Muriel Bowser
Mayor

Government of the District of Columbia
Fire and Emergency Medical Services Department

Gregory M. Dean
Fire and EMS Chief

May 26, 2017

The Honorable Phil Mendelson
Chairman
Council of the District of Columbia
1350 Pennsylvania Avenue, NW, Suite 504
Washington, DC 20004

The Honorable Charles Allen
Chairman
Committee on the Judiciary and Public Safety
Council of the District of Columbia
1350 Pennsylvania Avenue, NW, Suite 110
Washington, DC 20004

Dear Chairman Mendelson and Councilmember Allen,

I write to provide the first Annual Report of the District of Columbia Fire and Emergency Medical Services Department ("the Department") following the launch on March 28, 2016 of the Department's contract with American Medical Response (AMR) for the transport of Basic Life Support (BLS) patients. This report is required to be submitted to the Mayor and Council by Subtitle H of the Fiscal Year 2017 Budget Support Act of 2016, D.C. Law 21-160, the "Emergency Medical Services Contract Authority Amendment Act of 2016," effective October 21, 2016. Included within this report is our "Fourth Quarterly Report", provided in collaboration with the Office of Unified Communications ("OUC"), for the period of December 2016 through March 2017, which is also required by D.C. Law 21-160.

I am proud to report that the first year of our partnership with AMR has been a success and has helped put the Department on the path of reform of our provision of Emergency Medical Services (EMS) to District residents and visitors. When Mayor Bowser and I asked the Council to provide legislative authority for this contract in the fall of 2015, we were in a different place as an organization, and we had a number of fundamental and complicated challenges. At that time, we did not have sufficient resources to respond to our EMS call volume, which put our most critical patients at risk. We pledged to you that the authority to contract with a third party provider would create capacity within our Department for reform, which would improve outcomes in the areas of unit availability,

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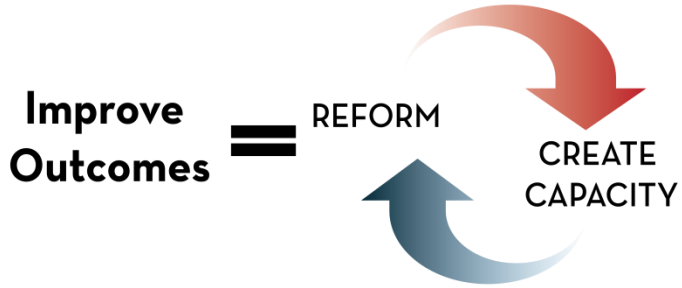
response times, vehicle maintenance and repair, training of our providers, and patient care, as shown in the following graphics:



One year after the AMR launch, we have delivered on this pledge, as the attached report shows. I am happy to report that we have made great progress and we are a better and stronger organization. While we still have a long road to travel together to create and maintain a world class EMS system, I am incredibly proud of the distance we have come. We have done this in partnership not only with AMR and the OUC, but with our employees, two labor unions, the Council, Mayor Bowser, and the community.

This report shows the progress our Department has made. The Department is a better, stronger organization because:

We are <u>restoring operational capacity</u>:

- Hired 108 new Firefighter/EMTs and Firefighter/Paramedics;
- Expanded the availability of FEMS transport units during heavy call volume periods;
- Decreased the average response time of the first arriving FEMS transport unit to higher priority calls;
- Acquired 18 new ambulances to expand the number of operational and reserve transport units available; and

- Met preventive maintenance and repair goals for ambulances.

We are <u>improving EMS providers' skills, patient care, and fleet service personnel training</u>:

- Delivered a 40 percent increase in EMS-related training hours for our providers to strengthen their knowledge base and skillset (a total of 30,635 additional hours);
- Observed promising preliminary data in patient outcomes and in the quality of patient care; and
- Provided our fleet mechanics with essential training and testing (by decreasing ambulance repair and maintenance downtime).

We are also launching a major initiative aimed at reducing non-emergency calls to 9-1-1 by improving patients' access to the most appropriate medical services through the implementation of the recommendations of the Integrated Healthcare Collaborative.

As we move forward, we will continue to work together as an agency and with you – the Council and the community – to address our remaining challenges. Your support is critical to our continued progress. I look forward to our Department reaching new goals together.

Very truly yours,

Gregory M. Dean
Fire and EMS Chief

cc: Councilmembers

The following is the Department's submission of our "Fourth Quarterly Report," provided in collaboration with the Office of Unified Communications ("OUC"), for the period of December 2016 through March 2017, pursuant to Subtitle H of the Fiscal Year 2017 Budget Support Act of 2016, D.C. Law 21-160, the "Emergency Medical Services Contract Authority Amendment Act of 2016," effective October 21, 2016. These answers are based on the best available data between the dates of February 12, 2016 through March 31, 2017:

(1) Activity by the Department to educate the public on the proper use of emergency requests for service.

Response:

On February 22, 2017, Mayor Bowser and Chief Gregory M. Dean released the final report of the Integrated Healthcare Collaborative (IHC). The IHC was convened in April 2016 by the Department's Interim Medical Director, Dr. Robert P. Holman, with the goal of reducing non-emergency calls to 9-1-1 by improving patients' access to the most appropriate medical services. As Mayor Bowser relayed in her 2017 State of the District Address, when our emergency services are used for non-emergency calls, it decreases the resources available for our most critical patients. The District's calls to 9-1-1 are out of proportion with its population. While the District is the twenty-seventh largest city in the United States, the Department's call volume is the eighth highest – putting us in the company of much larger cities like New York, Chicago and Los Angeles. Put another way, we have the highest per capita EMS call volume in the nation. This high call volume has long been a strategic challenge to our Department, and one that we look forward to addressing in a responsible way with all of our stakeholders, including the Council.

The IHC found that a significant percentage of 9-1-1 callers do not actually need an ambulance or an emergency room. Instead, these callers would be better served medically by seeing their own primary care physicians or accessing health care services at urgent care or community clinics. In its final report, the IHC made the following recommendations:

- *Implement a Nurse Triage Line accessed through the 9-1-1 system.*
- *Leverage existing non-emergency medical transportation services and consider expansion of those services to transport low acuity callers to the appropriate health care services.*
- *Utilize existing grant funding opportunities for onboarding to a Health Information Exchange (HIE) organization, a web-based care planning, and/or a specialized registry.*
- *Continue to leverage the FEMS Street Calls program to connect High Volume Utilizers with comprehensive preventive and primary care services.*
- *Revise the existing FEMS Patient Bill of Rights.*

- *Clarify the DOH definition of urgent care in the Certificate of Need process.*
- *Ensure that managed care organizations accommodate requests for members to access same-day care from providers who are not their primary care provider of record for acute illness and injury.*
- *Develop a customized outreach strategy to educate residents about IHC recommendations and changes, to change behavior about using primary care, and decisions about where to go for healthcare and how to access it.*

Mayor Bowser proposed a $1 million budget enhancement in the Department's FY 2018 budget to fund the nurse triage, Health Information Exchange (HIE), and customized outreach process recommendations.[1] The Department of Health Care Finance will fund the transportation recommendation for Medicaid patients within its existing resources, while the Department will work closely with the Department of Health to ensure implementation of the Certificate of Need and same-day care recommendations.

Under the nurse triage model, 9-1-1 call takers will screen calls and redirect lower acuity calls to triage nurses for further assessment. With the guidance of algorithmically driven protocols, a nurse will further assess and direct a caller toward non-emergency department destinations, to include self-care advice, or non-EMS transport to primary care or urgent care clinics. The nurse will assist the patient with both scheduling the appointment and arranging for insurance-funded, same day transportation. In some cases, the nurse may recommend a standard EMS transport to a hospital emergency department. In other cases, our Department providers may still respond to the caller to assess the patient in person, and then redirect the patient to the triage nurse if it is determined that an ambulance transport is not necessary. Our proposal is based on the experience of similar programs in Fort Worth, Texas; Louisville, Kentucky; and Mesa, AZ.

To operationalize the nurse triage program, the Department's internal Patient Bill of Rights policy will be revised to guarantee that patients "receive a medical evaluation and a determination of appropriate medical care" and "if transported, to be transported in a clean and properly maintained vehicle to an appropriate medical facility." This changes current policy which guarantees patients transport regardless of need and no matter how non-critical their condition.

To be clear, our priority with this initiative is to ensure that we are connecting patients with the right medical resource for their condition. Our goal is not simply to say "no," but to connect patients with medical care that will lead to better overall health outcomes. This initiative also carries with it the potential of significant cost benefit savings over the long-term, not only for the Department, but for the whole health care system. Most importantly, it is critical to our ongoing efforts to strengthen our delivery of EMS to those

[1] Consistent with the recommendation of the IHC report, the Department will continue to fund the Street Calls program in its FY 2018 budget.

patients whose lives depend on our being able to respond to them quickly, competently and compassionately.

Assuming that the budget for the nurse triage program is approved by the Council, appropriate public education about the initiative and the proper use of emergency requests for service will be critical to its success. This effort already began in late 2016 when, during the months leading up to the release of the IHC report, Chief Dean and Dr. Holman began conversations with the public on the proper use of 9-1-1 through interviews on local television and radio outlets. The Department's leadership will continue to conduct a customized outreach strategy that will include a strong, coordinated, and effective marketing campaign prior to and during the launch of the initiative.

(2) The number of employees hired after the contract award and their residency.

Response:

The Department hired a total of 21 Firefighter EMTs between December 1, 2016 and March 31, 2017. Nineteen of these employees are District residents and two are Maryland residents.

Since March 2016, the Department has hired 128 individuals: 74 Firefighter/EMTs, 34 Firefighter/Paramedics, and 20 Cadets. All of the cadets are District residents. Of the 74 Firefighter/EMTs, 92 percent are District residents. Of the 34 Firefighter/Paramedics, three were District residents, 17 were residents of Maryland or Virginia, and 14 were residents of six other states.[2]

(3) Evaluation of pre-hospital medical care and transportation fees considering the reasonableness of the fees, the public interest, and the persons required to pay the fee.

Response:

The Department's ambulance fees are prescribed by 29 DCMR § 525. These fees and charges have not changed, or otherwise been modified, since January 1, 2009.

As part of her FY 2018 Budget Support Act of 2017, Mayor Bowser included the "Affordable Emergency Transportation and Pre-Hospital Medical Services Amendment Act of 2017." This legislation ensures that consumers have access to affordable pre-hospital medical care and transportation in the District of Columbia. As a result of the restrictions on the ability of the Department to negotiate emergency service rates with health insurers offering health benefit plans in the District, consumers have been forced to pay the balance or difference in price from the in-network rate covered by their

[2] It should be noted that the states of residency for these employees reflect their residency at the time of application, not necessarily their current residence.

insurer out-of-pocket. To ensure affordable access and avoid adding a punitive component to these essential services, this legislation requires insurers to reimburse FEMS and its contracting providers at the rate approved by the Council. By requiring insurers to pay the Council approved rate, FEMS will no longer have to pursue collections of the balance from insureds. The legislation also creates a special purpose revenue fund that will support reform and improvement initiatives for EMS delivery in the District. We understand the Council's Committee on the Judiciary and Public Safety has scheduled a June 8 hearing on this provision and we look forward to that discussion.

(4) The number of ambulances added to the Department's frontline and reserve fleet after the date of the contract award, including whether added ambulances replace or supplement the current fleet.

Response:

The Department increased its Ambulance fleet by 20 percent between December 1, 2016 and March 31, 2017, bringing the total number of Ambulances in the fleet to 106.

All 18 new ambulances became "frontline" units and eight of the existing units will be designated with a Property Disposal Action (PDA), leaving the total fleet ambulance count at 98. Of the 98 ambulances, 40 are designated as "frontline" units and 58 are designated as "reserve" units. Ten of the 58 reserve units are used for the many special events that the District hosts throughout the year; frequently, the Department needs up to 20 reserve ambulances for this purpose. This high level of reserve units has allowed the Department to keep its fleet in good condition because it can take frontline units out of service to do regular preventive maintenance. More information on these new ambulances and the AMR contract's positive impact on the Department's fleet is included later in this report.

(5) The number of emergency medical services personnel training hours provided.

Response:

The Department has provided a 38 percent increase in EMS personnel training between December 1, 2016 and March 31, 2017.

The Department delivered a total of 38,755 EMS training hours (detailed in Table I below). During the same time period last year (2015-2016), the Department delivered a total of 28,159 EMS training hours (detailed in Table II on page 9).

Table I: EMS Training Hours Delivered (December 1, 2016 through March 31, 2017)

Class Type	Number of participants	Number of hours per class	Total
EMT Refresher	199	36	7,164
EMT Certification Course	26	240	6,240
Module 1: Assessment, Documentation, High-Performance CPR	181	4	724
Modules 2: Trauma & Excited Delirium Syndrome (ExDS)	280	4	1,120
Module 3: Cardiovascular and Respiratory Emergencies	743	4	2,972
Prehospital Trauma Life Support	30	16	480
Advanced Cardiovascular Life Support (Provider)	2	16	32
Advanced Cardiovascular Life Support (Refresher)	50	8	400
Pediatric Advanced Life Support (Provider)	1	16	16
Pediatric Advanced Life Support (Refresher)	13	8	104
Pediatric Education for Prehospital Providers (PEPP)	77	16	1,232
Advanced Medical Life Support (Provider)	42	16	672
Advanced Medical Life Support (Refresher)	35	8	280
Paramedic Transition Course	1	40	40
FEMS Protocol Review	25	8	200
Geriatric Education for EMS (GEMS)	67	8	536
Paramedic Grand Rounds: Sepsis/SIRS	204	4	816
Various Asynchronous Distance Learning Modules (Target Safety Courses)	835	Variable	15,727
		2017 Total:	**38,755**

Table II: EMS Training Hours Delivered (December 1, 2015 through March 31, 2016)

Class Type	Number of participants	Number of hours per class	Total
EMT Refresher	213	36	7,668
Module 1: Assessment, Documentation, High-Performance CPR	454	4	1,816
International Trauma Life Support	13	16	208
Advanced Cardiovascular Life Support (Refresher)	23	8	184
Pediatric Advanced Life Support (Provider)	1	16	16
Pediatric Advanced Life Support (Refresher)	19	8	152
Advanced Medical Life Support (Provider)	48	16	768
Paramedic Transition Course	1	40	40
FEMS Advanced Life Support Refresher	22	16	352
Geriatric Education for EMS (GEMS)	12	8	96
Various Asynchronous Distance Learning Modules (Target Safety Courses)	980	Variable	16,859
		2016 Total:	**28,159**
		2017 Total:	38,755
		Δ 2016-2017:	**10,596**

Since the launch of the AMR contract, the Department has provided its members with 40 percent more EMS training hours.

The Department delivered 107,307 EMS training hours, as compared to the same period last year (2015-2016), when the Department delivered 76,672 EMS training hours. This is a net total increase of 30,635 hours of critical EMS-related training given to Department personnel.

(6) The number of patients who used the Department's transport services twice or more within the reporting period, including the number of times the patient used transport services during the previous 12 months.

Response:

Between March 1, 2016 and February 28, 2017, ambulance billing data indicated 117,782 patient transports were completed by FEMS and AMR ambulances. Of these transport cases, 114,219 involved patients that could be uniquely identified by full name

and birthdate. The remaining 3,563 (or 3 percent of cases) could not be uniquely identified and were excluded from this analysis.[3]

During this 12-month time period, 23 percent of patients transported at least two times accounted for 53 percent of all patient transports:

# of Transports	# of Patients	% of Patients	# of Total Transports	% of Total Transports
1	54,208	77%	54,208	47%
2 or more	**15,981**	**23%**	**60,011**	**53%**
TOTAL	**70,189**	**100%**	**114,219**	**100%**

During this 12-month time period, 20 percent of patients accounted for 45 percent of patients transported at least two times by FEMS ambulances:

# of Transports	# of Patients	% of Patients	# of Total Transports	% of Total Transports
1	37,640	80%	37,640	55%
2 or more	**9,359**	**20%**	**31,112**	**45%**
TOTAL	**46,999**	**100%**	**68,752**	**100%**

During this 12-month time period, for patients transported at least two times, 17 percent of them accounted for 42 percent of all patients transported at least two times by AMR ambulances:

# of Transports	# of Patients	% of Patients	# of Total Transports	% of Total Transports
1	26,562	83%	26,562	58%
2 or more	**5,500**	**17%**	**18,905**	**42%**
TOTAL	**32,062**	**100%**	**45,467**	**100%**

Many of the patients who are transported two or more times are expected to use the nurse triage program in FY 2018.

[3] Because many high volume user (HVU) patients are often transported by both FEMS and AMR, the number of individual patients and transports reported separately in the FEMS and AMR tables do not add up to the combined patients and transports reported in the uppermost table.

Please see below for the Office of Unified Communications' submission for its reporting requirements:

(1) The number of calls dispatched and the average dispatch time.

Response:

OUC Calls for Service and Dispatch Times			
	# of Calls Dispatched	Average Dispatch Times (seconds)	Average Call Processing + Dispatch Times (seconds)
Dec 2016	13,118	31	134
Jan 2017	13,847	50	152
Feb 2017	12,559	32	132
Mar 2017	13,714	30	131

(2) The average time within which the Department and the third-party contractor's ambulances reported arriving at a healthcare facility with a patient and returning to service.

Response:

Average Hospital Offload Times (minutes)		
	DC FEMS	Third Party
Dec 2016	43.35	34.45
Jan 2017	43.37	34.57
Feb 2017	45.20	37.42
Mar 2017	43.37	38.49

(3) The protocol to reroute non-emergency calls.

Response:

We are working on strategies to address the misuse of 911, including public engagement, public service announcements, and website updating. OUC is working with Dr. Holman and the Integrated Healthcare Collaborative to identify alternative transport options and nurse triage lines that could handle low acuity calls for service without a medical response apparatus being utilized. In addition, OUC Director Karima Holmes has personally been actively engaged in the agency's public education campaign, participating in ANC meetings in every ward of the city as a featured speaker

on the topic of the appropriate use of 911 services. Lastly, the OUC is moving forward on initializing newly enhanced features of the SMART911 program and meeting regularly with target populations, focus groups and super users to create a greater awareness of the benefits of registration in the program.

(4) The average time between the on-scene arrival of the third-party contractor's ambulance and the time the third-party contractor is at the patient's side.

The OUC is unable to provide data regarding the time difference between the arrival of the third party transport unit on the scene and its employee's arrival to the patient's side. This information is not captured in CAD but is captured by AMR and is included in AMR's quarterly report, which is attached.

Please see below for the Department's submission of its first Annual Report pursuant to Subtitle H of the Fiscal Year 2017 Budget Support Act of 2016, D.C. Law 21-160, the "Emergency Medical Services Contract Authority Amendment Act of 2016," effective October 21, 2016. These answers are based on the best available data between the dates of February 12, 2016 and March 31, 2017:

(1) The impact on the Department's unit availability.

Response:

Unit Availability

Implementation of the AMR contract substantially improved the availability of FEMS transport units along with the capacity of the EMS system to recover more quickly during heavy EMS call volume periods (commonly called surge periods).

Prior to AMR contract implementation, FEMS was operating 25 BLS transport units, 14 ALS transport units (when staffed by Paramedics), five additional power shift BLS transport units (11:00 to 23:00, five days a week), and five additional power shift ALS transport units (when staffed by Paramedics, 11:00 to 23:00, five days a week) for a total of up to 49 transport units in service. The 10 additional transport unit staffing, or power shift units, were discontinued on March 28, 2016, the first day of AMR contract implementation.

Implementation of the AMR contract can be viewed in three phases.

Phase 1 (March 28 – June 2 2016): During the first phase of implementation, FEMS operated 39 transport units in regular service – 25 BLS transport units and 14 ALS transport units. Starting on March 28, the Department required 14 FEMS ALS transport units to be in service on every shift, with five ALS transport units moving to Firefighter Paramedic staffing.[4] Additionally, FEMS transport units were operating under the original patient third party provider transport criteria (see General Order (GO)-2016-23R, dated 3/9/2016).

Phase 2 (June 3, 2016 – March 5, 2017): During the second phase of implementation, FEMS continued to operate 39 transport units in regular service (25 BLS transport units and 14 ALS transport units). After evaluating the first six weeks of operations under GO-2016-23R and concluding that the original GO was too rigid by overclassifying stable patients as ALS patients, FEMS transport units began operating under revised patient transport criteria during June 2016 (see GO-2016-31, dated 6/3/2016). Also, beginning August 3, two additional transport units were placed in service and staffed using overtime to supplement transport unit availability in Battalions 2 and 3 (Southeast) during the late summer months, when daytime temperatures became excessive.

Phase 3 (March 6, 2016 – April 24, 2017): During this third (and current) phase of implementation, FEMS revised the mixture of BLS and ALS transport units. After almost

[4] Previously, ALS units, or "medic units," had only been staffed by civilian EMS employees.

one year of operations with AMR, the Department concluded that its BLS unit availability had improved dramatically, but that it needed additional ALS transport units to stabilize ALS transport unit availability. On March 6, 2017, the Department converted three BLS transport units into ALS transport units. FEMS now operates 22 BLS transport units and 17 ALS transport units. The additional transport units also were removed from service effective March 5, 2017. Currently, FEMS is no longer operating additional transport units using overtime staffing, except for special events.

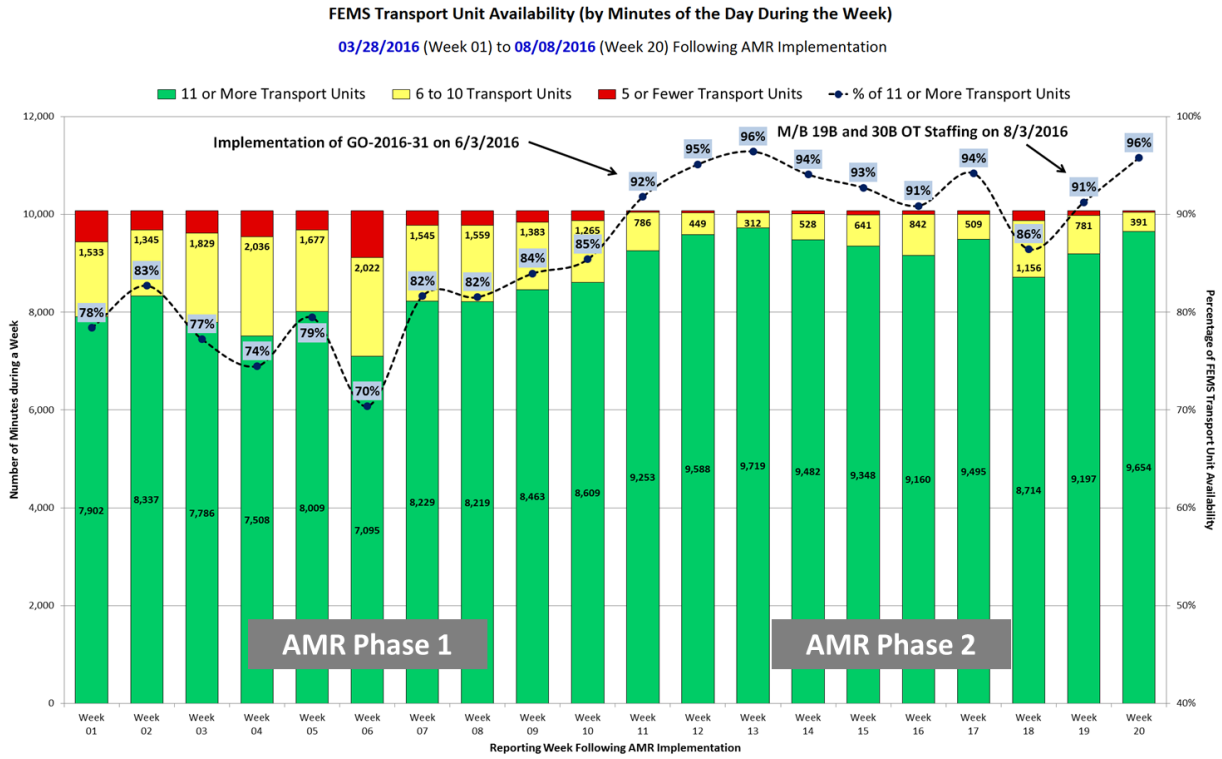
The table below shows the overall availability of FEMS transport units measured by each minute of the day during each phase of AMR implementation. The critical value for FEMS transport unit availability is 11 or more units because this level of units provides sufficient resources in the event of a call surge, multiple simultaneous incidents, or a mass casualty incident. This value assures an adequate reserve of available transport units to maintain EMS system capacity for providing timely transport of time sensitive/ high priority patient cases when needed.

FEMS Transport Unit Availability (March 28, 2016 through April 24, 2017)

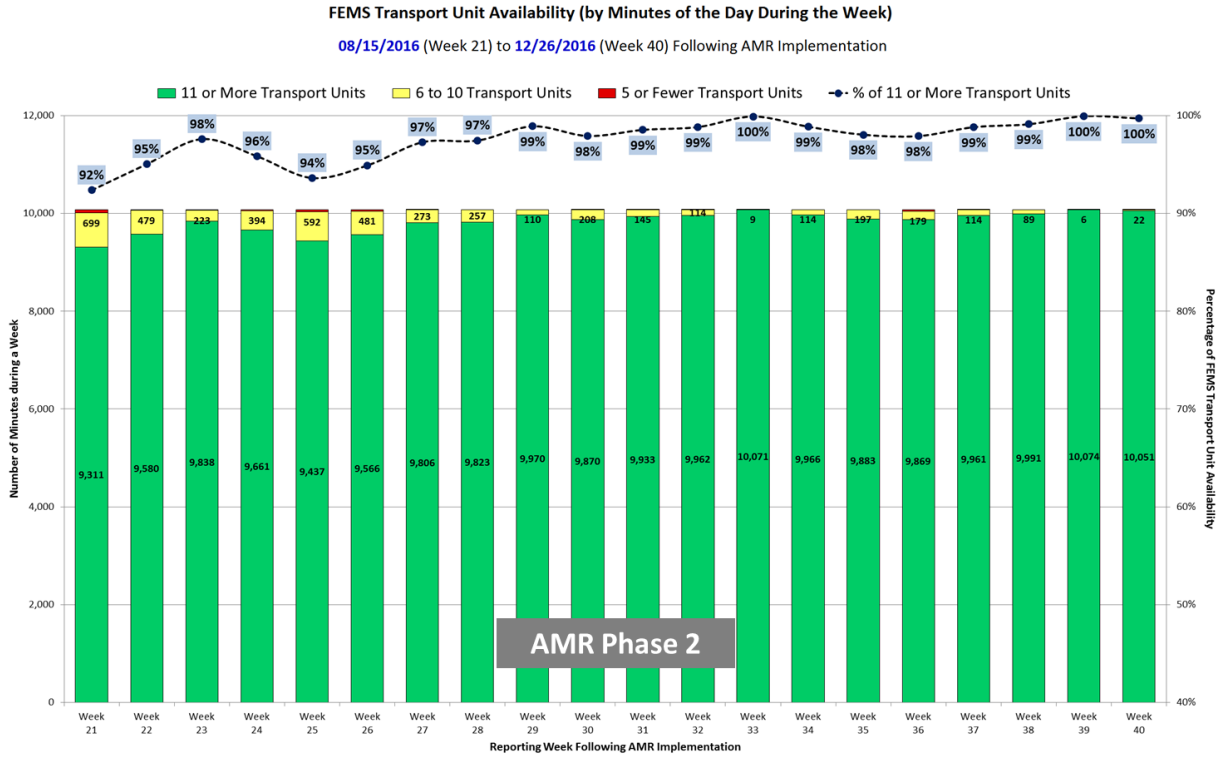
AMR Implementation	Phase 1	Phase 2	Phase 3
11 or More FEMS Units	**80.6%**	**96.7%**	**95.9%**
6 to 10 FEMS Units	15.3%	3.0%	3.8%
5 or Fewer FEMS Units	4.0%	0.3%	0.3%
No FEMS Units (MIN)	145	9	0
No FEMS Units (%)	0.131%	0.002%	0.0%

It is important to highlight that during Phase 2 and Phase 3, the Department has had 11 or more transport units available over 90 percent of the time every week except for one week in July when the District experienced a severe heat wave. During some weeks, this measure was achieved 100 percent of the time. This is an extraordinary achievement.

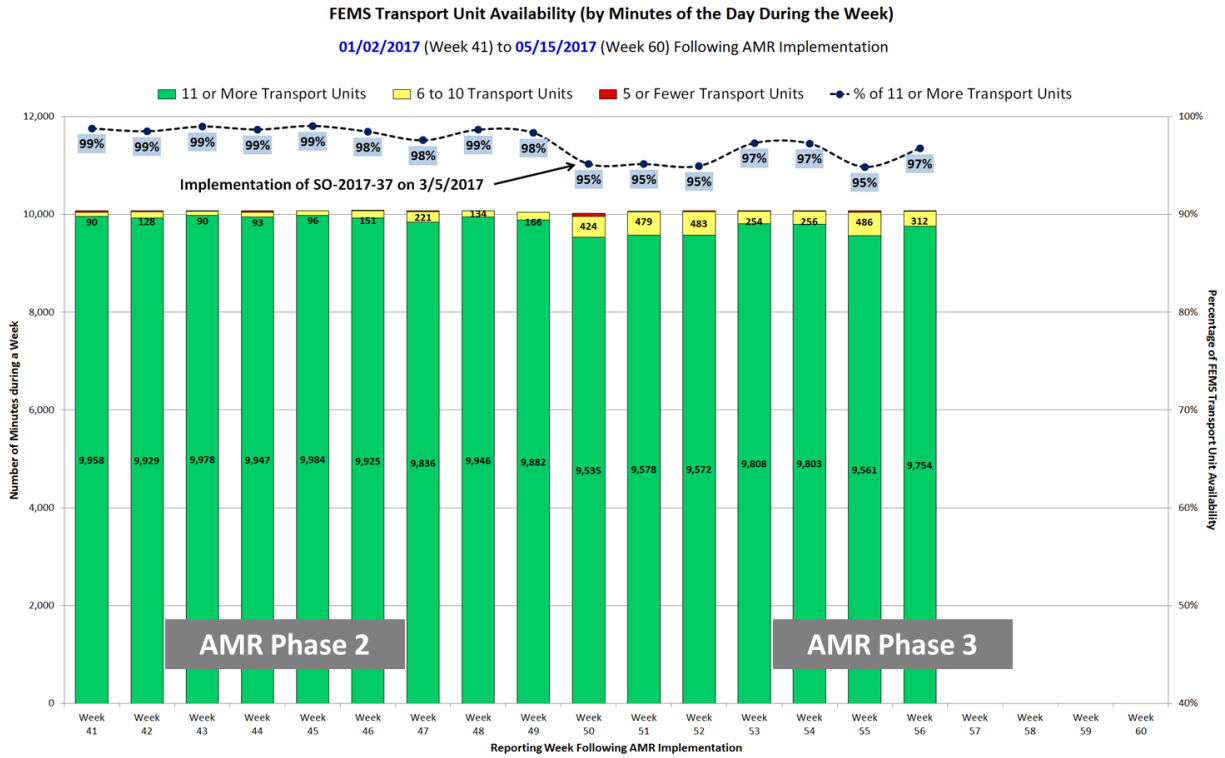
The chart below shows weekly availability of FEMS transport units during Phase 1 and Phase 2 of AMR implementation through August 2016 (Week 20 of the contract). Green bars show the number of minutes that 11 or more FEMS units were available. Yellow bars show six to 10, red bars show five or fewer. The percentage line shows the percentage of time 11 or more FEMS transport units were available for responding to calls.



The chart below shows weekly availability of FEMS transport units during Phase 2 of AMR implementation from August 2016 (Week 21 of the contract) to December 2016 (Week 40 of the contract).

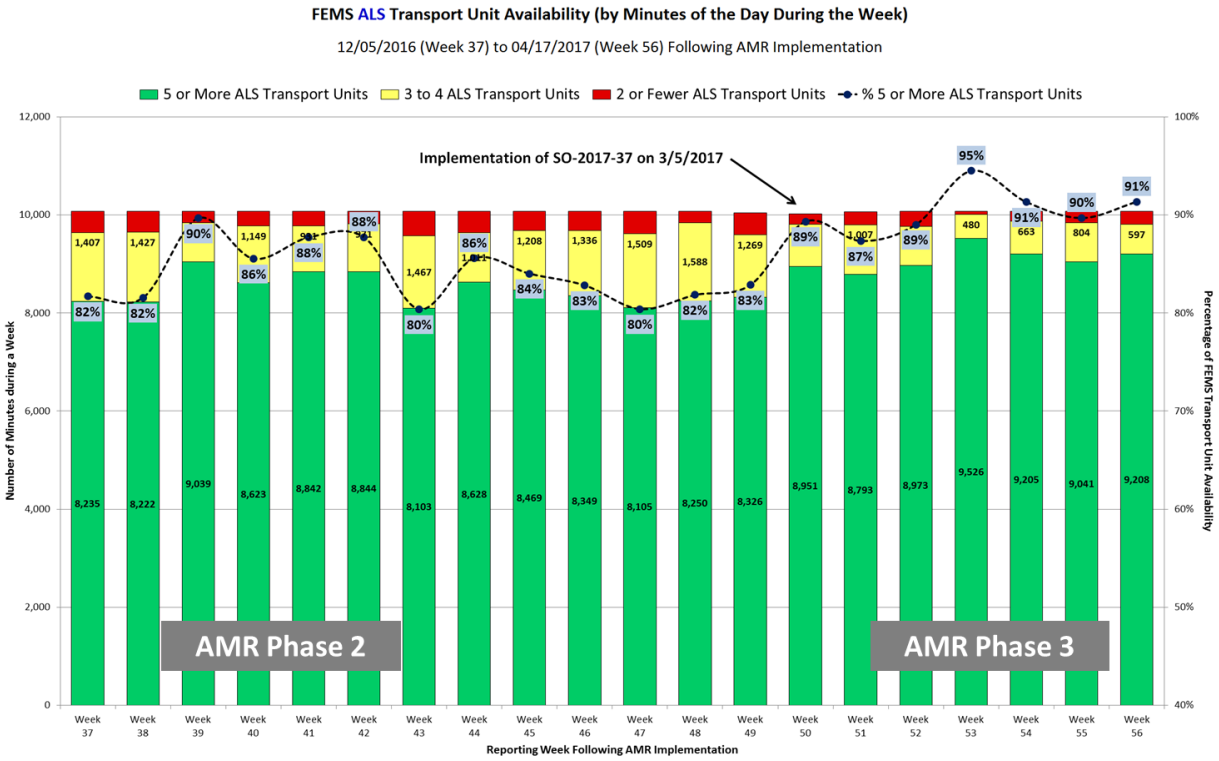


The chart below shows weekly availability of FEMS transport units during Phase 2 and Phase 3 of AMR implementation from August 2016 (Week 41 of the contract) to April of 2017 (Week 56 of the contract).



Since the addition of the three ALS transport units on March 6, 2017 (Week 51 of the contract), the Department's ALS transport unit availability has also improved.

The chart below shows weekly availability of FEMS ALS transport units during Phase 2 and Phase 3 of AMR implementation from December 2016 (Week 37 of the contract) to April 2017 (Week 56 of the contract).



Call Surge Analysis

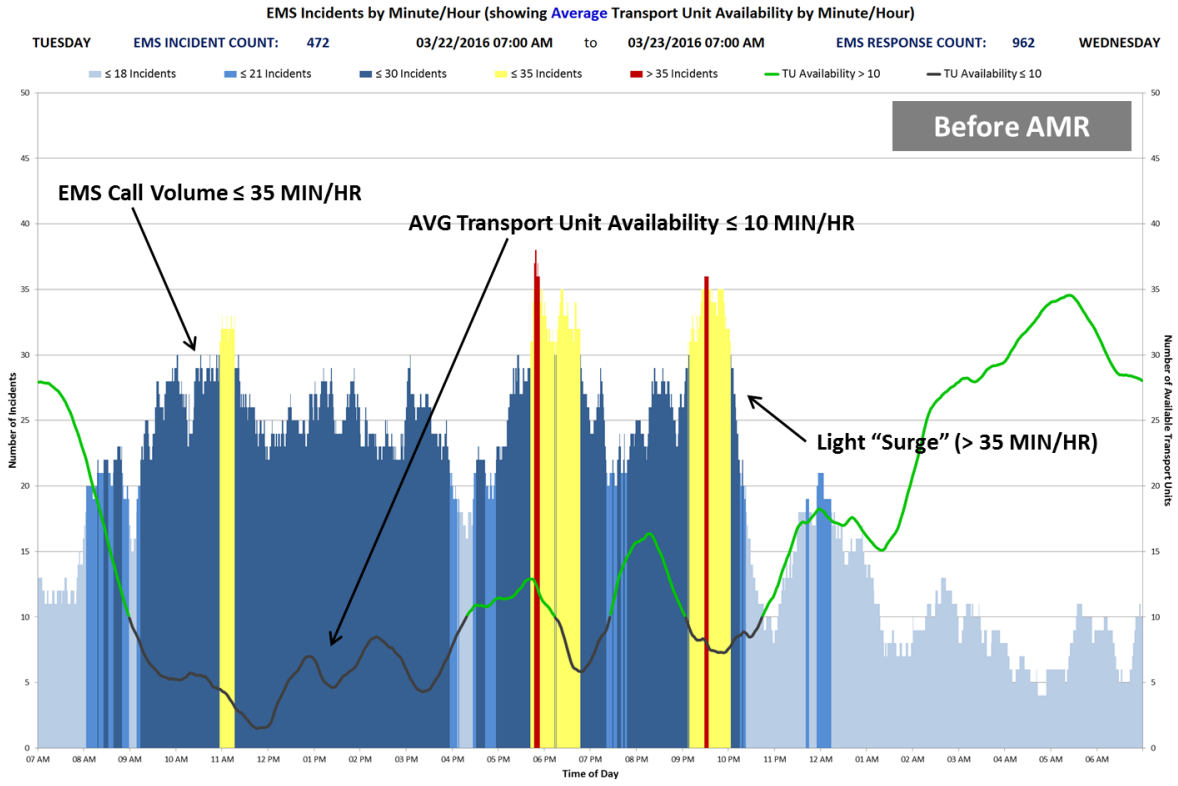
The availability of FEMS transport units directly corresponds to the capacity of the EMS system to more quickly recover during both moderate and heavy EMS call volume periods (commonly called surge periods). Normal EMS call volume is 30 or fewer EMS calls during any operating hour. “Surge” begins when the number of EMS calls exceeds 30. If “surge” periods are sustained for 60 minutes or longer, the number of available transport units for responding to EMS calls can be quickly depleted.

Prior to AMR contract implementation, even moderate EMS call volume periods reduced the number of available FEMS transport units to 10 or fewer for hours at a time. During “surge” periods, this was reduced even further, sometimes to 5 or fewer. Occasionally, prior to AMR contract implementation, no FEMS transport units were available for responding to EMS calls. During the summer months, when EMS call volume was especially high, this could occur on a daily basis. EMS system capacity was exceeded, resulting in significant patient risk.

After AMR contract implementation, the buffer of additional transport units provided by AMR increased the capacity of the EMS system to absorb both moderate and heavy EMS call volume. Because FEMS transport units can now transfer lower priority patients to AMR for transport, they return to service more quickly, allowing FEMS transport units to be available for responding to higher priority EMS calls. Although AMR periodically runs out of units, a reserve capacity of FEMS transport units still remains, meaning EMS system capacity is not exceeded.

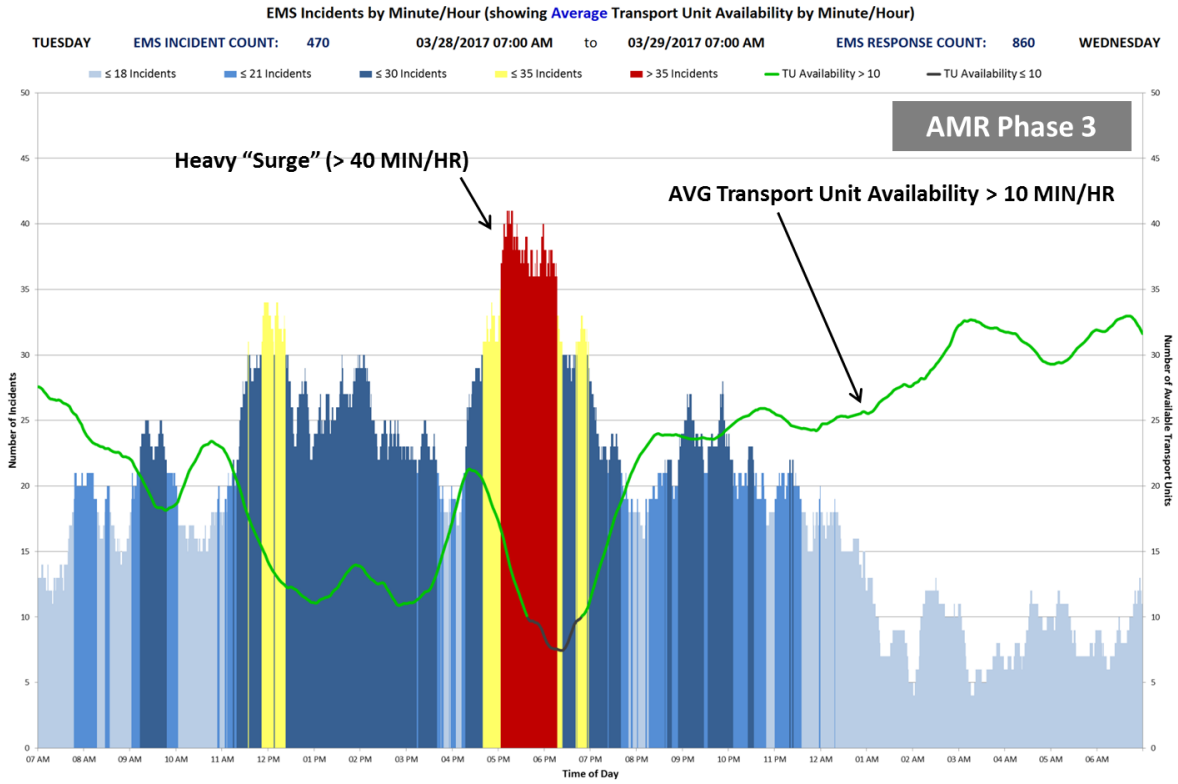
The following charts demonstrate the effect of having the AMR contract in place during call surges. The charts show the relationship between EMS call volume, transport unit availability and the effect of "surge" on EMS system capacity both before and after AMR contract implementation.

The chart below shows EMS call volume and average FEMS transport unit availability by minute/hour on Tuesday, March 22, 2016, prior to AMR contract implementation. The EMS incident count on this day was 472, with 962 FEMS emergency vehicle responses. Blue bars are 30 or fewer EMS calls during a minute/hour. Yellow bars are 31 to 35. Red bars are more than 35 calls. The green and black line is average FEMS transport unit by minute/hour. Green is 11 or more available units. Black is 10 or fewer. Note the effect of only moderate EMS call volume on FEMS transport unit availability during the morning hours, followed by the light "surge" during early evening hours. The capacity of the District's EMS system to recover from "surge" prior to AMR implementation was often exemplified by this chart, meaning, the Department had fewer than 10 transport units available for a substantial portion of the day.



The following chart shows EMS call volume and average FEMS transport unit availability by minute/hour on Tuesday, March 28, 2017, during Phase 3 of AMR contract implementation. The EMS incident count on this day was 470, with 860 FEMS emergency vehicle responses. Note that even during a sustained, 40 minute call surge during evening rush hour, FEMS was still able to maintain close to ten transport units available for the vast majority of the day. The capacity of the District's EMS system to

recover from “surge” during Phase 3 of AMR implementation is often exemplified by this chart.



In order to be transparent and accountable to District residents, the Department archives EMS call volume and average transport unit availability charts by week and day for all of FY 2017 on the Department’s “Performance Measures” webpage. The direct link to this archive is: https://fems.dc.gov/node/1208732.

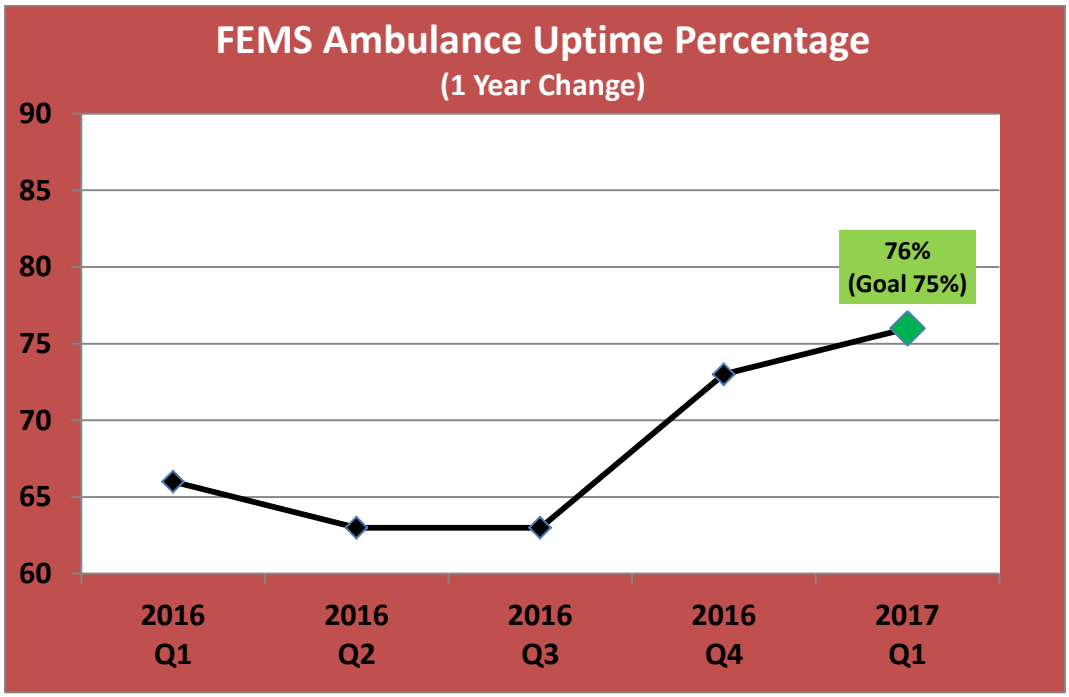
The Department also archives Fire and EMS call volume reports by week and day for all of FY 2017. The direct link to this archive is: https://fems.dc.gov/node/1208684.

(2) The impact on the Department's fleet, including the ability to conduct preventative maintenance and the number of operational and reserve units available.

Response:

The launch of the AMR contract, as well as the addition of 18 new ambulances, has had a positive impact on the Department’s ability to conduct preventive maintenance, and on the number of operational and reserve units available. In fact, the Department has been able to meet its preventative maintenance goals in FY 2017 for the first time in several years. As the chart below shows, our ambulance “up time” percentage, or the percentage of time that ambulances are available for service, reached 76 percent during

the second quarter of FY 2017. This is above our target of 75 percent.



Meeting this goal not only increases the availability of functional units on the streets, but has other positive impacts. For example, it makes it possible for the Department to maintain a realistic repair and maintenance schedule for ambulances, and allows time for mechanics to participate in training and testing to get their NFPA (National Fire Protection Association) compliant certifications.

(3) The impact on the Department's training schedule.

Response:

As noted above, since the launch of the AMR contract, the Department has delivered a total of 107,307 EMS training hours, as compared to the same period last year (2015-2016), when the department delivered a total of 76,672 EMS training hours. This is a net total increase of 30,635 hours, or 40 percent, of EMS-related training given to Department personnel.

Under the leadership of Interim Medical Director Dr. Robert P. Holman, the Department is focusing not just on the quantity of training hours, but on the quality of instruction. During the second year of the AMR contract, the Department will continue to deliver the following new types of EMS training, in addition to its existing mandatory baseline certifications:

ALS and BLS EMS Module Program: Revised approach to the delivery of required

continuing medical education (CME) as part of the National Registry and DC DOH recertification process. Instead of the traditional 36-hour biannual block of CME, the Medical Director has created 4-hour blocks of rotating topical content that is structured to meet recertification requirements while simultaneously providing the flexibility to address urgent operational and CQI-driven topics. Because the modules are spaced out and delivered periodically (four to eight new modules per year) over the two-year recertification cycle, the knowledge base and psychomotor proficiency of the EMS providers is constantly enhanced and reinforced, with less erosion or deterioration in between CME sessions.

Advanced Life Support (ALS) Enhanced Pediatric Training: Conducted with 8-hour clinical rotations at Children's National Medical Center (CNMC) under the supervision of the medical staff and faculty of CNMC; scheduled for four hours participating in asthma treatment and four hours assisting in pediatric triage.

Paramedic Grand Rounds (ALS): Rotating 4-hour symposiums to be conducted by the local medical schools/teaching hospitals; scheduled for four sessions per year, with the first session (on sepsis) at Providence Hospital.

University Partnerships: FEMS also is leveraging the resources and expertise of local universities by developing and delivering joint training initiatives. The first effort, during September 2016, saw the agency's ALS providers spend eight hours in workshops with Howard University Hospital and Howard University Medical School clinicians and faculty, using the medical school's state-of-the-art simulation laboratories to review and enhance hands-on trauma management skills. Other partnerships will follow.

Company-Based, Case-Based Education (BLS and ALS): 2-hour modules to be presented by supervisors at the station level, using a case-based discussion approach, written by the Medical Director and informed by trends and key issues identified through the CQI process.

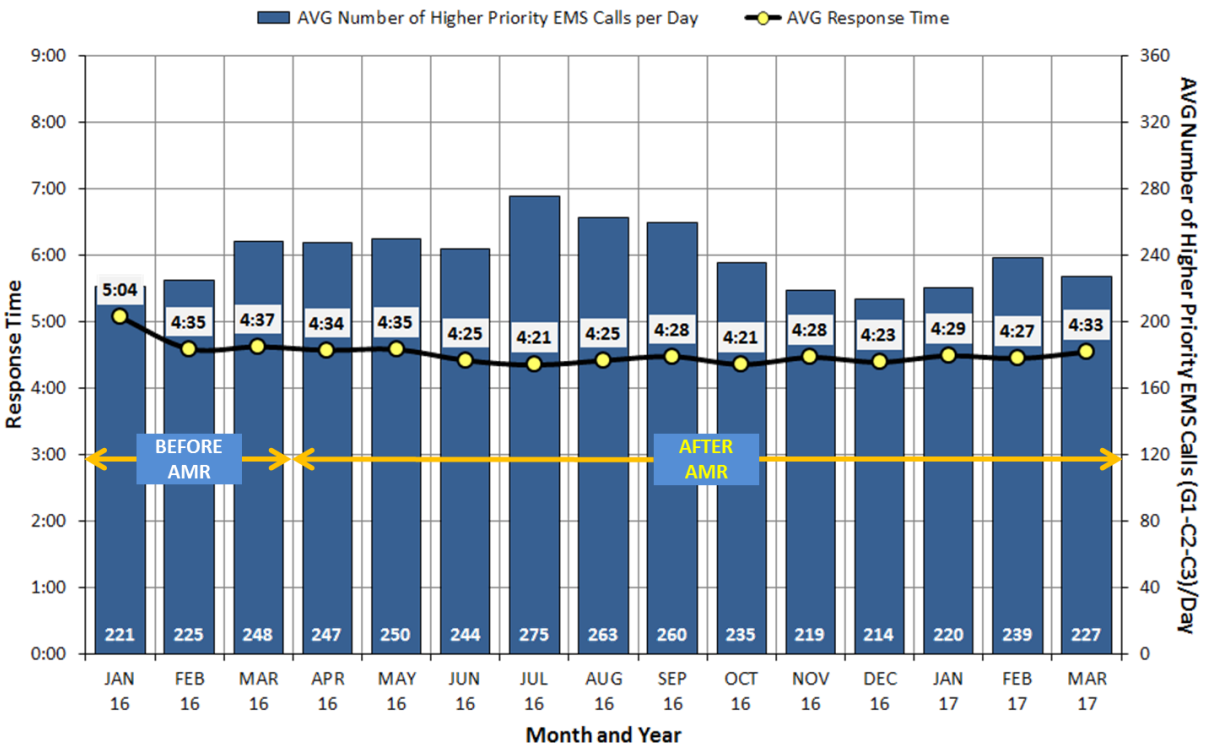
(4) The impact on the Department's response times.

Response:

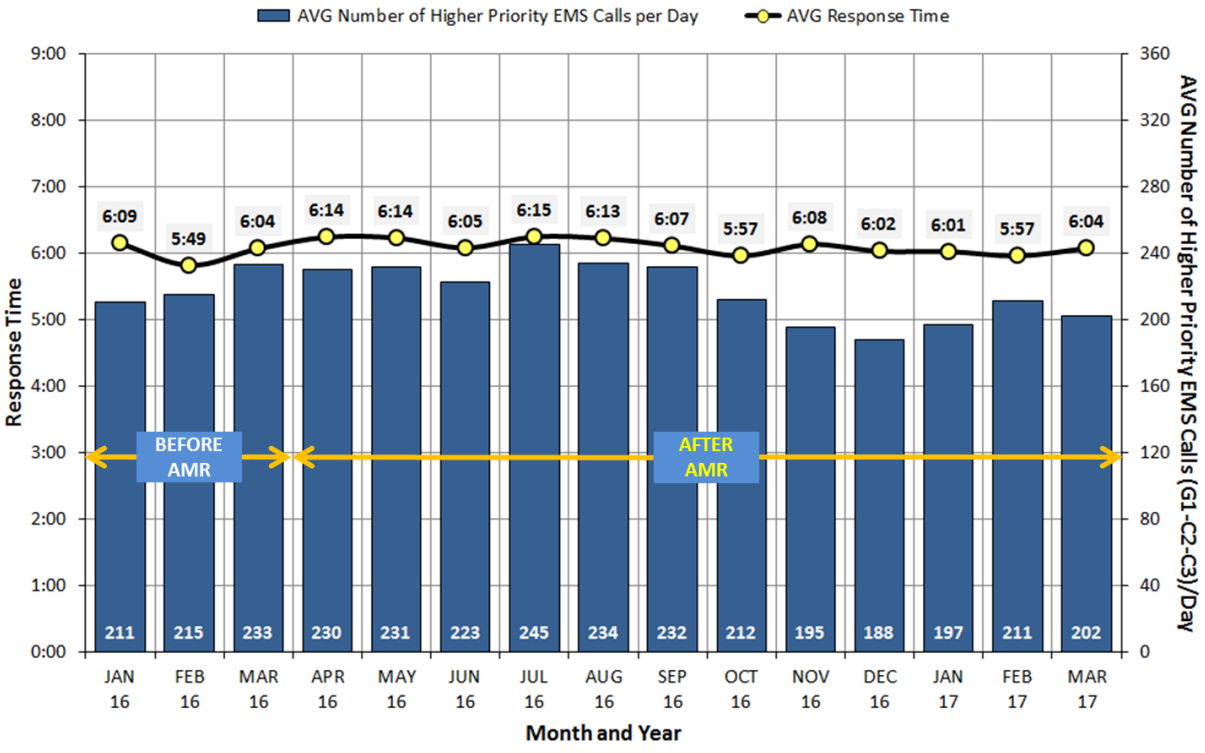
Implementation of the AMR contract substantially affected the response time of the Department's ambulances. Prior to implementation, average response of the first arriving FEMS transport unit to higher priority (ALS) EMS calls exceeded seven minutes. After implementation, average response times for FEMS transport units were reduced by almost one minute. Other response times to higher priority EMS calls, including first response and first paramedic response have either shown slight reductions or remained consistent following implementation.

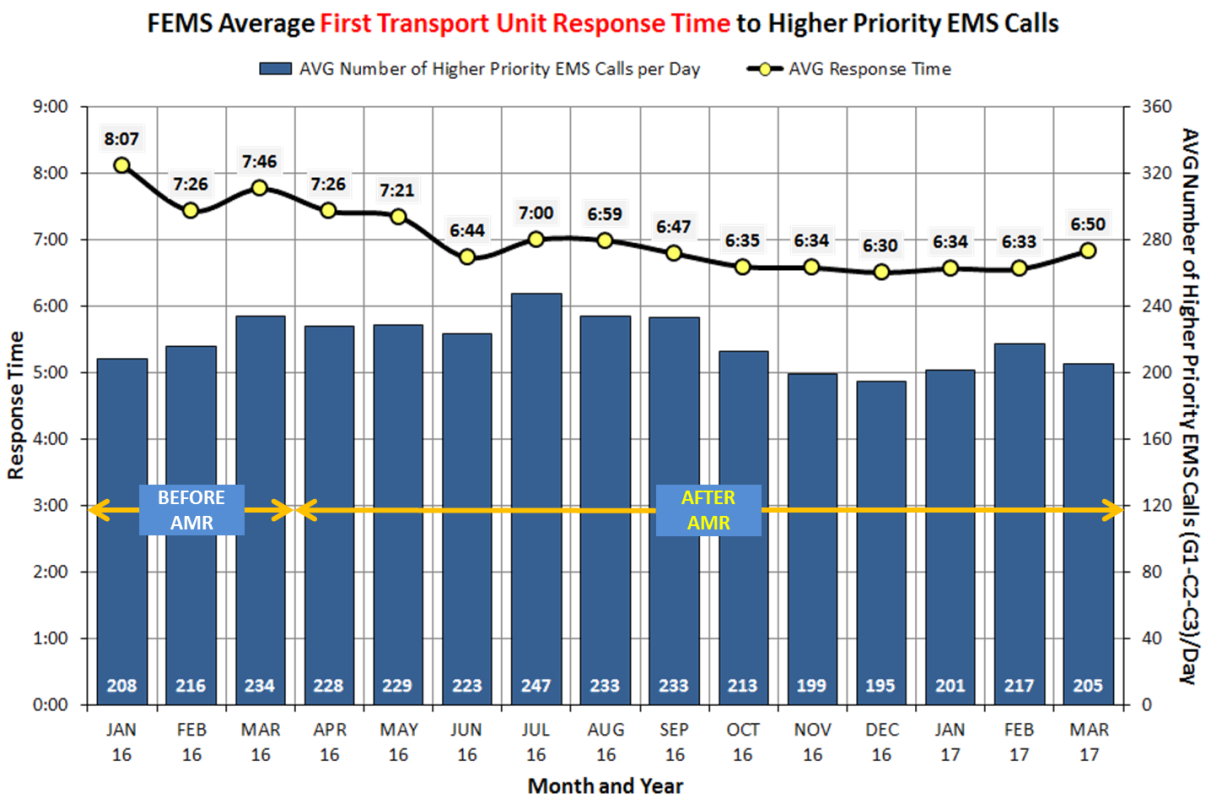
See the following charts.

FEMS Average First Response Time to Higher Priority EMS Calls



FEMS Average First Paramedic Response Time to Higher Priority EMS Calls





(4) The impact on the Department's … quality of patient care.

With only one year of data to review and with the Department's practice of measuring patient outcomes still in its early stages, we cannot definitively draw a direct connection between the launch of the AMR contract and patient outcomes, or between the AMR contract and measures of the quality of patient care. Nonetheless, the overall stabilization of the system and the emphasis on training particularly in the area of cardiac arrest may be resulting in moderate improvements in some measures.

For example, when comparing our calendar year 2015 and 2016 CARES (Cardiac Arrest Registry to Enhance Survival) data, there are moderate improvements in some categories. CARES is a national surveillance registry of out of hospital cardiac arrests that allows communities to improve patient outcomes by measuring cardiac arrest survival rates and benchmarking against other jurisdictions. CARES utilizes Utstein guideline definitions and reporting templates. The Utstein guidelines are a uniform reporting template used by researchers, clinicians, hospitals, EMS and other systems to track cardiac arrest outcomes.

Using these guidelines, the Department's overall cardiac survival rate increased from 7.3 percent during 2015 to 8.3 percent in 2016, while the national survival rate for the same measure decreased from 10.6 percent to 8.8 percent.

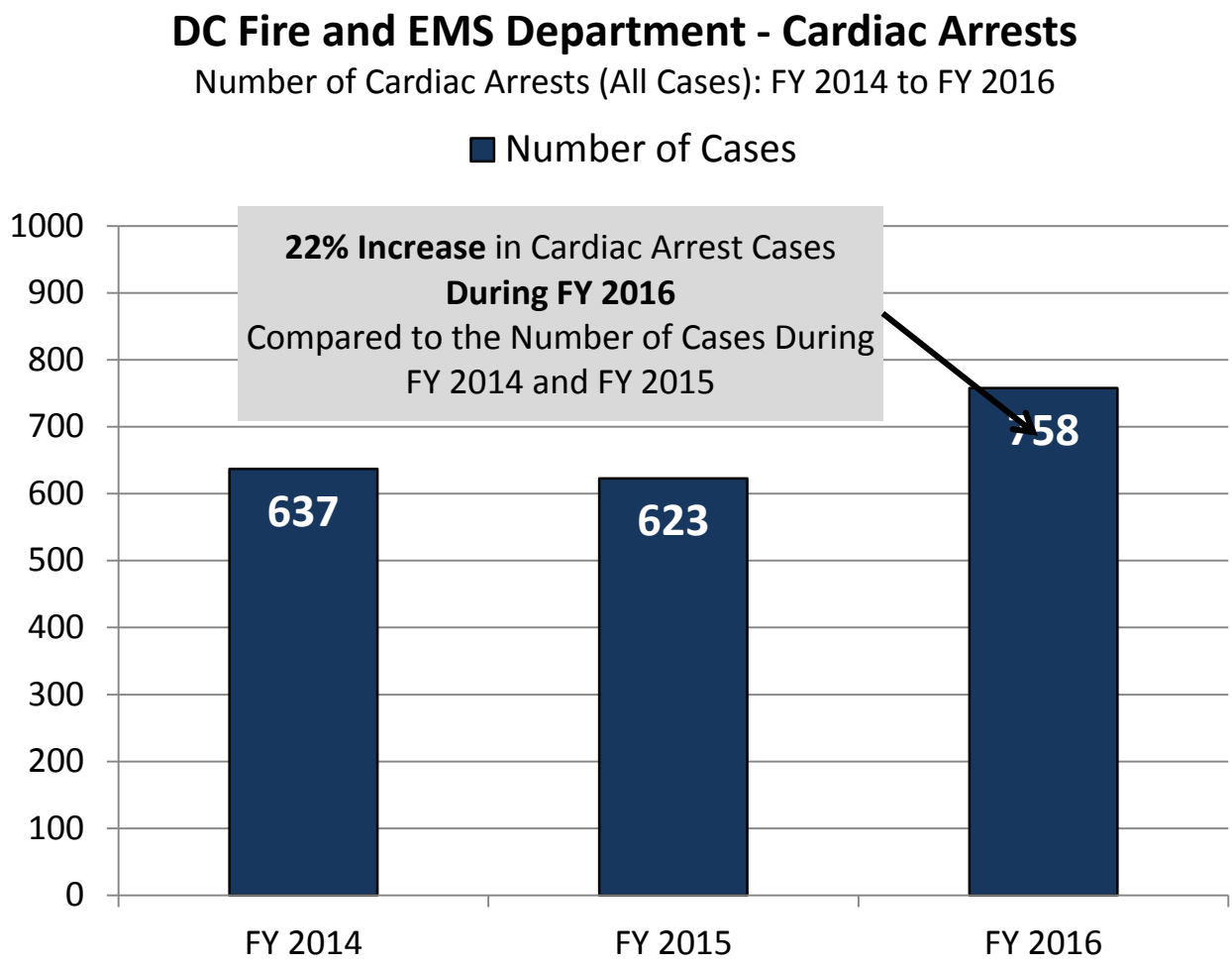
The Department's Utstein (1) cardiac survival rate (or patients surviving non-traumatic cardiac arrests, witnessed by bystander and found in a shockable rhythm) decreased from 31.6 percent during 2015 to 28.1 percent in 2016. At the same time, the national survival rate for the same measure also decreased from 33.1 percent to 27.5 percent.

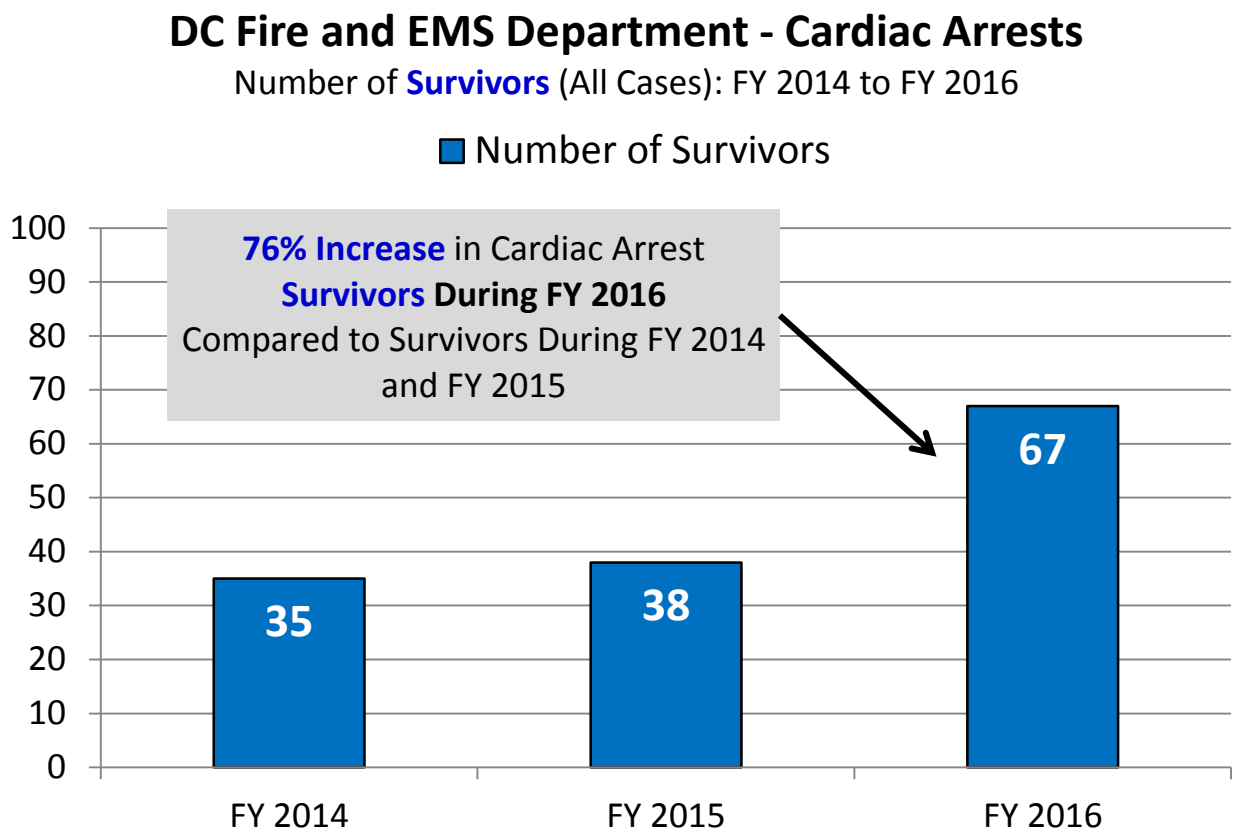
Most encouragingly, the Department's Utstein Bystander (2) cardiac survival measure (or patients surviving non-traumatic cardiac arrests, witnessed by bystander, found in a shockable rhythm and receiving bystander CPR and/or AED use) increased from 25.9 percent during 2015 to 33.3 percent in 2016, while the national survival rate for the same measure decreased from 36.8 percent to 31.6 percent.

Overall, bystander CPR participation for witnessed cardiac arrests in the District increased by more than 80 percent during 2016 compared to 2015 (38 cases in 2015, 69 cases in 2015). This is extremely encouraging and clearly demonstrates improved public participation.

Equally encouraging is the Department's overall cardiac arrest survival data, *i.e.* data that filters out the Utstein criteria described above and that looks at all cardiac arrest cases, regardless of specific survivability factors.

During FY 2016, there were 22 percent more cardiac arrest cases than in FY 2015 and 19 percent more than in FY 2014. However, even though there was an increase in cardiac arrest cases, there was a 76 percent increase in surviving cases between FY 2015 and FY 2016. When comparing FY 2016 and FY 2014, there was a 91 percent increase in surviving cases. These are very positive results and demonstrate the effectiveness of the Department's focus on EMS reform and improvements.


DC Fire and EMS Department - Cardiac Arrests
Number of Cardiac Arrests (All Cases): FY 2014 to FY 2016
Number of Cases
22% Increase in Cardiac Arrest Cases
During FY 2016
Compared to the Number of Cases During
FY 2014 and FY 2015
1000
900
800
700
600
500
400
300
200
100
0
637
623
758
FY 2014
FY 2015
FY 2016



The Department also measures patient care through its Continuous Quality Improvement (CQI) Key Performance Indicator (KPI) measures. These KPIs review suspected STEMI,[5] Stroke, and Trauma cases to examine whether all of the required patient treatment elements were completed by FEMS personnel, the percentage of required patient treatment elements completed by FEMS personnel, and the overall completion rate for all required elements (combined). This review is currently limited to a review of Department patient care reports.

During the second half of FY 2017, through its participation in Chesapeake Regional Information System for Patients (CRISP), the Department will start collecting data from District hospitals on all cases, which will provide a more comprehensive view of patient outcomes.

The following charts summarize the latest CQI KPI results for FY 2016 and for the first and second quarter of FY 2017. They show slight increases in the STEMI and trauma categories and slight decreases in the stroke categories.

[5] STEMI stands for ST-segment elevation myocardial infarction, commonly known as a heart attack.

STEMI Patient Cases

STEMI (FY 2016) Measure	Q1 FY 2016	Q2 FY 2016	Q3 FY 2016	Q4 FY 2016	FYE 2016
Number of Identified STEMI Cases Reviewed	**20**	**26**	**27**	**12**	**85**
Aspirin Appropriately Administered	20	24	27	11	82
12 Lead EKG Completed	20	24	26	9	79
Patient Transport to STEMI Center	19	24	27	12	82
% Aspirin Appropriately Administered	**100%**	**92%**	**100%**	**92%**	**96%**
% 12 Lead EKG Completed	**100%**	**92%**	**96%**	**75%**	**93%**
% Patient Transport to STEMI Center	**95%**	**92%**	**100%**	**100%**	**96%**
Number of Required Elements	60	78	81	36	255
Number of Completed Required Elements	59	72	80	32	243
% Completed Required Elements	**98%**	**92%**	**99%**	**89%**	**95%**

STEMI (FY 2017) Measure	Q1 FY 2017	Q2 FY 2017	Q3 FY 2017	Q4 FY 2017	FYE 2017
Number of Identified STEMI Cases Reviewed	**17**	**16**	**0**	**0**	**33**
Aspirin Appropriately Administered	17	15	0	0	32
12 Lead EKG Completed	17	16	0	0	33
Patient Transport to STEMI Center	17	16	0	0	33
% Aspirin Appropriately Administered	**100%**	**94%**	**N/A**	**N/A**	**97%**
% 12 Lead EKG Completed	**100%**	**100%**	**N/A**	**N/A**	**100%**
% Patient Transport to STEMI Center	**100%**	**100%**	**N/A**	**N/A**	**100%**
Number of Required Elements	51	48	0	0	99
Number of Completed Required Elements	51	47	0	0	98
% Completed Required Elements	**100%**	**98%**	**N/A**	**N/A**	**99%**

Stroke Patient Cases

Stroke (FY 2016) Measure	Q1 FY 2016	Q2 FY 2016	Q3 FY 2016	Q4 FY 2016	FYE 2016
Number of Identified Stroke Cases Reviewed	**189**	**208**	**196**	**205**	**798**
Stroke Screening Exam Completed	189	206	195	199	789
BGL Obtained and Recorded	189	207	194	201	791
Patient Transport to Stroke Center	189	208	196	201	794
% Stroke Screening Completed	**100%**	**99%**	**99%**	**97%**	**99%**
% BGL Obtained and Recorded	**100%**	**100%**	**99%**	**98%**	**99%**
% Patient Transport to Stroke Center	**100%**	**100%**	**100%**	**98%**	**99%**
Number of Required Elements	567	624	588	615	2,394
Number of Completed Required Elements	567	621	585	601	2,374
% Completed Required Elements	**100%**	**100%**	**99%**	**98%**	**99%**

Stroke (FY 2017) Measure	Q1 FY 2017	Q2 FY 2017	Q3 FY 2017	Q4 FY 2017	FYE 2017
Number of Identified Stroke Cases Reviewed	**175**	**186**	**0**	**0**	**361**
Stroke Screening Exam Completed	174	185	0	0	359
BGL Obtained and Recorded	172	182	0	0	354
Patient Transport to Stroke Center	152	178	0	0	330
% Stroke Screening Completed	**99%**	**99%**	**N/A**	**N/A**	**99%**
% BGL Obtained and Recorded	**98%**	**98%**	**N/A**	**N/A**	**98%**
% Patient Transport to Stroke Center	**87%**	**96%**	**N/A**	**N/A**	**91%**
Number of Required Elements	525	558	0	0	1,083
Number of Completed Required Elements	498	545	0	0	1,043
% Completed Required Elements	**95%**	**98%**	**N/A**	**N/A**	**96%**

Trauma Patient Cases

Trauma (FY 2016) Measure	Q1 FY 2016	Q2 FY 2016	Q3 FY 2016	Q4 FY 2016	FYE 2016
Number of Identified Trauma Cases Reviewed	N/A	**111**	**141**	**140**	**392**
Primary Trauma Assessment Exam Completed	N/A	104	141	139	384
Patient Transport to Trauma Center	N/A	77	111	105	293
% Trauma Assessment Completed	N/A	**94%**	**100%**	**99%**	**98%**
% Patient Transport to Trauma Center	N/A	**69%**	**79%**	**75%**	**75%**
Number of Required Elements	N/A	222	282	280	784
Number of Completed Required Elements	N/A	181	252	244	677
% Completed Required Elements	N/A	**82%**	**89%**	**87%**	**86%**

Trauma (FY 2017) Measure	Q1 FY 2017	Q2 FY 2017	Q3 FY 2017	Q4 FY 2017	FYE 2017
Number of Identified Trauma Cases Reviewed	**88**	**99**	**0**	**0**	**187**
Trauma Assessment Exam Completed	87	93	0	0	180
Patient Transport to Trauma Center	88	93	0	0	181
% Trauma Assessment Completed	**99%**	**94%**	**N/A**	**N/A**	**96%**
% Patient Transport to Trauma Center	**100%**	**94%**	**N/A**	**N/A**	**97%**
Number of Required Elements	264	297	0	0	561
Number of Completed Required Elements	229	221	0	0	450
% Completed Required Elements	**87%**	**74%**	**N/A**	**N/A**	**80%**

(5) An assessment of the number of units, the number of personnel, the amount of training, and associated costs required to provide pre-hospital medical care and transportation without the use of third parties.

Response:

The Department estimates the in-house cost of providing pre-hospital medical care and transportation without the use of third parties to be in the $30 million range. This would be the cost of adding 25 additional ambulances to the Department's fleet and 282 additional employees. This takes only the initial investment of personnel and equipment into consideration, and does not include the additional estimated expenditures of vehicle maintenance, equipment maintenance, and fuel.

(6) Recommendations for implementing any additional units, personnel, and training.

Response:

At this time, the Department does not recommend providing in-house the same service that AMR provides. First, providing the service through AMR is much more cost efficient, with the expenditure of $12 million on the AMR contract versus the potential

expenditure of more than $30 million for doing so in-house.

Second, a significant percentage of calls handled by AMR are for non-emergency medical problems that would be better addressed through non-emergency health care services. We recommend addressing these calls through implementation of the IHC recommendations, rather than through increased spending on emergency medical services. Once the IHC recommendations are fully implemented, we can re-assess this question and determine the proper level of funding for responding to our call volume.

Finally, before the Department can consider increasing its daily staffing, we recommend fully funding what is required to staff our apparatus on a daily basis. Mayor Bowser's proposed FY 2018 budget funds 48 new positions to put the Department on the path to fully budget every operational position to the Department's staffing factor. The staffing factor is 1.4, which means that for every one operational FTE, the Department actually needs 1.4 people to ensure coverage of 349 operational seats after accounting for a predictable level of employee leave and other factors that currently require a portion of these seats to be covered every day using overtime. Budgeting to the Department's full staffing factor will help ensure that there are a sufficient number of employees to cover every seat on every unit on every shift, and put the Department on the path to reduced overtime spending. This should be done before contemplating a significant increase in daily staffing.

Conclusion

In conclusion, we believe that the contract has created the capacity to start improving the Department's delivery of Emergency Medical Services, as was intended when we first asked the Council for authority for the contract. We are pleased with our progress, but also know that we still have work to do to become an even stronger Department. Mayor Bowser's proposed Fiscal Year 2018 budget, which funds implementation of the IHC and other recommendations, will help us move closer to this goal.