down from room 306 and called over Lt. Valladares to the Relay Desk, because, he said, he was concentrating on his paperwork. A designated staff member should be assigned to these administrative duties, so they are not being done by officials whose job it is to monitor, supervise and/or handle emergency calls from throughout the City. Alternatively, these paperwork/administrative matters should all be given to the administrative lieutenant.

E.   Training

ARD witnesses and most supervisors were generally not familiar with what "reverse highlighting" of a pending PD call indicates. This feature – which, after a certain amount of time (currently 2 minutes and at the time of the Russo incident, 3 minutes) causes a call to display in dark text on a white background, rather than the standard display of white on dark – has been present in EMSCAD since the mid-1980's. Reverse highlighting is intended to alert ARDs to aging calls, but it

---

[56] KVO stands for Known Vacancy Overtime.

[57] EMD Order #13-038, November 24, 2013, Tasks and Standards EMD Lieutenant.

appears that many ARDs are not sufficiently aware of its significance. As of October 2013, EMD has implemented an audible alert system, as a supplement to reverse highlighting, to notify personnel of Relay or "SYNC" calls that have not been viewed within two minutes.

Some witnesses said they did not understand the significance of the term "LOST call, and a few testified erroneously that there is nothing that can be done with a "LOST" call until all the information populates. Both pre and post ICAD cutover the term "LOST" designated that data about a call was being received out of sequence, and there was and is a protocol requiring ARDs to look at the available information by entering the "GET" command. (As mentioned, this is the manner by which the Ariel Russo call first appeared on Pringle's terminal, and it too should have been handled by entering the GET command.)

Some ARD witnesses expressed the erroneous belief that post-ICAD cutover, they are now, for the first time, required to view the "second page," or the additional details of a call when assigning a level of priority and dispatch for each call. But in fact, before the ICAD cutover, ARDs were required to review the prior history when assigning priority and entering a job.

As a final example of a lack of understanding on the part of ARDs about long-standing features to the EMSCAD system, DOI also found that various ARDs were not familiar with various long-standing color-coded indicators featured on the PD Pending screen.[58]

The lack of understanding articulated by some witnesses relating to these features of the EMSCAD system, all of which pre-date the ICAD cutover, demonstrated a lack of training or refresher training – having nothing to do with ICAD cutover.

Various ARDs testified that in advance of the ICAD cutover, a brief Powerpoint training presentation was given by EMD Training staff, who also distributed handouts. Not all aspects of the EMSCAD system were changed by the introduction of the ICAD system, including the designation of "LOST" calls, a protocol for handling them, which existed before and after the cutover. In addition, calls pending over a certain number of minutes went to reverse highlight both before and after the cutover, as did a protocol for handling them. Refresher courses on not just new features but existing features of the system should be done for ARDs and RDs periodically.

F.   Lack of Screen Capture

During the course of this investigation, various witnesses referred to a screen capture functionality which would enable the City to "playback" the audio and digital events associated with a given 911 call with respect to both NYPD and FDNY call takers and dispatchers. The screen capture feature would permit the FDNY, NYPD (and in this case, DOI) to see and/or investigate any call(s) that need to be reviewed – such as the Ariel Russo call. Thus, instead of investigations that require forensic analysis and witness recollections, the city would have an objective, non-disputable record of data on any terminal in the system at any given time. This could be valuable for training, investigations of serious incidents, and review of operational issues. OCEC officials are reviewing several ways to

---

[58] See EMSCAD User Guide, Appendix C.

achieve screen capture using a software solution or using a hardware solution, both of which are summarized below.

1. Software Application: Software that records what is on the computer's video card (not what is on the screen). The program resides with other applications, which creates a concern about potential slowdowns and issues related to how various applications run together. As such, this solution requires extensive co-habitation testing. Potential vendors could be identified to provide the software pursuant to a license, and source the memory. Storage costs for the software solution are less than the hardware solution. Implementation would require a new network to retain the data, which results in additional cost.[59]

2. Hardware Application: This solution records directly from the computer screen. It requires more memory than the software module, and there is a large storage component, depending on how many workstations and the length of retention. The hardware solution would have little or no impact on the application environment because it does not cohabitate with other applications. The primary benefit of the hardware approach is that it allows for continuous recording of whatever is being displayed on the associated monitor. Potential vendors could be identified to provide the hardware and the memory.[60]

OCEC and FDNY have also studied an overhead camera recording solution that would record what is taking place at EMD while information being displayed on the monitors. To meet this need, OCEC is studying feasibility and cost estimates, which are considerable, including for the associated network hardware, cabling, and storage arrays. DOI is informed by the FDNY that they are in the process of implementing this measure.

V.   Conclusion and Policy and Procedure Recommendations

Ariel Russo was critically injured at approximately 8:15 a.m. when an SUV driven at a high rate of speed by an unlicensed teenager slammed into her, pinning her against the metal gate of a restaurant. Police officers responded to the scene almost immediately and began to radio for medical assistance. There were then multiple responses by the FDNY, some pursuant to the City's emergency response system, some not. An FDNY Firefighter, who is a certified medical responder, saw the accident scene, got out of his car and went to the scene to help the injured victims. By approximately 8:17 a.m., he was attending to Ariel, along with, as he indicated, a nurse who was passing by and stopped when she too saw that there had been an accident.

---

[59] OCEC has prepared a preliminary estimate of the costs associated with software-based screen capture. To implement software-based screen capture at PSAC 1, the costs range from approximately $9.5 million for one month of storage to approximately $9.8 million for six months of storage. To implement software-based screen capture at PSAC 2 (in the Bronx), the cost estimates are considerable.

[60] OCEC's preliminary estimate of the costs associated with hardware-based screen capture range approximately $16 million for 1 month of storage to $23 million dollars for six months of storage. To implement hardware-based screen capture at PSAC 2, OCEC estimates that it would cost approximately $23 million for one month of storage and approximately $33 million for six month of storage.

At about 8:22:41 a.m., approximately 7 minutes after the police calls for medical assistance, a BLS that was flagged down also began to attend to Ariel. Had the notification about Ariel and her grandmother been handled by the EMD without the Pringle issue, a BLS would have been dispatched based on the priority assigned to this incident.

At approximately 8:23:10 a.m. Engine 76 sent a fire engine, which is a certified first responder that goes to medical incidents, that arrived at the scene in just under 8 minutes. That fire engine arrived on scene as part of the emergency medical response to Ariel that began with the radio calls from the police into the City's emergency response system. The medically-trained firefighters from the Engine 76 truck participated in tending to Ariel and assisted Lambert, who provided them with information about what was needed.

At approximately 8:23:50 a.m., just over 8 minutes after the police radio calls for medical assistance, an ALS (Unit 11V) from St. Luke's arrived on scene, which had also been dispatched via the City's emergency medical response system. In addition, a NYPD ESU truck also arrived at about the same time, with a paramedic on board who also began to tend to Ariel along with the paramedics from the ALS.

Every responder from among the 5 responses (Lambert, BLS, Engine 76, ALS, ESU) to the scene interviewed during this investigation, stated in substance that as soon as they saw Ariel they knew her condition was grave, her injuries serious, she was unconscious, her breathing labored. Each responder in their interviews with DOI clinically and professionally described the steps they took in attending to Ariel, and each of them described trying mightily to assist her.

The paramedics joined the others in collectively attending to Ariel and transporting her into Unit 11V, which took about 4 minutes. A Firefighter jumped into the St. Luke's ambulance to drive it to the hospital so that the paramedics from 11V and a paramedic from the ESU could all attend to Ariel. Unit 11V was given a police escort; it took approximately one minute to get to the hospital. Photos and video from the scene show this retinue of NYPD, FDNY and paramedics surrounding Ariel while transporting her on the stretcher, each of them playing some different role, all in seamless coordination.

En route to the hospital, an 11V paramedic administered an intraosseous infusion with fluids into Ariel's leg, but was unable to intubate Ariel due to blood in her airway. Ariel's pulse, he reported, was weak and less than needed to sustain her.

The responses to Ariel described above took place from approximately 2 minutes, 7 minutes and just over 8 minutes after the incident, respectively, each less than the FDNY's end-to-end average response time of 9 minutes and 22 seconds as listed in the FY13 MMR. Thus, even with the delay caused by what transpired with Pringle's handling of the Ariel call, the ALS arrived below that average response time.

Further, one of the 11V paramedics testified that they always endeavor to get to a patient in under ten minutes, the other said that their handling of Ariel's case was one of the fastest they have done spurred by how grave her injuries were.

Moreover, as it relates to June 4th, DOI also investigated the functioning of the emergency response system itself. Forensic analysis by technical staff from the FDNY/EMS and the NYPD was conducted, as well as from technical staff outside the FDNY by OCEC and MODA. All concluded that there were no hardware or software failures on June 4th with the systems. Nothing was found that would have prevented ARD Pringle from viewing the Ariel Russo job on the Relay Desk and entering it into the system for appropriate resources to be dispatched. Notwithstanding the fact she did not do that, the resources described above responded to Ariel, some not as a result of calls into the emergency response system (Firefighter Lambert and the BLS), and others as a result of calls into the emergency response system (the Engine 76, ALS, ESU) - all within the FDNY's average response time.

In addition to the evidence indicating that there were no relevant technical failures that occurred in the EMSCAD system on June 4th, there was significant evidence accumulated that showed that the data relating to the Ariel call not only entered the EMSCAD system, but it also reached ARD Pringle's functioning terminal for proper handling. In sum:

- The EMSCAD Programming Manager conducted a forensic analysis that showed that the data about the Ariel call was in fact in the EMSCAD system, and the call history shows the data that went into the system.

- A fellow ARD and a supervisor in a different room (306) from where Pringle was stationed in the EMD Center did see what was later established to be the Ariel job displayed on their EMSCAD terminals prompting the supervisor from room 306 to walk down the corridor (captured on videotape) to the Relay Desk in room 310 to inquire about the call. Unfortunately, Lt. Valladares, the supervisor *who was in* room 310, sitting right next to Pringle's work station, did not, he asserted, notice the Ariel call that was displayed both in the terminal inches from his face at his work station as well as on a large screen in front of him in room 310. He was busy with administrative paperwork was his testimony.

- The Relief ARD who logged into Pringle's workstation on the Relay Desk during her break that began at approximately 8:19 a.m., processed the Ariel job without issue within seconds of logging on to the EMSCAD system at Pringle's work station.

- Finally, DOI also obtained a photograph of the Ariel job displayed on the MDT of Unit 11V taken on June 4th.

Thus, ARD Pringle's assertion that the Ariel call, "was not there," and/or she didn't see it, is belied by the weight of the evidence. Moreover, Pringle was on her cell phone during that morning, (although not during the Ariel call), cell phone use that she denied until confronted with telephone records obtained by subpoena. Being on a cell phone is a violation of EMS policy, and is an obvious distraction when the job is to be focused on emergency matters so that New Yorkers in need can receive the appropriate medical or fire-related resources. Given the quantum of these facts and evidence, Pringle's claim that the call "was not there" is inexplicable.

Her failure to handle the call – along with the failure of Pringle's supervisor, Lt. Valladares, to ensure that the Ariel Russo incident was processed in a timely manner – resulted in the four-minute delay in the processing of the call, which was ultimately handled by Relief ARD Lopatine. For his part, while Lopatine testified about his handling of the call properly, he was adverse to saying his fellow ARD had not, all indications to the contrary notwithstanding.

While stunningly inappropriate for Pringle to be on her cell phone multiple times while on the Relay Desk, records show she was not on the cell phone during the Ariel call. If an ARD has family obligations or any other circumstance that require them to be on the cell phone at certain times of the day, they need to discuss that with a supervisor and/or adjust their schedules accordingly. New Yorkers need their undivided attention. If there are other personal matters that require them to get on the phone, they have to take a break or talk to a supervisor, and to that end DOI was told, arrangements can be made to utilize the landline phones in their work areas for family or personal emergencies. In fact, DOI learned that Pringle had given the telephone number of the landline in her work area to her son's school as an emergency number. Alternatively, if ARDs need to use their cell phones, they need to do so on a break. They do get 30 minute breaks every 90 minutes.

The Ariel call was also displayed on many large screens in various areas in the EMD. It went to "reverse highlight" (a feature that was used to call attention to a pending call over 3 minutes). Supervisors throughout the EMD should pay attention to reverse-highlighted calls and make no assumptions they are being handled properly. Calls now reverse highlight after 2 minutes, a sound change, but requisite attention needs to be paid.

The EMD Center, which DOI visited for hours, was an extraordinary place and a sophisticated operation where we encountered fine, knowledgeable people working diligently to help New Yorkers. There was a hum from supervisors and dispatchers handling calls, making entries into their terminals, and working swiftly and calmly in tandem with one another. When observing individual ARDs work at their terminals up close, DOI heard them handle calls from people relating to seizures, broken bones, car accidents, heart attacks - advising and guiding people about a spectrum of crises with vigilance and expertise.

Alarming public claims that calls were "lost" and claims that ARDs did not know what to do with a call delineated as "LOST" raising serious concerns about public safety, were also examined in this investigation. The term "lost" as it had been used in the EMSCAD system well before the ICAD cutover, is a misnomer (and has now been changed to "SYNC"). In fact a "LOST" call never meant that a call from someone in need was lost, but rather, that the information relevant to a given call was transmitted and received in segments that all arrive within seconds on the ARD screens in the EMD. In the case of the Ariel call, which came in initially delineated as a "LOST" call, the segments containing the additional information replaced the word "LOST" on all the ARD and large screens in the EMD within 5 seconds. Moreover, further details of the call regarding Ariel would have been accessible immediately through a simple keystroke command by Pringle.

During the course of its investigation, DOI reviewed EMD's procedure for investigating the delay associated with the Ariel Russo call. Among other things, staff at the EMD permitted witnesses to read and sign each other's written statements, something that is an impediment to ascertaining witnesses' untainted recollections. In the future, the appropriate investigative body should be contacted, *i.e.*, BITS or DOI if needed, for such matters.

Although the evidence gathered indicated that no technical disruptions occurred on June 4th, the EMSCAD system did experience a total of four outages in May and July 2013. Those outages had no bearing on the response and deployment of resources to the medical emergency involving Ariel Russo. Nevertheless, during its investigation of those outages, DOI found that there are certain aspects of the FDNY's system for deploying emergency medical resources that require attention and improvement. For example, FDNY officials recommend an upgrade of the CPUs in the servers that run the EMSCAD system. Additionally, due to attrition and budget constraints, BTDS has lost key personnel responsible for EMSCAD and there is a need for additional qualified technical backup staff for the system.

As discussed in the Report, witnesses testified that the EMD Center uses voluntary overtime, including through the KVO program, to maintain optimal staffing. In the case of Ariel Russo, ARD Pringle was not on overtime and in fact was at the beginning of her shift. FDNY officials said that additional ARDs are needed but recruitment is challenging since it is limited to certified EMTs.

DOI refers these findings to the FDNY for any action deemed necessary, and makes the following policy and procedure recommendations:

1. FDNY should hold refresher training on the following topics: (i) the changes to EMSCAD as a result of the cutover to ICAD; (ii) the significance of reverse highlighting and what actions to take based on the highlighting; (iii) the significance of "SYNC" calls (formerly known as "LOST" calls) and what actions to take with respect to same; (iv) the significance of color coding and what actions to take based thereon; and (v) when and how to view the details reported by the NYPD in the field designated "PDH."

2. The FDNY Systems Manager should have backup personnel knowledgeable in the operating system and the network resources underlying the EMSCAD system.

3. The City should explore procuring and implementing a cost effective screen-capture solution to enable the City to playback the audio and digital events associated with a given 911 call(s). This function would facilitate not only investigations like this one, where what a particular ARD saw and did (or did not do) was at issue, it could also be valuable for operational and training purposes when issues about calls arise, or recreating events when there are system disruptions that require diagnosing.

4. FDNY should expand the applicant pool of ARDs from outside the Bureau of Emergency Medical Service to include other medical professionals such as Registered and Licensed Practical Nurses and Physicians' Assistants. This would significantly enlarge the applicant pool from which EMD currently draws as well as enhance the diversity of the professional qualifications of EMD staff.

5. Relatedly, because of understaffing issues at the EMD Center and in the Systems Operations Group within BTDS, FDNY should focus its efforts on augmenting staffing in these areas. In addition, systems operations staff should receive further training on diagnosing and troubleshooting hardware failures, including proper procedures for bringing servers back online.

6. The FDNY should assign, or if necessary hire, additional staff to be solely responsible for the administrative duties currently performed by EMD lieutenants, (and consider using light duty personnel for same), so that the supervisory EMD lieutenants may devote their undivided attention to supervising and assisting ARDs.

7. When obtaining a written statement from a witness/subject, the FDNY should not give the Incident/Call Log to him or her; if a document is provided, it should be explicitly referenced in the statement that the witness relied on that document. Witnesses should not be permitted to witness each other's signature or otherwise review each other's statements; the statement/signature should be witnessed by a neutral third party.

Despite the actions of Pringle and her supervisor that delayed dispatch by EMD, Ariel was receiving medical assistance by as soon as 2 minutes after the accident, based on the quick thinking and action by the NYPD and FDNY responders; with additional medical resource responses in about 7 and 8 minutes. All of the responders who treated Ariel at the accident scene used ingenuity and acted swiftly and professionally. The EMTs and paramedics who assisted Ariel provided her with medical care and delivered her to the emergency room in about fifteen minutes after the accident.

APPENDIX 1

Side-by-side timeline activity at accident scene and EMD

Time	Accident Scene	EMD Center
8:15 AM	**ACCIDENT** at West 97th Street and Amsterdam Avenue.	
8:15:40 AM		EMSCAD first receives the incident from ICAD.
8:15:45 AM		EMSCAD receives additional information necessary to process the incident from ICAD.
8:17 AM	**First FDNY response**. Off-duty firefighter on his way to work at Engine 76 assists Ariel.	
8:19:08 AM		ARD Pringle logs off Relay desk for a break.
8:19:34 AM		Relief ARD logs on to Relay Desk to cover for ARD during her break.
8:19:37 AM		Relief ARD views the Ariel call.
8:19:42 AM		Relief ARD processes the Ariel call and sends it to an EMS radio dispatcher.
8:20:11 AM		Radio Dispatcher assigns Engine 76, a certified response company to respond.
8:20:17 AM		EMS Radio Dispatcher assigns BLS ambulance (Unit 10F) to respond.
8:21:19 AM		EMS Radio Dispatcher assigns ALS ambulance (Unit 11V) to assist BLS ambulance (Unit 10F).
8:22:41 AM	**Second FDNY response** BLS ambulance (Unit 11F) en route to Hospital is flagged down by a police officer at the accident scene.	
8:23:10 AM	**Third FDNY response** Engine 76 arrives on scene and assists Ariel and her grandmother.	
8:23:45 AM	ESU arrives on scene.	
8:23:50 AM	**Fourth FDNY response** ALS ambulance Unit (11V) arrives on scene and assists Ariel.[1]	
8:29 AM	ALS ambulance (Unit 11V) leaves accident scene with Ariel.	
8:30 AM	ALS ambulance (Unit 11V) arrives at St. Luke's Hospital with Ariel.	

---

[1] At 8:27:49 AM, a Fifth FDNY response BLS ambulance Unit (10F) arrives on scene, but was not needed.

APPENDIX 2

Glossary of Terms

ALS   Advanced Life Support ambulance

ARD   Assignment Receiving Dispatcher: an EMT who has received specialized training and whose job is to evaluate incoming emergency calls and data and enter the information into the EMSCAD system, which is then used by Dispatch to deploy the appropriate resources, including ambulances.

BITS   FDNY Bureau of Investigations and Trials, the disciplinary unit at the FDNY

BLS   Basic Life Support ambulance

BTDS   FDNY's Bureau of Technology, Development and Systems

BVM   Bag Valve Mask

CAD   Computer Aided Dispatch system

CFR   Certified First Responder

CPU   Central Processing Unit

ECAD1, 2, 3 and 4   Servers that run the EMSCAD program.

ECTP   Emergency Communication Transformation Program: an initiative launched by the City in 2004 to enhance call taking and dispatch operations for NYPD, FDNY,and FDNY EMS.

EMD   FDNY's Emergency Medical Dispatch Center at 11 Metrotech in Brooklyn

EMS   Emergency Medical Service

EMSCAD   Emergency Medical Service Computer Aided Dispatch

EPCR   Electronic Patient Care Reporting System

FPIMS   Fire Prevention Information Management System run by Unisys.

HP   Hewlett Packard, vendor

KVO   Known Vacancy Overtime, the term used to describe the voluntary overtime program.

LOST call	The former term used when the EMSCAD system receives information incrementally regarding an incident; these events have been renamed "SYNC" by the FDNY.
MDT	Mobile Data Terminal, a touchscreen computer that runs the EMSCAD program in ambulances.
MODA	Mayor's Office of Data Analytics
NYFIRS	New York's Fire Incident Reporting System
NYPD ESU	Emergency Services Unit
NYPD ICAD	Intergraph Computer Aided Dispatch system
OCEC	Office of Citywide Emergency Communications
OT	Overtime
PSAC 1	Public Safety Answering Center at 11 Metrotech in Brooklyn, part of the ECTP initiative and the co-location of NYPD, FDNY and EMS.
PSAC 2	Public Safety Answering Center 2 under construction in the Bronx
RD	EMS Radio Dispatcher
Relay Desk	Located at the EMD, staffed 24/7 by an ARD who has received specialized training and receives calls and data from the NYPD ICAD relating to incidents involving medical emergencies, which the ARD enters in EMSCAD for use by Dispatch to deploy the appropriate resources, including ambulances.
SYNC call	Formerly called "LOST" calls, these are calls in which information is received incrementally by the EMSCAD system.
UCT	Unified Call Taking
VDT	Video Data Terminal