

Public Safety Communications' Response to Draft EMS CAD System Evaluation & Gap Analysis

PAGE Number	Current Wording	Suggested Changes
	Throughout the document there are references to "IT Staff"	We are requested it be changed to Systems Management Unit (SMU)
4	<p>San Mateo member agencies are: For Law Enforcement:</p> <ul style="list-style-type: none"> • San Mateo County Sheriff's Department, • Broadmoor Police District, • East Palo Alto Police Department, • Half Moon Bay Police Department, and • Millbrae Police Department. <p>For Fire and EMS:</p> <ul style="list-style-type: none"> • Belmont San Carlos Fire Department • Brisbane Fire Department • Burlingame Fire Department • Colma Fire Department • Daly City Fire Department • Foster City Fire Department • Hillsborough Fire Department • Millbrae Fire Department • Pacifica Fire Department • Redwood City Fire Department • San Bruno Fire Department • San Mateo Fire Department • South San Francisco Fire* • CDF / County Fire • Half Moon Bay Fire / Point Montara Protection District • Menlo Park Fire District • Woodside Fire Protection District • AMR/San Mateo 9-1-1 Paramedic Ambulance 	<p>San Mateo member agencies are: For Law Enforcement:</p> <ul style="list-style-type: none"> • San Mateo County Sheriff's Office, • Broadmoor Police District, • East Palo Alto Police Department, • Half Moon Bay Police Department, and • Millbrae Police Department. <p>For Fire and EMS:</p> <ul style="list-style-type: none"> • Belmont/San Carlos Fire Department • Central County Fire, including Burlingame, Hillsborough • Colma Fire Protection District • Foster City Fire Department • Millbrae Fire Department • North County Fire Authority including Brisbane, Daly City & Pacifica • Redwood City Fire Department • San Bruno Fire Department • San Mateo Fire Department • South San Francisco Fire* • CDF / County Fire • Coastside Fire District including Half Moon Bay / Point Montara • Menlo Park Fire District

		<ul style="list-style-type: none"> • Woodside Fire Protection District • AMR/San Mateo 9-1-1 Paramedic Ambulance
5	San Mateo PSC is self funded by the member agencies which provides for its own internal 911 Dispatching, Information Technology (IT) and Administrative staff. San Mateo PSC has implemented a PRC/Northrop Grumman CAD, provides mobile data for law enforcement, has mobile status heads in the fire units and uses a Motorola Smartzone Simulcast (482-499MHz) radio system for voice communications between dispatch and field units.	San Mateo PSC provides for its own internal 911 Dispatching, Information Technology (IT) and Administrative staff. San Mateo PSC has implemented a PRC/Northrop Grumman CAD, provides mobile data for law enforcement, has mobile status heads in the fire units and uses a Motorola Smartzone Simulcast (482-499MHz) radio system for voice communications between dispatch and field units.
5	San Mateo PSC currently operates at minimum staffing levels for Fire and EMS - staffing is 5 personnel (4 call takers/dispatchers (three for Fire) and a supervisor). For law enforcement San Mateo PSC staffing is 5 personnel (4 call takers/dispatchers and a supervisor). After hours, dispatchers answer all nonemergency lines, as well as making notifications to Public Works and other County agencies under contract. San Mateo PSC continues to recruitment and train for dispatch positions.	San Mateo PSC 's minimum staffing levels for Fire and EMS - staffing are 4 personnel (4 dispatchers (three for Fire) and 1 for EMS). For law enforcement San Mateo PSC staffing is 3 personnel (3 dispatchers). Rising up to normal staffing includes an additional half time EMD and a half time call-taker for law. After hours, dispatchers make notifications for various agencies including Public Works, Court Administrator, District Attorney's Office, Investigations, County Probation, County Coroner and the Humane Society. San Mateo PSC continues to recruit and train for dispatch positions.
6	San Mateo County covers a land area of 741 square miles and is located in the San Francisco Bay Area. It covers most of the San Francisco Peninsula from the northern end at the City of South of San Francisco, next to San Francisco International Airport down towards Silicon Valley which begins at its southern end. Current population is 712,462. The geography and development are uniquely diverse ranging from coastline and inlet residential communities in the south, residential suburban areas in the central portion, to rural/agricultural and pineland areas in the northern part of the County.	San Mateo County covers a land area of 741 square miles and is located in the San Francisco Bay Area. It covers most of the San Francisco Peninsula from the northern end of the cities of Daly City and Brisbane , next to San Francisco International Airport down towards Silicon Valley which begins at its southern end. Current population is 712,462. The geography and development are uniquely diverse ranging from coastline and inlet residential communities in the south, residential suburban areas in the central portion, to rural/agricultural and pineland areas in the northern part of the County.

6	<p>There is obvious entrenchment and suspicion between EMS field units and San Mateo PSC. The performance based contract can at times create attitudes of mistrust between ‘for profit’ ambulance services and the employees who provide the dispatching and oversight. A ‘team’ mentality to do what is best for the patient seems to get lost in the day-to-day workings where blame for late ambulance arrivals has a spiral affect. For dispatch it is the concern they may be blamed by EMS personnel and for EMS crews it is their concern that dispatch does not immediately alert the ambulance and instead will dispatch fire unit. It was reported that recent meetings between the EMS contractor and San Mateo PSC has been productive and management on both sides were working to bridge the gap on dispatch and CAD issues. There is definitely the desire to understand how to better use technology to resolve current conflicts and improve ambulance crew deployments.</p>	<p>There is obvious entrenchment and suspicion between EMS field units and San Mateo PSC. The performance based contract can at times create attitudes of mistrust between ‘for profit’ ambulance services and the government employees who provide the dispatching and oversight. A ‘team’ mentality to do what is best for the patient seems to get lost in the day-to-day workings where blame for late ambulance arrivals has a spiral affect. For dispatch it is the concern they may be blamed by EMS personnel and for EMS crews it is their concern that dispatch does not immediately alert the ambulance and instead will dispatch a fire unit. It was reported that recent meetings between the EMS contractor and San Mateo PSC has been productive and management on both sides were working to bridge the gap on dispatch and CAD issues. There is definitely the desire to understand how to better use technology to resolve current conflicts and improve ambulance crew deployments.</p>
6	<p>A major finding and gap with EMS dispatching is the lack of an automated vehicle location (AVL) tool to assist the dispatcher in providing an accurate CAD EMS unit recommendation for deployment. When San Mateo’s PSC receives all calls for fire and medical emergencies the dispatcher uses the Medical Priority Dispatch System (MPDS) that prioritizes calls based on highly developed medical protocols. Dispatchers provide callers with medic instructions and assistance prior to arrival of first responders and Basic Life Support (BLS) care. For medical emergencies, the County is broken into five separate response time compliance zones. The County requires its contractors (both fire agencies and AMR) to maintain monthly response time compliance of at least 90% in each of the five zones for both paramedic first response vehicles and emergency ambulances.</p>	<p>A major finding and gap with EMS dispatching is the lack of an automated vehicle location (AVL) tool to assist the dispatcher in providing an accurate CAD EMS unit recommendation for deployment. When San Mateo’s PSC receives all calls for fire and medical emergencies the dispatcher uses the Medical Priority Dispatch System (MPDS) that prioritizes calls based on highly developed medical protocols. Dispatchers provide callers with medical instructions and assistance prior to arrival of first responders and Basic Life Support (BLS) care. For medical emergencies, the County is broken into five separate response time compliance zones. The County requires its contractors (both fire agencies and AMR) to maintain monthly response time compliance of at least 90% in each of the five zones for both paramedic first response vehicles and emergency ambulances.</p>

6	<p>Upon verification of a Fire/Medical call, the initial call taker will transfer the caller to a fire dispatch operator who will dispatch the appropriate first response fire unit, then transfer the call to the EMS dispatcher for an AMR ambulance. If necessary, the PSAP will divert an ambulance from an inter-facility call and redirect it to a higher priority 911 emergency call.</p>	<p>Upon verification of a Fire/Medical call, the initial call taker enters the call for service, which then creates simultaneous calls for service for the appropriate fire dispatcher who will dispatch the appropriate first response fire unit and the EMS dispatcher who will dispatch the appropriate AMR ambulance. This allows the call taker to continue on with the EMD call taking process.</p>
7	<p>While the call is being processed in the CAD system, the CAD recommends an EMS unit based on zone and location (post) with escalation on the extent of the incident to recommend additional units to an event. So while the dispatcher relies on the CAD system information to determine the proper unit recommendation, the CAD system will only be as accurate as the manual (voice radio) update it receives from the field unit. The EMS ambulance can be mobile (in motion or zone posted at a physical location). Since the system only allows the EMS unit to provide status updates via voice radio, this means the ambulance unit is reliant on the dispatcher to provide the manual update into the CAD system. Currently, there is no tool in use (e.g., such as AVL) which provides an accurate method for a dispatcher to determine the actual location of an EMS unit in real-time.</p>	<p>****The CAD's EMS recommendation is based on a straight line distance between the incident and the closest unit.</p>
8	<p>Therefore, the CAD requirements focus more on managing the exclusive operating areas to manage the Contractor's penalties for performance below contract specifications. It is important that the CAD system provide the local EMS contractor System Status Plans which would incorporate change management processes in real-time before ambulance resources are depleted.</p>	<p>Therefore, the CAD requirements focus more on managing the exclusive operating area to manage the Contractor's penalties for performance below contract specifications. It is important that the CAD system can accommodate the local EMS contractor's System Status Plans, and in real time make changes to spontaneously impact unit deployment.</p>

9	Pro QA – The Emergency Medical Dispatch protocol. It is important that any system chosen have the option of incorporating the Pro QA questions into the CAD system.	Pro QA – The Emergency Medical Dispatch protocol. It is important that any system chosen must incorporate the Pro QA questions into the CAD system.
9	Data Standards – There should be data standards, particularly residential.	***This seems incomplete to us. Are you talking about addressing standards?
10	Report Transfer – The new system should have the ability to transfer reports from the vehicle. Negating the need to return to a specific location and physically dock the laptop.	****This also needs some clarification for us. Is the suggestion to have the CAD system include a full records management system that includes field reporting? Is this truly an obtainable function in a multi-agency multi discipline system?
11	Patient Billing	****Is the suggestion to have the CAD system include a full patient billing system? Is this truly an obtainable function in a multi-agency multi discipline system? This seems like a very specific non dispatch related feature.
12	No CAD Integration with Mapping/GIS – The GEOFILE in the current CAD is not integrated with the county GIS system and cannot take advantage of county assembled data. In fact, there are no real-time mapping capabilities of any kind integrated with the current CAD system. The flat file, XY coordinate GEOFILE native to the CAD system does not lend itself to integration with layered mapping systems such as ESRI which is the government mapping standard used today. It is problematical to place a map layer over a flat file which will make it more difficult to use information already captured by the county's GIS division. This lack of integration can also negatively impact the interaction with any future AVL system. We understand with the purchase of the new 911 phone system from Positron, that San Mateo PSC will also be purchasing the Positron mapping solution. At the time of this report it is not clear	****1) the current County GIS is not at a point where it could be utilized by the CAD. There are currently no formal procedures for the maintenance of the base layer (street layer) within the County GIS. The County GIS Manager is currently working towards the resolution of this. PSC is currently working with the GIS Manager to develop a plan on “munging” the PSC geo-file into the County GIS. The PSC geo-file has been consistently maintained since the CAD system was implemented and contains very accurate addressing information. This information needs to be carried over to the County GIS. 2) Since the current geo-file is based on the NAD27 State Plane coordinate system, it is easy to take CAD data and place it onto a map. This has been successfully done using products

	the extent of integration between the CAD system and the proposed mapping solution.	like Microsoft MapPoint and Intergraph GeoMedia Pro (which is the GIS software used by the County). Each geo-verified incident in the CAD system is tagged with the NAD27 State Plan coordinate (what is referred to as the X/Y coordinates). When a CAD incident is transferred to the new SQL database, the NAD27 State Plan coordinate system X/Y is translated into WGS84 Latitude and Longitude. WGS84 Latitude and Longitude make the coordinates usable in low end mapping products like Microsoft MapPoint, X-Map Business, Google Map, etc.
12	No Live (real-time) CAD Access - Field users report they do not have adequate access to live CAD information. PCS staff stated reservations about allowing this access due to past issues with use of the data when it was available. In addition to access to active calls, users mentioned the desire to have access to the CAD "INFO" tool. EMS users reported a definite need for access to real time CAD data so they can effectively deploy their assets to meet citizen needs as well as the performance measures set by the county.	*****AMR Field Supervisors and some of the JPA Coordinators have live CAD's in their vehicles. AMR just recently decided to put a live CAD terminal in their vehicle after we turned off the access to a Web version that is monitor only. This was done because many of the AMR field personnel obtained the web address and accessed from the rigs and inappropriately reprimanded dispatchers for doing something incorrectly when in fact they did not know how to read the monitor. AMR's office also has a couple of live CAD terminals and could have more but have chosen not to pay for additional licenses.
12	No Status Timer – There is no status timer or even a time stamp for the status change that appears on the CAD monitor. Among other things, these would help the dispatchers remember how long a unit has been enroute to a location and which unit has been idle the longest without a call, thus assisting them in determining the correct unit to dispatch.	****This is incorrect. The CAD does display a timer in minutes and seconds during each status change and is displayed on the CAD monitor. The timer changes color (reverse red) to indicate to the dispatcher that the allotted time for the particular status change has been reached. In regards to knowing how long a unit has been idle is not how the Contractor asked CAD to track it. They asked for it to track the number of calls the units have been dispatched on instead.
12	Inter-agency IT Training and Coordination – Many of	Inter-agency Systems Training and Coordination (all the rest

	those interviewed appeared to be unaware of existing capabilities or unclear about how to access CAD information. Several indicated better training for AMR staff about the CAD as well as a simple, easy to use manual for field users and a complete data dictionary for data users would be helpful. There also appeared to be some confusion about which agency's IT staff to call if there is a question or problem. Many also were hesitant about requesting help with CAD functions. Improved training and coordination could help AMR in their quest to better define the specific reports they are lacking and would like to have developed.	is the same)
13	MCI Response – Users expressed concern about CAD's ability to handle an MCI response effectively especially when coupled with the need to continue regular EMS service in the county during the event.	****What is the exact concern raised about CAD and MCI's? The CAD is setup to recommend the appropriate units based upon the MCI level and make automated notifications of the MCI. This is all done by a single CAD command for each MCI level. During an MCI what else is CAD needed to do?
13	MIS Time Stamp – It was reported the time stamp used by the CAD report documents up to the nearest minute. This makes it difficult to accurately assess any time interval from these output reports because each status change can be off by up to 59 seconds.	The default view does not provide seconds but can easily be changed so viewing the seconds as well would be the default.
13	Mobile Data Interface – While there are Mobile Data Terminals or Mobile Status Terminals deployed in some police and fire vehicles, neither are available in EMS vehicles. Deployment of mobile units (status terminals, data terminals or ideally mobile computers) would alleviate some of the voice congestion on the EMS radio channel. It would also clear up some ambiguity around EMS unit status changes by allowing responders to change their status from their vehicle. Depending upon the model deployed, they could have access to premise history, call narratives, info files and other vital CAD	Mobile Data Interface – While there are Mobile Data Terminals or Mobile Status Terminals deployed in some police and fire vehicles, neither are available in EMS vehicles at the Contractor's discretion. Deployment of mobile units (status terminals, data terminals or ideally mobile computers) would alleviate some of the voice congestion on the EMS radio channel. It would also clear up some ambiguity around EMS unit status changes by allowing responders to change their status from their vehicle. Depending upon the model deployed, they could have access to premise history, call narratives, info files and other vital CAD data that would

	<p>data that would enhance their response. There is also the possibility of CAD messaging between dispatch and the field units as well as between units themselves. Depending upon the mapping solution and its integration with CAD, maps and routing could also be displayed on these units.</p>	<p>enhance their response. There is also the possibility of CAD messaging between dispatch and the field units as well as between units themselves. Depending upon the mapping solution and its integration with CAD, maps and routing could also be displayed on these units.</p>
13	<p>Automatic Vehicle Location (AVL) – CAD does not have an AVL component. The major advantages for procuring a new AVL system would be the integration with CAD to improve the coordination of incidents and unit locations. AVL can also reduce the voice radio traffic by providing voiceless unit status and visual location information now performed over voice radio. AVL can enhance the CAD system status plan by determining if units are properly or improperly placed, and allow the agencies to modify and improve the plan as needed. AVL can also improve dispatch efficiency by enhancing CAD's ability to generate nearest unit recommendations.</p>	<p>CAD currently does not have an AVL component, the CAD vendor does have a component that can be purchased.</p>
13	<p>Voice Logger - Voice Logging equipment records all telephone and radio conversations to be archived. These conversations can be used in a Court of Law as evidence. Currently dispatchers cannot play back an audio recording off the radio frequency at the dispatch console. We understand San Mateo PSC is going to be replacing the current voice logging equipment. This should greatly improve the playback of radio and telephone conversations at each dispatch position.</p>	<p>****The replacement voice logger will not record the radio and make it available at the dispatch console. The Viper telephone will provide integrated phone and radio instant call record at the dispatch console. When the Trunking system and Gold Elite radio consoles were installed in 2003, the radio instant radio recall feature was eliminated by the County for cost savings.</p>
14	<p>Limited Reporting Capabilities – Users reported issues in retrieving information from the CAD database. The current CAD system uses an Indexed Sequential Access Method (ISAM) database. The recent CAD upgrade changed the time interval a call record is transferred to the MIS system from a 30-day archive to</p>	<p>****1) The references to the data transfer for MEDS occurs at the close of the incident is incorrect. Data transfers to MEDS occurs upon a unit dispatch, at hospital and close of incident. This was completed in 2000 to ensure data was available to MEDS for the paramedics to fill out their paperwork. 2) As of November 19th, AMR has access to information contained in</p>

	<p>per call closure. The upgrade also involved replacing the MIS database from Oracle to Microsoft SQL. Once a call is closed the data is transferred to the MIS system and MEDS. However, open calls will not be displayed. As a result, unit status information is not available in “real time” from any report. Therefore, no open calls or units on details will display on the reports. AMR analysts do not have electronic access to information contained in the narrative of the CAD entry. Due to the nature of a CAD system where a large portion of the information is entered free form in the narrative, it is important that end users have data mining options that connect with the narrative. Another contributing factor to the limited EMS reports is that AMR has been unable to clearly define report parameters to the level needed by PSC IT staff.</p>	<p>the narrative via web query. 3) As of November 1, the CAD to SQL enhancement was completed. CAD data from 1998 through current has been loaded into the database.</p>
14	<p>Need Ad Hoc Reports in a Usable Format – Users requested the ability to build their own reports from data elements as needed. Users stated it is important these reports be exportable to Excel, ACCESS, SPSS, SAS or some other format where they can manipulate the data and join it to tables and databases from other sources. We understand with the recent CAD upgrade that users will be able to generate output reports using a report writer tool (Crystal Reports)</p>	<p>**** Crystal Reports have been and will continue to be created to allow users to export data in their format of choice (text file, excel, etc). There is no capability at this time for users to write the Crystal Reports. PSC is looking for a web based “ad hoc query” tool, but has not yet found a good product for this purpose.</p>
14	<p>No Graphical User Interface (GUI) - The current CAD provides a command line driven structure which is difficult to use. Those users unfamiliar with the system complained the screens are not intuitive. Users have difficulty both using the system and understanding the print outs. According to PSC IT staff, the CAD has been recently upgraded to include the option to deploy a GUI interface. This software upgrade is still in testing at the IT level. We were not able to determine if a formal</p>	<p>***** The GUI upgrade will upgrade the current client software to a GUI version that looks similar to what is being used today. The GUI is still a mostly command line driven interface, but allows the creating of buttons and drop down menus. Users will need to be trained on the use proper use of CAD, as the GUI is not a replacement for training.</p>

	written plan or timeline for deployment has been developed for distribution.	
14	No Dynamic Web Access to CAD Reports – Many users told us this would help them manage their resources, remain aware of what was happening in the field and facilitate their understanding of the EMS system as a whole. Supervisors and managers who could follow the EMS calls would better be able to anticipate staffing needs based on the number and severity of the calls visible on a web site. On coming staff could avail themselves of the information to better prepare for work. Finally, it would alleviate some of the dispatch workload because administrative personnel, supervisors and other staff members could look up historical data without having to bother the dispatchers or those few staff members with remote access to the live CAD system. The overall result is better informed, better prepared field staff who do not have to rely on PSC for their information.	**** This tool is and has been available, called the CAD Web Monitor. When this was provided to the AMR field units, it caused severe impacts to the dispatch center with field units calling and questioning every decision made. This was due to CAD Web Monitor feature being released to selected individuals for testing and feedback. Someone subsequently released the non published URL to all the field units without PSC’s knowledge and no user training. The CAD Web Monitor has been re-activated and is being used by the AMR Managers.
14	Need Ad Hoc Reports in a Usable Format – Users requested the ability to build their own reports from data elements as needed. Users stated it is important these reports be exportable to Excel, ACCESS, SPSS, SAS or some other format where they can manipulate the data and join it to tables and databases from other sources. We understand with the recent CAD upgrade that users will be able to generate output reports using a report writer tool (Crystal Reports)	**** Crystal Reports have been and will continue to be created to allow users to export data in their format of choice (text file, excel, etc). There is no capability at this time for users to write the Crystal Reports. PSC is looking for a web based “ad hoc query” tool, but has not yet found a good product for this purpose.
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15	<p>Heavy Reliance On One Individual For CAD System – Although there are three resources assigned to the PSC IT division and all are familiar with the CAD system, the majority of the agency specific CAD knowledge is vested in one individual. Even detailed documentation of program changes as they occur does not alleviate this concern for a high availability, mission-critical CAD system.</p>	<p>****Our question is, is this inconsistent from other agencies. Most agencies don’t have Systems people who can program changes on sight and are reliant on the CAD vendor for programming. This has been a true cost savings to the County and to our customers.</p>
15	<p>Ergonomics – in mission-critical environments, employees cannot walk away from their workstations</p>	<p>****our work consoles do adjust to allow for body types and</p>

	<p>with great frequency. The use of ergonomically efficient workstations that accommodate various body types and work styles which allow for standing, stretching, and moving around should be considered. The primary benefits of working in a durable yet functional environment include: relieving the strain on existing employees and reducing the time spent by administrators coping with staffing shortages and training new employees.</p>	<p>for work styles such as standing, etc.</p>
<p>16</p>	<p>EMS Quality Assurance - during call center peaks when the PSAP has its busy call period, EMD may be suspended for a period of time. This raises a quality management issue with EMD compliance and accreditation. Also, while quality assurance can be done using 'manual' processes for capturing and analyzing the EMD data, the use of tools from Medical Priority Dispatch (e.g., AQUA) which provides quality management analytics (turning raw data into meaningful EMD performance) should not be overlooked. In addition, the CAD is not currently capable of validating unit times with location data to provide reliable quality assurance reports for EMS compliance. There needs to be some type of reliable playback of a contested incident so the parties can mutually agree to late emergency ambulance responses.</p>	<p>1) This is not true that EMD is “suspended for a period of time”. To date, there have been 27,315 EMS incidents with the initial type code of “MED” (this will exclude the non ALS responses and traffic accidents). Of these, 123 were not EMD’ed due to an overload situation. This works out to 99.5% of all incidents are processed through EMD. As for the EMD compliance and Accreditation comment, these are not affected because the National Academy recognizes overload situations and policies exist for this reason.</p> <p>2) PSC does have an AQUA license and have documented problems with the product and as of today Priority Dispatch have not been able to fix the problem. We are currently working writing our own program that captures the same data as AQUA</p> <p>3) CAD is able to validate unit times with location data using the Unit Snapshot (new feature) and Unit Activity (older feature).</p>

17	Replacement CAD System Cost Data & Assumptions	****Is it possible to add the cost of the current CAD system maintenance to the box diagram? Our maintenance for CAD software and hardware is approximately \$45,000 (this number is actually about 50% lower since our new CAD hardware has a 3 year warranty), where the average annual maintenance is \$248,032.
20	Computer Aided Dispatch (CAD) - CAD not only supports the PSAPs mission-critical function, it also serves as the communications hub for all of the other public safety systems. The existing CAD system will need to upgrade to provide the following new technologies:	Computer Aided Dispatch (CAD) - CAD not only supports the PSAPs mission-critical function, it also serves as the communications hub for all of the other public safety systems. The existing CAD system will need to enhance/interface with the following new technologies:
20	Mobile Data - An interface with CAD is essential to allow two way communications with dispatch and EMS crews.	**** Mobile data solution exists today and can be ready for EMS deployment in less than 30 days. This has been offered to AMR multiple times, but currently only the supervisor's vehicle is equipped with mobile data. This is a recommendation from the EMS Redesign Technical Committee.
20	GPS/AVL - this will allow the location of EMS ambulances to be tracked on computer maps in the dispatch center	**** Northrop Grumman (the CAD vendor) already has a GPS/AVL solution available. This is a recommendation from the EMS Redesign Technical Committee.

20	<p>Mapping - the CAD should be capable of interfacing with an AVL system to display unit locations on real-time electronic maps. Our understanding is the County is currently in the process of providing a mapping solution the Positron CPE upgrade</p>	<p>****Northrop Grumman (the CAD vendor) already has a mapping product that integrates to the CAD and the GPS/AVL solution. The solution provides for in vehicle mapping and routing. This is a recommendation from the EMS Redesign Technical Committee.</p>
21	<p>Digital Voice Logger – A new voice logger should interface with the radio and telephone audio. New system have the ability for quick and easy retrieval of communications audio from each dispatch console</p>	<p>**** The replacement of the recorder does not provide for a radio instant call record capability at the dispatch console. This feature will be provided by the new Viper CPE equipment to provide an integrated radio and telephone instant call recorder for each position.</p>
21	<p>Relational Database – In order to provide real-time data the CAD system will need to upgrade from ISAM to a relational database. Users will continue to demand more access to live CAD data and the industry is moving toward web and real-time data analysis.</p>	<p>**** Due the design of the CAD system, it will not lend itself to relational database. If real time CAD data access is required from a relational database, the solution we would need to explore is upgrading the existing CAD to SQL interface to push true real time updates from CAD to the SQL server. This solution would keep the integrity of the CAD utilizing ISAM files while offloading the relational database and reporting functions.</p>

21	<p>Develop Strategy To Bridge The Digital Divide With EMS and Other Public Safety Disciplines - Current law enforcement, fire and EMS systems are not fully integrated with the CAD system which will limit the software applications from seamlessly sharing data. Users require the ability to analyze data in real-time and generate ad-hoc reports. The County and the participating agencies need to agree to fund and support service level agreement which:</p> <ul style="list-style-type: none"> o Promotes distribution of IT resources and solutions across all agencies to eliminate the digital divide between urban, rural and (law enforcement / Fire, EMS) agencies, thus ensuring the ability to share information and guaranteeing the quality of the information o Promote Technology Interoperability Among Information Technology Systems 	<p>****We did not fully understand what is being said here. Is it possibly to clarify as we aren't sure what the "digital divide" is.</p>
24	<p>San Mateo County – November 6, 2007</p>	<p>San Mateo County Manager's Office-November 6, 2007</p>