National Public Safety Telecommunications Council (NPSTC)
Interoperability Committee - Emergency Medical Services (EMS) Working Group

EMS Broadband Application List for FirstNet PSAC

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The NPSTC EMS Working Group has drafted a list of current and conceptual broadband applications at the request of the First Responder Network Authority (FirstNet), Public Safety Advisory Committee (PSAC). This list will be consolidated by the PSAC with other application recommendations for law enforcement and fire rescue use. The resulting master list will then be further evaluated and combined into a formal report.

#	Application Category Application Name	PRIORITY LEVEL HIGH Year 1/Launch MEDIUM - Year 2-3 LOW > Year 3 +	EXISTING APPLICATION Or CONCEPTUAL	USE OFF NETWORK?	GENERAL DESCRIPTION	USE CASE
	INTERFACES					
1	Standard API interface between EMS patient care equipment and FirstNet NPSBN	HIGH	CONCEPTUAL http://www.cs.harvard.edu/~mdw/papers/monitoring-embs05.pdf	N	Interface will allow existing EMS equipment to communicate across the FirstNet network to dispatch centers and receiving hospitals. This may leverage the use of an existing API or through the creation of a new one, based on FirstNet standards. This interface is required for many of the applications listed below.	Rescue 1's EMS equipment has wireless integration with its onboard FirstNet data radio to allow two way transmissions of voice, data and video. Many existing applications and devices would use this API to allow interconnectivity to the FirstNet "pipe".

	EMS APPLICATIONS					
2	Speech to Text, Integrated Patient Care Record	HIGH	CONCEPTUAL http://www.aboutmedicaltranscription.com/dragon-medical/	Y	Application allows the EMT to dictate patient care information using a headset. Information is recorded with a date/time stamp and also auto-populates into the appropriate data field on the EMS patient care record. The application will also allow voice activated commands (similar to Ford Sync) which will let the EMT have hands free access to hospital radio communications, transmit EKGs, update vital signs from monitor, etc.	Rescue 1 in working a cardiac arrest. The paramedic is able to dictate patient care proceedings to create a real time log of events. The same headset is also integrated into the radio network and allows hands free access to other EMS units and to the Emergency Department Physician.
3	Video Assisted Patient Care	HIGH	EXISTING http://www.general-devices.com/e-bridge;	Y	Application which integrates EMT helmet camera, camera built into mobile device, PTZ camera mounted in ambulance or stand alone camera with voice, data and video feed to an Emergency Department physician or specialist physician. This application will assist with: - critical care patient assessment (cardiac arrest, Stroke, Burn, Trauma patient, pediatric and OB patients) - Physician guided advanced procedure, such as a cricothyrotomy or	Rescue 1 arrives on scene of a major vehicle crash. There are four patients and one of them in trapped in the vehicle. The paramedics helmet camera sends a video stream to the dispatcher and to the receiving hospital along with an initial size up/assessment of the scene. The paramedic later uses a higher resolution video image (or still shot) so the ED physician can see the injuries to the patient's chest and femur. A decision is made to clamp a torn artery in the patient's upper leg. The physician guides the paramedic through the procedure in real time through voice and video conferencing. Rescue 1 is on the scene of a patient fall in a rural canyon that does not have

					complicated child birth. - provide appropriate evaluation and documentation for patient refusal situations - Provide advanced practice care and community paramedicine opportunities - assist with patient severity scoring and helicopter, trauma center utilization - provide situational awareness of large scale incidents, including MCI, or extended extrication. - improve assembly/prep of hospital teams (trauma, stroke, burn) pre-arrival - QA and training mechanism - Additional video sources such a laryngoscope Example: General Devices' e-Bridge, e-Net Messenger This application could also capture video and images for later display at the Emergency Department or for the EMS Patient Care report.	adequate LTE signal coverage. Rescue 1's paramedic documents the patient's body position after the fall using a helmet camera and also takes a picture to document the height of the fall. This video and still image data will be shown to the doctor enroute to the hospital or after arrival.

4	Third Party Video Integration	HIGH	EXISTING http://www.general-devices.com/e-bridge	N	Application that will allow EMS personnel to access third party cameras for situational awareness of the incident severity. The ability to select a DOT traffic camera near the scene of a major crash, or the ability to access security video inside a shopping mall following a reporting mass shooting would increase the agency's ability to respond appropriately. This application should also allow video sharing from other public safety responders, (a video feed from a patrol car, or a video feed from a law enforcement or fire department helicopter). Likewise, allow EMS cameras to be used by other public safety	Medic 1 is in route to a reported major multi-car pileup on the interstate. Highway Patrol has not yet arrived to confirm number of injuries or resource needs. Dispatch takes video feeds from the nearest DOT camera and makes them available to responding HPD, EMS dispatch and Medic 1. Medic 1 selects their approach based on the video feed showing injured victims laying on the road at the north end. Once on scene, Medic 1's external PTZ camera video of their onboard telemedicine system is made available to dispatch and DOT, which gives a better view of needs for the responding units. Clips of the scene are messaged to the trauma center for documentation of mechanism of injury. Placards on a truck involved are observed and as a result, a HAZMAT team is dispatched.
5	Vehicle Design and Extrication Guide	HIGH	EXISTING Extraction Zones (http://appcom.org/extraction-zones/) Hybrid Auto Extrication Guide (http://appcom.org/hybrid-auto-extrication-guide/)	Y	Application is integrated with various sensors which will scan a crowd for fever or will collect air samples to check for infectious diseases or bio hazards. Information from multiple sites is consolidated into a single application which has alarms and other metrics to alert the operator. Application which allows rapid access to pictures and descriptions for each make/model of vehicle,	Use Case 1 Units respond to a multivehicle accident involving automobiles equipped with AACN technology (vehicle crash telemetry). Crews responding to the event are provided with patient injury information along with design/rescue information related to the specific make/model of the involved vehicles enabling responders to rapidly and safely stabilize the scene and extricate the patients. Use Case 2 Units respond to the scene of an MVA

					including high hazard vehicles that run on natural gas, electric and hybrid technologies. The ability to understand the vehicles wiring and the location of high pressure gas cylinders that connect to side curtain airbags is critical during an extrication. The application may allow a picture to be taken of the vehicle to conduct a look up of the same or similar vehicle.	and are confronted with several vehicles needing stabilization with some patients entrapped. Crew access an online vehicle design/rescue data repository for the involved vehicles allowing responders to quickly identify safety systems and design components permitting responders to rapidly and safely stabilize the vehicles and extricate the patients
6	Interface/Application for automatic transmission of real time vital signs data to receiving hospital	MEDIUM	CONCEPTUAL Phillips MRx Monitor PCDT, http://www.cs.harvard.edu/~mdw/papers/monitoring-embs05.pdf	N	Application integrates information from a variety of patient monitoring devices to include blood pressure, pulse, respiratory rate, EKG rhythm, ETcO; uses intelligent processing to watch for abnormalities, critical trends while providing several levels of alert and alarm. Data stream is created for transmission to receiving hospital or specialty hospital for medical direction.	Rescue 1 arrives on scene of a patient with severe respiratory distress. The patient has a history of COPD and needs CPAP to prevent further deterioration. A critical care application collects and compares the patient's vital signs, including pulse oxygenation and carbon dioxide levels and alerts the paramedic that existing treatments are not working. The information helps the paramedic make an early decision to intubate the patient prior to a catastrophic event and consults with a ER physician who has been monitoring the patient's vital signs remotely.

7	12 Lead EKG helper app	MEDIUM	EXISTING EKG Academy (http://appcomm.org/ekg-academy/)	Y	Provides information on lead placement for 12 lead EKG for Basic EMT	Rescue 1 is at the scene of an unconscious patient. An application on their FirstNet device provides an audible and visual alert that it has detected the presence of critical health information. The paramedic checks the application and finds that the patient is being treated for a rare medical condition that requires a special drug
8	MCI Patient Monitor	MEDIUM	EXISTING First Line Tech product, http://www.firstlinetech.com/products/dpr/MPMS-Multiple-Patient-Monitoring-System/	Y	Application/device is placed on the exposed skin of each patient at the scene of an MCI. The device checks several physiological signs (BP, Heart rate, respiratory rate, blood oxygen) and sends the vital signs along with GPS coordinates via a local RF frequency to a laptop - which will display a color coded dot indicating the patient's condition and their relative position to other patient "dots" on the screen. This information can also be transmitted to local hospitals.	Rescue 1 arrives at the scene of an explosion with multiple patients. The paramedic and EMT quickly move through the patients conducting an initial check and placing the MCI monitor on each patient. Data from the MCI monitors then allows the Triage officer to direct arriving crews to the most seriously injured patients. Summary data on the total number of patients and summary severity scores are transmitted to the Dispatch Center, the EOC and local hospitals.
9	Patient Tracking System	MEDIUM	EXISTING Global Emergency Procedures, http://www.ger911.com/; also EMsystem.com	N	Application that scans patient armband/MCI tag, snaps picture of patients face, allows for entry of basic information (sex, race, approximate age, medical/trauma, severity code, destination hospital). May also scan a patient's driver's license. Information is uploaded from hand held scanner to Dispatch Center,	Rescue 1 arrives on scene and attaches an EMS arm band to the patient, which contains either a scan able bar code or an RFID tag. When the patient is ready to be transported, a hand held scanner reads the unique patient ID number from the EMS armband and allows the EMS worker to enter appropriate attributes: White Female, age 36, Incident Code: Medical, Incident Severity: Yellow, and Methodist Hospital West as the patient destination.

					EOC and Receiving Hospitals. This device may be used for daily patient tracking and accountability or for large scale incidents/MCI's	
10	Specialized Monitoring	MEDIUM	EXISTING Breathalyzer for smartphone integration, Abbott ISTAT, http://www.abbottpointofcare.com	Y	Application which will scan blood, breath sample, or other genetic material and transmit the raw information to a central database or laboratory system which will analyze and interpret the results, which are then transmitted back to the EMS worker. Laboratory analysis of blood, poison detection through breath sample, etc. Application will also transmit Ultrasound pictures and data, along with other diagnostic information to the ED for interpretation.	Rescue 1 is on the scene of an unconscious person in a rural area with a projected one hour EMS transport time interval. The paramedic draws blood into a syringe and transfers it to a device, while also capturing a breath sample from the patient through a mask. Blood chemistry results are transmitted to the physician in the distant ED who uses data with information obtained from the paramedic (vital signs, history, etc.) to determine the appropriate treatment.
11	Interactive EMS Database	MEDIUM	EXISTING Similar to Smart911 and the VA's Blue Button Project, EMS Pocket Drug Guide TR https://play.google.com/store/apps/details?id=com.mobisystems.msdict.embedded.wireless.mcgrawhill.ems&hl=en	N	Application will allow rapid access to a variety of EMS databases and information warehouses, including: - EMS protocols for patient care - Medication dictionary/reference guide for both patient meds and EMS medications - Street Drug dictionary - Ability to take an image of a drug pill or capsule and generate an automatic look up - Retrieve patient medical records from centralized	Rescue 1 arrives on scene of a drug overdose and needs assistance in determining what drugs have been ingested. The paramedic snaps a picture of the pill and the application does a visual look up of the medication and provides prescribing information and recommended treatment for overdose. The patient has a history of renal impairment and is on several medications which the paramedic believes may interact with the needed antidote. The paramedic accesses online EMS protocols and checks for an authorized variation of the drug dosage. Using the patients ID number on their medic alert bracelet, the paramedic is able to retrieve

					repository - Retrieve "instant refresher" video for low frequency/high risk patient procedures, such as cricothyrotomy.	their medical records from a centralized database for the regional healthcare authority.
12	Pediatric Patient Assist Application	MEDIUM	CONCEPTUAL Done in part by SafeDose (http://appcom.org/safedose/), http://artemis.ppag.org/php/static/home.php (Broselow)	Y	Application allows EMS to enter known values of age, height and weight, or estimated values in order to immediately calculate pediatric drug dosages, determine percentage of burn area, and access specialized treatment information on infants and children.	Rescue 1 arrives on scene of a child having a severe asthma attack at a local playground. The day care center worker who is supervising the children is hysterical and does not have any useful information on the child. The paramedic uses the application to determine the approximate weight of the 5 year old and to immediately calculate the appropriate drug dosage. Information on key vital signs to monitor, including a review of normal blood pressure, pulse and respiratory rates for a five year old are displayed for comparison; along with a list of danger signs to watch for (flaring of nostrils, use of chest accessory muscles, etc.)
13	Hazard Placard Decoder	MEDIUM	EXISTING, Hazard Material Placard App http://placardapp.com/	Y	Application would allow the EMS crew to scan the hazard placcard on the transport vehicle and conduct an automatic look up on the type of hazardous cargo being transported. The application would allow further research into the exact chemical or substance following confirmation from the shipping receipt.	Rescue 1 is at a traffic collision involving a stake side truck broadsided by a sedan. EMTs notice 3 occupants still in the car and the truck is placarded with a yellow diamond displaying 1461 and 5.1 at the bottom. There is an open container on the ground next the car with powder spread around. The saddle tank on the truck is spilling diesel that is running towards the powder. Using his LTE device, the EMT accesses cameochemicals.noaa.gov and inputs the number into the search area. He quickly determines the mixture of diesel and oxidizer may explode and directs personnel to divert or contain the fuel. He

						then scans the bill-of-laden to determine the presence of other hazards.
14	Mass Monitoring, Infectious Disease Profiles	LOW	EXISTING http://www.cdc.gov/mmwr/pdf/other/su6103.pdf	Y	An integrated set of applications which are designed to effect infectious disease monitoring.	EMS officials are working with the local health department to provide monitoring of 100,000 citizens who are attending a basketball game in the local arena. Heat sensing cameras are set up near in the ticket lines to scan guests for fever, while other sensors throughout the building scan for other indications of infectious disease or biological contamination.
	EMS SYSTEM APPLICATIONS					
15	Resource Management (Hospital, ED, Helicopter)	HIGH	EXISTING Helicopter feature in EMS Field Partner (http://appcomm.org/ems-field-partner/)	N	Ability for EMS dispatch centers, hospitals and pre-hospital providers to see the resource availability for ED, Helicopters, etc. This application is a view only application and only the host agency can make changes for their particular resource. EXAMPLE: EMSystem.com	Rescue 1 is on the scene of a major vehicle crash and is requesting a medical helicopter. The dispatcher checks the application and locates the closest helicopter which is currently available. The dispatcher also sends a message to the closest regional trauma center alerting them to the incident.

16	EMS Vehicle Location	HIGH	EXISTING http://www.data911.com/web-avl.html	N	Ability to track EMS vehicles and resources in real time, with a consolidated public safety view that will show location information for EMS, Fire and Law Enforcement for situational awareness and response coordination.	The local PSAP receives a call for a child who was found unresponsive in the swimming pool at home. After confirming the location information in the CAD system the Emergency Medical Dispatcher identifies that Ambulance 5 (the ambulance responsible to cover that area of town) is in quarters two miles from the home and Ambulance 10 is just three blocks from the home and available (returning to quarters after delivering another patient to the hospital) and dispatches Ambulance 10 to the scene.
17	EMS Personnel Location	HIGH	EXISTING X/Y location provided by several: http://appcomm.org/tag/location-sharing/; AND http://www.trxsystems.com/personnel-tracking/ AND http://urgentcomm.com/personnel-tracking/new-technology-improves-firefighter-location	N	Ability to track individual EMS employees in X,Y,Z coordinates for personnel safety and accountability.	Rescue 1 arrives at an unknown medical emergency call at large apartment complex. A few minutes later, they radio for emergency help, indicating that someone has fired a gun at them. The dispatcher can see the location of their vehicle, but needs to know the actual physical location of the EMT's in the large building. The EMS Personnel Location system provides the dispatcher with X,Y, Z (altitude) information, allowing her to send law enforcement directly to the specific location of the crew. This same application would be critical for firefighters and other personnel working in a hazardous environment. John Smith, Paramedic, is deployed to a neighborhood devastated by a tornado as part of a Regional Response Team. During a search of the rubble, John finds a victim in need of extrication from the rubble. Unable to determine his own exact location due to the devastation, John notifies dispatch to send a technical rescue team to his location. Dispatch identifies his location and is

						able to provide coordinates to the technical rescue team, who responds and extricates the victim.
18	GIS DATA	HIGH	EXISTING Several do at least some of this. Ex- http://appcomm.org/streetwise-cadlink/	N	Application will allow access to various GIS layers including street layer (to coordinate emergency response) to live traffic layer (to coordinate emergency response); to hospital status layer (to coordinate patient destinations; and other layers (shelters, etc.)	Multiple units are on the scene of a tanker truck leaking gasoline into a street side storm drain. The Incident Commander is able to access a GIS map of the sewer system, overlaid with the street system to help determine where highly explosive gasoline fumes may be spreading. This information helps identify buildings that need to be evacuated and the placement of fire suppression units near critical targets. Rescue 1 is preparing to transport two patients from a vehicle crash on a rainy afternoon. They access a Hospital Status Layer on the GIS network and can see the relative availability of each ER and also determine how many other ambulances, including ambulances from other agencies, who are transporting to this same facility.
19	Incident Command White Board	HIGH	EXISTING http://appcomm.org/tag/whiteboard/; AND http://www.firstresponder.gov/lists/Success%20Stories/attachments/24/Next%20Generation%20Incident%20Command%20System%20FactSheet.pdf	Y	Application which allows the incident commander to track assigned and on scene units, manage assignments, track benchmarks, share operational goals and objectives and status, and transmit video and data.	While on the scene of a tour bus vs. truck vehicle crash, the incident commander needs to keep track of which units are on scene, which units are in staging and which units are still responding. The units already on scene need to be tracked according to their assignment (patient care, extrication, patient transportation, etc.). The incident commander may need to also share this dynamic status information with the EMT who is functioning as the Staging Officer, or with remote personnel (including the PSAP and the EOC).

20	CAD SYSTEM MUTUAL AID	HIGH	CONCEPTUAL http://pdf.911dispatch.com.s3.amazonaws.com/tritech_cad_interop.pdf	N	Application which will interface with agency CAD system and allow authorized mutual aid and automatic aid personnel to view CAD system incident data for the call to which they are assigned. This is an interim step prior to full CAD to CAD integration and data sharing. Sharing mobile data application client among agencies does not work well if multiple apps are present	Rescue 61 from City #B is responding to assist Rescue 1 from City #A. Each city has their own dispatch center and their own CAD system. The mobile data computer CAD clients are different between both agencies. Rescue 61 accesses a Mutual Aid Application and is able to see the dispatch and incident information for the specific call that Rescue 1 is handling, including the incident location, cross streets, updated information, status notes, etc. They do this by entering the Rescue 1 run number into the application - which they received at the time of dispatch from their own PSAP.
21	Automated Quality Assurance	HIGH	CONCEPTUAL	N	Application which scans patient care records and conducts a "first pass" automated assessment of the patient treatment based on patient condition and established practice parameters. This Quality Assurance review is then passed to an EMS supervisor for further review. Higher priority cases are moved to the front of the queue (cardiac arrest) as well as cases that are flagged as being a potential problem. A PCR app will not allow completion until all required	County X regularly reviews EMS protocols and patient outcomes. An application scans call center run sheets and electronic patient care reports from both the EMS providers and receiving hospitals to identify deviations from protocols, unusual patient outcomes, event timing, and patient/hospital complaints. The application generates a prioritized report to County X EMS officials to guide remediation, optimize protocols, and increase dispatch efficiency.

					data fields are entered.	
22	Multi-Media & System Messaging	HIGH	EXISTING Example: General Devices' e-Net Messenger , http://www.general-devices.com/e-bridge (http://appcomm.org/e-net-messenger/)	N	Provides for single or group broadcast messaging of voice, text, images, forms, and data.	Medic 1 is at the scene of a house fire with multiple burn victims. The closest burn center is 35 miles away. As part of the triage, the medics take pictures of the burn injuries with their secure messaging app on their mobile device. The images and basic form data is sent to the Burn ICU with an alert. Voice contact is made to the burn hotline. Consult with the nurse results in two of the four injured selected for transport to the center and the others referred to the local emergency department. Based on the received pictures, the nurse increases the pain med dosage. She also forwards the images to the Burn physician on call.
23	Vehicle Crash Telemetry	HIGH	EXISTING (OnStar, Agero)	N	Ability to receive vehicle crash data streams from multiple sources/providers (OnStar, Ford Sync, Agero, etc.); and to automatically route the data to the EMS responder while providing a hospital alerting function based on patient severity scoring matrix.	A multi-car pileup on the interstate occurs. Two of the vehicles involved have automatic crash notification systems that also transmit crash kinematic data. The data received at the call center is automatically analyzed by injury predication software and indicates a high probability for severe injury for one of the cars. This info is relayed to Dispatch who messages Medic 1 with the make/model and GPS location of the vehicle. The regional Trauma center is also sent a secure alert with event details and Medivac is put on stand-by.

24	Helicopter Status & Dispatch	MEDIUM	EXISTING Flight for Life Central (http://appcomm.org/flight-for-life/)	N	Application allows EMS units in the field to view helicopter status and availability and request a helicopter. App will send GPS coordinates of incident scene to the helicopter dispatcher. This application is different than the Resource Management application, in that this app sends a request for a helicopter, sends the GPS coordinators of the emergency scene, and allows for a confirmation message back from the aircraft dispatcher.	Rescue 1 is on the scene of a major vehicle crash in a rural area with minimal cross streets and landmarks. The application allows them to request a helicopter and transmits the Rescue 1 Unit and Agency ID, the GPS coordinates of the Rescue 1 vehicle at the crash scene. A confirmation message is received indicating that the message was received by the aeromedical service and that an aircraft is being dispatched.
25	Volunteer Responder Location, Dispatch, Tracking	MEDIUM	EXISTING NowForce (http://appcomm.org/nowforce-mobile-responder/)	N	Application will locate available volunteer EMS first responders, will alert them to a call geographically, will allow them to acknowledge the call, and will track their movement to the incident scene.	A patient has been injured while working on a tractor in rural Kansas. The EMS dispatcher sends out an alert to the designated volunteer ambulance agency. A GPS system "finds" the volunteer personnel closest to the scene of the emergency and alerts them to the call. The EMS volunteers can acknowledge acceptance of the call, and the application will track their movement to the emergency scene.
26	Narcotic Access Documentation	MEDIUM	EXISTING http://www.metro.com/automated-dispensing-ems	N	Application which allows access to EMS narcotics based on RFID badge swipe, plus PIN number. Sensor will log date/time/identity of person accessing the system and will also send a data message to an appropriate EMS supervisor.	An EMS vehicle and crew are on scene, attending to the needs of a patient. The patient requires treatment with a narcotic or other tightly controlled drug. These substances are kept secured in the EMS vehicle until a correct combination of badge swipe and PIN are used for access. A log entry or supervisor notification of this access will be transmitted.

27	EMS Vehicle Supply Inventory	MEDIUM	CONCEPTUAL http://www.metro.com/automated-dispensing-ems	Y	Application which scans RFID tags or other inventory control system to determine what shortages, if any, exist in the EMS vehicle patient care inventory.	Individual EMS treatment supplies, or pre-packaged kits of supplies, will be equipped with RFID tags. When used, the ID tag will be removed or otherwise disabled allowing a scanning device within the vehicle to accurately track the vehicle supply inventory and list needed additions. Used inventory can be transmitted to a central point for billing, re-supply, and other inventory control purposes.
28	Paramedic/EMT Physiologic Monitoring	MEDIUM	EXISTING http://www.firefighternation.com/article/technology/phaser-advances-firefighter-physiological-monitoring	N	Application which will monitor the EMS employee who is engaged in a hazardous environment and transmit vital signs, and environmental information back to the incident commander and to the dispatch center, with appropriate auto-monitor alarm levels.	Rescue 1 is handling rehab outside of the Warm Zone on a hazmat incident. When the rehab area becomes contaminated, an application running on a device that measures the crew's vital signs and environmental information automatically initiates an alarm and notifies the incident commander with biometric/environmental information and the location.
29	EMS Vehicle Health Monitor	MEDIUM	EXISTING CalAmp, Fusion, http://www.calamp.com/products/cellular-a-gps/industrial-connectivity/fusion-lte-broadband	N	Application which monitors the health of the EMS vehicle, including fuel level, engine status, tire pressure and provides real time information to the EMS crew and also transmits a data message to the EMS Fleet Manager.	Rescue 1 is attending a pediatric patient in need of transport to a far-away specialty center. It has been a stormy night and the unit is parked in the street with lights, heaters/defrosters, and wipers on. The driver forgot to set the fast idle and the draw on the batteries at idle has dropped the voltage to a critical level. The onboard monitoring device sends a message to the crew to take action. When the crew loads the patient and inputs the destination, their device queries the monitor and determines sufficient fuel while recommending refueling locations after.

30	Citizen AED Location/Dispatch	MEDIUM	EXISTING PulsePoint (http://appcom.org/pulsepoint/)	N	Application will interface to the EMS agency CAD system and will correlate the EMS incident location to a database of known AED's and/or citizen first responders, including industrial and facility first responders. The application is then authorized by the dispatcher to broadcast a dispatch message requesting a response	The PSAP processes a cardiac arrest call at a local shopping mall. The CAD system polls an AED database and determines that there is an AED in the Mall Security Office. An SMS/text message is sent to all Mall security officers alerting them to the location of the cardiac arrest and requesting that they respond with an AED.
31	First Responder Location/Dispatch	MEDIUM	EXISTING NowForce (http://appcom.org/nowforce-mobile-responder/)	N	Application will interface to the EMS agency CAD system and will correlate the EMS incident location to a database of government agency first responders. The application is then authorized by the dispatcher to broadcast a dispatch message requesting a response	The PSAP processes a cardiac arrest call at a local restaurant. The CAD system determines that there is a fire inspector with an AED conducting a review in the building next door. An SMS/Text message is sent to the fire inspector alerting him to the incident.
32	Shared EMS Dispatch Resource Tracking	LOW	EXISTING EMsystem.com	N	Application will collect EMS incident data, EMS unit response data and EMS unit transport data to create a virtual EMS system resource and deployment screen across multiple agencies.	PSAP 1 will dispatch EMS and enter unit being dispatched, dispatch time, address, EMD code, ETA, # of patients, other units dispatched (fire, extrication, airmed, etc) , transport destination and any other pertinent patient information. EMS dispatch information will be shared with other CAD systems in a geographically designated area. PSAPs and hospitals will know where the EMS unit is, what type of call they are on, what their status is (on scene, transporting, at hospital), and which resources are and are not available.

33	Automatic Medical Emergency Detection	LOW	EXISTING http://www.medpagetoday.com/Cardiology/Arrhythmias/27873	N	Ability for the EMS system to receive automatic data alerts which indicate the occurrence of a life threatening emergency. This includes wrist watches and other personal medical devices that can detect cardiac arrest, critical blood sugar, critical PO2 level and transmit patient location and identification to the PSAP.	The application will connect patient medical (vitals-history) information wirelessly through interface at private vendor and correct first responder PSAP/Dispatch center. This is in real-time with continues updates until EMS units arrive on the scene and deactivate.
34	Integrated Hospital/EMS Patient Information-Billing	LOW	CONCEPTUAL	N	Application is a functional interface between participating receiving hospitals, allowing the EMS crew, or EMS system to poll the hospital medical record for patient identification and insurance information. In some cases, a real time inquiry could be made by the paramedic while at the hospital to (a) upload their information into the hospital system as a preliminary/draft record requiring confirmation or (b) allow the paramedic to download from the hospital the patient care information that was entered by the staff - or from the system for a repeat patient visit.	Ambulance 10 responds to an unresponsive patient found in his car at a mall. Patient identification is made through the patient's driver's license. The patient's information is downloaded from the Patient's Electronic Medical Records and confirmed by a photo attached to the record. The information includes a history of headaches, the patient's current medical history, address and date of birth. Ambulance 10 also finds an insurance card in the patient's wallet and captures an image. Ambulance 10 treats and transports the patient to the closest hospital. On arrival, Ambulance 10 is able to upload the patient's information, including their assessment, treatment and the image of the insurance card to the receiving hospital's medical records system.

35	Universal Speech Translator	LOW	EXISTING http://www.gizmag.com/sigmo-star-trek-style-universal-translator/28689/	Y	A two way audio device that performs foreign language translation - through a native speech center in the device, allowing a conversation between the EMT and the patient who speaks a different language	Rescue 6 is on the scene of an unconscious patient. The family only speaks Vietnamese and the paramedic needs to communicate with the family to determine the patient's medical history and other issues. Using a device in local mode, the application senses the family's speech and compares it to known foreign language wave forms in a stored database and then begins a real time translation for the paramedic.
36	CPR Counter Assist	LOW	EXISTING CPR Tempo (http://appcomm.org/cpr-tempo/)	Y	A device that helps a first responder (or citizen) perform CPR at the designated pace, through an audio tone that marks the speed of compressions.	A volunteer fire department EMS unit arrives at the scene of a cardiac arrest in a rural area. An application on the EMT's LTE device performs a "time stamp" when CPR is started and then tones out the appropriate pace for the chest compressions. The device performs updated time stamps until the patient is turned over to hospital personnel.
37	EMS PRE PLAN APPLICATION	LOW	EXISTING StreetWise CADlink (http://appcomm.org/streetwise-cadlink/)	Y	Application which will allow EMS personnel to retrieve 3 dimensional building plans for hospitals and health care facilities for use during a major incident at the facility; or to access pre planned incident worksheets for critical infrastructure and high hazard locations.	Rescue 1 is on scene at the Road's End Assisted Living where at small fire in the beauty parlor has produced smoke throughout the west end of the building. The outside air temperature is 42°F. The EMT uses his LTE device to access the most current floor plan and determine the residents can be moved past a fire door to the east side. He also is able to locate the HVAC control equipment to limit the smoke travel.