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Executive Analysis of Fire Service Operations in Emergency Management

Technology in the Emergency Operations Center

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## Abstract

The purpose of this research is to provide the Novato Fire Protection District with comprehensive information on available technology and to identify if any, alternative information management systems and technology utilized by other emergency management and response agencies, that may provide greater efficiency and effectiveness in emergency management planning and response. In 2006 the Novato Fire Protection District and the City of Novato co-located their Emergency Operation Centers to one new facility. The problem is that within the service area of the Novato Fire Protection District, there lacks an effective and efficient information management and mapping system to collect and process critical operational, planning, logistics, and finance information in the Emergency Operations Center. Descriptive research methodology was used to answer the following questions: a) What technology is available for incident management teams in managing natural and manmade disasters?, b) What information management systems are currently being utilized by other public agencies in Emergency Operations Centers?, and c) How can information management systems aid in more effective and efficient management of natural and human caused disasters? An electronic questionnaire was distributed to fifty eight California emergency services agencies to answer questions as well as a literature review. Results indicated that regionally, there were far more agencies with full EOC information management and mapping systems within southern California than in northern California, and that those agencies shared their data electronically. It was recommended that the City of Novato and the Novato Fire Protection District further investigate the feasibility of implementing a GIS based system with ESRI modules and Web EOC products that can be integrated countywide.

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## Introduction

In 2006 the Novato Fire Protection District and the City of Novato, California co-located their Emergency Operation Centers to one new facility. The problem is that within the service area of the Novato Fire Protection District, there lacks an effective and efficient information management and mapping system to collect and process critical operational, planning, logistics, and finance information in the Emergency Operations Center.

The purpose of this research is to provide the Novato Fire Protection District with comprehensive information on available technology and to identify if any, alternative information management systems and technology utilized by other emergency management and response agencies, that may provide greater efficiency and effectiveness in emergency management planning and response. Descriptive research methodology is used to answer the following questions:

1. What technology is available for incident management teams in managing natural and manmade disasters?
2. What information management systems are currently being utilized by other public agencies in Emergency Operations Centers?
3. How can information management systems aid in more effective and efficient management of natural and human caused disasters.

## Background and Significance

The Novato Fire Protection District and the City of Novato are located in Marin County, California. Marin County is one of nine bay area counties linked to San Francisco by the Golden Gate Bridge to the south and to the east bay by the Richmond-San Rafael Bridge. Marin County is bordered on the north and northeast by Sonoma County and on the west by the Pacific Ocean.

The County encompasses approximately 520 square miles and possesses a variety of topography, climate, and vegetation, from the tidal flats of the coastline and bay shores to the slopes of Mt. Tamalpais; from the dense stands of redwood and pine to the inland grasslands and exposed rocky areas; and the coastal fogs that naturally condition the warm inland temperatures in summer.

According to the *Association of bay area governments 2000 census data*, published by the Association of Bay Area Governments (ABAG), Marin's population is 247,289. The county population is blended and racially diverse consisting of 78.6% White, 11.1% Hispanic or Latino, 4.5% Asian, 2.8% Black or African American, 2.7% other race, 0.3% American Indian and Native Alaskan, and 0.1% Native Hawaiian and other Pacific Islander. (Bay Area Census, 2000)

There are 104,990 total housing units of which 60,679 are family housing units. (Bay Area Census, 2000) The September 2007 median home price index in Marin County was \$985.00 and the average home price in that same month was \$1,368,381. (Westbay Properties, 2007)

The NFD is an independent special district governed by a five member Board of Directors established in 1926. The City of Novato was incorporated in 1964 which is part of the Fire District service area. The District provides all risk emergency response to approximately 62,000 residents covering an area of approximately 71 square miles. The District is bisected by two major highways Highway 101 and Highway 37, has water on two edges of the north and east district boundaries. There are 73 full time career suppression personnel and 14 staff administrative positions (9 of which are safety).

The NFD has five fire stations providing 23 career suppression personnel daily to staff five Type I Engine companies, one Truck Company, and two Advanced Life Support (ALS)

paramedic transport units. All of the District Type I Engines are staffed with a minimum of one Captain, and two firefighter/paramedics and are advanced life support capable and equipped. NFD also cross-staffs three Type-III Engines during the California wildfire season. In 2004, NFD responded to 4,700 calls for service.

In December of 2005, the Novato Fire District and the City of Novato staffed and operated an alternate temporary Emergency Operations Center (EOC) within the Fire District administration building. This was to provide a centralized location for emergency operations in preparation for an eminent significant rainfall. At approximately 0300 hours on December 31<sup>st</sup>, 2005 flooding occurred countywide. Novato Fire District service area was inundated with high water flooding in residential areas, significant mud slides destroying homes, and water rescue operations of senior citizens in one of the City's larger mobile home parks. This natural disaster was further complicated by a collapse of a section of the levy that supports the Novato Creek, a main waterway that leads to the San Francisco Bay tributary. The levy breach threatened flooding of the District's primary medical facility of Marin County, that being the Novato Community Hospital. The co-operated EOC of City of Novato and Novato Fire Protection District lacked available preplan information and software systems to efficiently and effectively conduct event triage, community early warning notification and evacuations, incident logging, resource deployment and monitoring, status boards, and event documentation.

This applied research project is consistent with the United States Fire Administration's (USFA) operational objectives by "responding appropriately in a timely manner to an emerging issue" (NFA EFOP ARSSC, 2005, p.3). By identifying information management and mapping technology systems that can be used to pre-plan for natural and manmade disasters within the EOC, will reduce life loss and injury to all age groups within the community and to firefighters.

This research project is related to the Executive Analysis of Fire Service Operations in Emergency Management (EAFSOEM) course of the Executive Fire Officer Program (EFOP) because it will “prepare senior fire officers in the administrative functions necessary to manage the operational component of a fire department effectively” (NFA EAFSOEM-Student Manual 2006, p. SM 1-3) . This research is intended to provide the City of Novato and the Novato Fire Protection District with comprehensive information on the available electronic information management and mapping technology that will provide greater efficiency in identifying, managing, and mitigating hazards associated with human caused and natural disasters.

### Literature Review

The Emergency Operations Center (EOC) is the core where executives and managers from organizations come together to make decisions on emergency response, resource needs and capability, and recovery. Depending on the EOC’s capability to produce timely and visually factual data will determine how effective and efficient the response and recovery factions of an incident will be delivered. Incident Management Teams (IMT) rely heavily on data produced by the organization through the assessment of hazards or threats to a community and the resources and assets available to the organization through the identification, planning, and mitigation phases of pre-incident planning.

According to Greene, R.W. (2002), “by placing accurate physical geography of a disaster event on a computer monitor, and then aligning other features, events, conditions or threats with that geography lets police, fire, medical and managerial personnel make decisions based on data they can see and judge for themselves”. (Confronting Catastrophe, 2002) Greene (2002), in his book *Confronting Catastrophe* provides a step by step approach to understanding and implementing Geographic Information Systems (GIS) in a manner that clearly provides

emergency managers and decision makers ample opportunity to visualize the benefits of incorporating such system into any organization large or small.

The National Fire Protection Association (NFPA) is a non-profit organization dedicated to fire protection code and standards development. NFPA Standard 1600, *Disaster Emergency Management and Business Contingency Programs* (2007), is a nationally recognized standard that “provides disaster and emergency management and business continuity programs, the criteria to assess current programs or to develop, implement, and maintain aspects for prevention, mitigation, preparation, response, and recovery from emergencies”. (p. 1600-4) Chapter 5 of *NFPA Standard 1600* outlines the emergency management program elements. One of the first program elements is that the agency or organization “shall identify hazards, monitor those hazards, the likelihood of their occurrence, and the vulnerability of people, property, the environment and the entity itself to those hazards”. (p.1600-5)

Hazard identification as part of the risk assessment phase of the program should include natural hazards, human-caused events, and technological-caused events. Detrimental impacts to the community are determined through an impact analysis of the following hazards:

1. Health and Safety of persons in the affected area at the time of the incident  
(death and injury)
2. Health and safety of personnel responding to the incident
3. Continuity of operations
4. Property, facilities, and infrastructure
5. Delivery of services
6. The environment
7. Economic and financial condition



8. Regulatory and contractual obligations
9. Reputation of or confidence in the entity
10. Regional, national and international considerations (p.1600-5)

NFPA has a companion document to Standard 1600, *Implementing NFPA® 1600* (2007) that is intended “to help organizations develop, implement, and evaluate emergency management and business continuity programs”. (p. xiii) The document is designed to assist business, non-profit corporations and governmental agencies in developing plans to protect their fixed, human and environmental assets.

The plethora of data and information that managers are responsible for within the EOC will require a strong information management system according to Davis Logic Inc. (2007). In an article *Emergency Operations Center*, Davis (2007) suggests that:

Emergency Managers need to provide a robust command, control and monitoring function that will:

1. Above all else – be easy and efficient to use
2. Collect failure information to allow rapid and early contingency response
3. Track multiple incidents and resources
4. Communicate activities across the enterprise
5. Provide documentation capability (§ 7)

Unfortunately, there are no referenced or suggested references of purveyors of electronic information management systems within the NFPA documents.

GIS technology is being used widely by public safety agencies because it provides the ability to manage large quantities of data and view the data in location based geospatial medium.

In an article *ArcNews* (ESRI, 2005), GIS technology is an “effective response and recovery tool that includes mapping incidents, establishing priorities, developing actions plans, and implementing plans to protect lives property and the environment”. (p.42) The data maps and information can be quickly viewed by emergency managers and easily shared with and accessed by multiple agencies via the internet or network. This provides for multi-agency coordination and effective integration of response efforts to maximize resource allocation and shared information.

An example of shared data maps, multi-agency coordination and effective integration are the revised flood maps generated by the U.S. Federal Emergency Management Agency (FEMA). In 1997, FEMA adopted a plan to modernize the flood hazard mapping program. According to the progress report *Modernizing FEMA’s Flood Hazard Mapping Program* (May 2001), as part of the National Flood Insurance Reform Act ( NFIRA) of 1994, Congress established a Technical Mapping Advisory Council (the council). The council was responsible for providing “recommendations to FEMA on how to improve the accuracy, quality and distribution and use of Flood Insurance Rate Maps (FIRMs)”.

FEMA developed a five year plan to update the digital flood insurance rate maps (DFIRMs) throughout territories and communities in the United States so as “to delineate a community’s special flood hazard areas and risk premium”.(ArcNews, Summer 2007 p.27) In order to accomplish this, FEMA needed an integrated software program that would manage the ongoing maintenance and updates. FEMA chose GIS database with ArcGIS to view and have the data available over the internet. This in and of itself created challenges in managing large volumes of data. According to ESRI (2005), “Ten years ago, 100GB was thought to be a large GIS database. Today, 10 terabytes (TB) is considered a large database”. (p5) If multi-users and

multiple agencies intend to cross access data sources under a common enterprise system, and there are multiple back-up locations for stored data, it is imperative that these other stored data locations be synchronized. For small agencies at the local level, this may be problematic.

According to an Executive Fire Officer (EFO) Applied Research Project Paper (ARP), *Use of Geographic Information Systems (GIS) for Damage Assessment*, Burnett, M. (2005) revealed that GIS can be effective in pre-event, current event and post-event phases of a disaster. Burnett (2005) reported that “It can be used to develop vulnerability analysis models predicting the possible impacts to infrastructures and populations.” (p.38) The author cites examples of flood, fire, a hazardous material release, and damage assessment where GIS can be particularly useful “during the event phase...mainly during protracted incidents, and hours or days after the initial event began.” (p.38) Mobile GIS can be a valuable tool for conducting field damage assessment and then reporting that data to an EOC for decision makers, policy makers and the media. Burnett (2005).

According to Radke, Cova, Shridan, Troy, Mu and Johnson (2000) in a white paper *Challenges for GIS in Emergency Preparedness and Response*, “Data acquisition and integration may be the single-largest contribution area needed for emergency preparedness and response. Although models can be developed for handling disasters, making them operational on a day-to-day basis means huge investments in data acquisition and integration”. (p.12)

## Procedures

### *The Research Method*

Descriptive research methodology will be utilized for this applied research project through literary reviews of periodicals, journals, reports, internet sites, Executive Fire Officer (EFO)

Applied Research Project (ARP) research papers, interviews, and from questionnaires from fifty eight of the counties within the State of California.

To answer research question number 1 this author will obtain information through interviews (Appendix A) administered through one-on-one contact with the agency representatives of Incident Management Teams on the Pacific and Atlantic coasts. To answer research question number 2, an electronic questionnaire instrument (Appendix B), will be distributed to emergency management directors of fifty eight counties within the State of California.

Prior to distribution of the questionnaire, this author convened the input from five California Emergency Services Directors in order to validate the instrument. Input was incorporated into the questionnaire as necessary to provide clarity and eliminate ambiguity. The questionnaires were disseminated to the agency representatives through the California Emergency Managers Association. Results and raw data from the questionnaires are incorporated in the Results section of this ARP.

To answer question number 3, the researcher will conduct literary reviews of periodicals, journals, and EFO ARP's obtained through the National Fire Academy, Learning Resource Center. Additionally, interviews will be conducted by this author with agency representatives, from Federal Incident Management Teams (IMT) who have first hand knowledge of information management systems and mapping technologies from their team responses. Authorization to disclose information, statements, names, dates, time of interview, and agency utilized in this ARP was obtained by the author and granted by each person interviewed. This was necessary so as to provide the author with points of discussion and comparison relative to findings from the literature review. In addition, disclosure is necessary in order that others may validate the

author's findings so as to provide duplication and follow-up research if warranted. Interview statements can be referenced in the Appendix of this ARP. (Appendix A)

### *Limitations and Assumptions*

Agencies that responded to the questionnaire instrument indicated that many utilize portions of electronic information management and mapping systems but not necessarily all encompassed or incorporated into all aspects of their EOC information management system. Due to limited non specific program budgetary information and data surrounding this area of concern, this researcher limited the comparing, analysis and reporting to the types of services and the organizational level which those services were provided. As such, this research does not include a comparison or analysis of current agency cost allocation systems.

### *Definition of Terms*

ArcEditor™ - "Includes advanced editing for shapefiles and geodatabases in addition to full functionality of ArcView." ArcGIS® (2007) *The complete Geographic Information System* product information guide.

ArcGIS® - "Is an ESRI integrated collection of software products for building a complete geographic information system. It enables the user to deploy GIS functionality on desktops, servers or mobile devices and web services." ArcGIS® (2007) *The complete Geographic Information System* product information guide.

ArcInfo® - "Extends the functionality of both ArcView and ArcEditor with advanced geoprocessing. It is the de facto standard for GIS." ArcGIS® (2007) *The complete Geographic Information System* product information guide.

ArcReader™ -“ Is a free, easy to use product that allows anyone to view, explore and print published map files (PMFs) authored by a higher level ArcGIS desktop product.”.

ArcGIS® (2007) *The complete Geographic Information System* product information guide.

Association of Bay Area Governments (ABAG) – Is one of more than 560 regional planning agencies across the nation that assist in solving problems in areas such as land use, housing, environmental quality, and economic development.

ArcView® -“Provides extensive mapping, data use, and analysis capabilities.” ArcGIS® (2007) *The complete Geographic Information System* product information guide.

## Results

1. What technology is available for incident management teams in managing natural and human caused disasters?

To answer research question number 1 this author obtained information through interviews (Appendix A) administered one-on-one contact with the agency representatives of Federal Incident Management Teams (IMT) on the Pacific and Atlantic coasts. Results of the interviews revealed software is used for specific IMT functions within the Incident Command and Management Systems particularly within the Planning and Logistics Section. These software products included “I-Suite” and “Fire Trax”. However, these programs were not integrated into any Emergency Operations Center or enterprise system.

Fire-Trax is a software system that is used by the South Carolina Urban Search and Rescue Task Force (SC-TF1). The system can track resources as they are staged for, deployed to, and demobilized from an incident. Fire-Trax utilizes a barcode & palm-based system designed to provide personnel & equipment accountability in the field. (¶ 1) (Med-Media 2007) While the system can produce Personnel Accountability Reports (PARs) and Qualifications reports, these

are only used for the Plans Section within the Incident Command System for resource check-in, resource status, and demobilization.

I-Suite is a software system that tracks resources, cost, time, incident action plans, and supply units. The system was developed in 2003 by the Incident Business Practices Team (IBPT) as sub-work group of the National Wildfire Coordinating Group (NWCG). The application is designed to be used as an integrated incident based automation tool as an incident processes on an interagency basis. This system is utilized by the Federal IMT Type 2 team.

There are no mapping capabilities with these systems.

2. What information management systems are currently being utilized by other public agencies in Emergency Operations Centers?

To answer research question number 2, an electronic questionnaire instrument (Appendix A), was distributed to fifty eight counties within the State of California. Responses were received from forty eight counties (83%). The questionnaire consisted of eight core questions to obtain information on how county agencies were managing their information within the EOC.

Question number one of the EOC questionnaire asked: Does your jurisdiction currently use an electronic data management system for tracking resource allocation during a disaster in your emergency operation center? Table 1.1 provides agency scoring regarding tracking resource allocation within the EOC.

Table 1.1

*Agencies electronically track resource allocation during disasters*

Yes	No
21	27

A subset of question number one on the questionnaire was for the agencies that responded “yes” what is the name/manufacturer of the software system? Of the 21 agencies that responded affirmative to this question (36%), six different EOC information management products were identified. Table 1.2 identifies the product name and the number of agencies that use the specific product to electronically track resource allocation.

Table 1.2

*Number of agencies using specific information management software*

Number of Agencies (%)	Product Name
1 (4.7)	Resource Manager for ESRI
6 (29)	E-TEAM
10 (48)	Web EOC
1 (4.7)	EMIS
1 (4.7)	Filemaker Pro 8.0
1 (4.7)	PACE
1(4.7)	ESRI

Of the agencies that use an electronic information system to tack resource allocation, 49% use Web-EOC. Of that 49%, eight of the agencies responding to the questionnaire were from southern California specifically within, Los Angeles, Orange, San Bernardino, and San Diego Counties.

Question number two of the EOC questionnaire asked: Does your jurisdiction currently use an electronic data management system for mapping resource allocation during a disaster in your emergency operation center? Table 2.2 provides agency scoring regarding mapping resource allocation within the EOC.

Table 2.1

*Agencies electronically map resource allocation during disasters*

Yes	No
10	38



Of the 10 agencies that responded affirmative to this question (21%), five different EOC information management products were identified. A subset of question number two on the questionnaire was for the agencies that responded “yes” what is the name/manufacturer of the software system? Table 2.2 identifies the product name and the number of agencies that use a specific product to electronically map resource allocation.

Table 2.2

*Agencies using specific information management software to map resource allocation*

Number of Agencies (%)	Product Name
4 <sup>a</sup> (40)	ESRI
3 (30)	Web EOC
1 (10)	E-TEAM
1 (10)	Filemaker Pro 8.0
1 (10)	V-risk

a. One of the agencies that responded ESRI uses the product with ESRI with Arc-Map.

Question number three of the EOC questionnaire asked: Does your jurisdiction currently use an electronic data management system for tracking critical facility status during a disaster in your emergency operation center? Of the 48 agencies that responded to this question 13 (38%) indicated that they do utilize a system that tracks critical facility status. One of the agencies indicated that they did not know if their system had this capability. Table 3.1 provides agency scoring regarding critical facility tracking within the EOC.

Table 3.1

*Agencies use specific information management software to track critical facility status.*

Yes	No <sup>a</sup>
13	34

a. One of the agencies responded that that did not know if their system had this capability.

A subset of question number three on the questionnaire was for agencies that responded “yes” to indicate the name/manufacturer of the software system. Table 3.2 identifies the product

name and the number of agencies that use a specific product to electronically track critical facilities status.

Table 3.2

*Agencies using specific information management software to track critical facility status.*

Number of Agencies (%)	Product Name
4 (30)	Web EOC
2 (15)	EMIS
2 (15)	E-TEAM
1 (8)	ESRI
1 (8)	Filemaker Pro 8.0 w/GIS
1 (8)	V-risk
1 (8)	PACE
1 (8)	IRIS

A total of four agencies (30%) that responded to this question indicated that they used software product called *Web EOC* to track facility status. Two of the agencies (15%) that responded to this question indicated that they used software product EMIS and two agencies (15%) indicated that they used E-TEAM.

Question number four of the EOC questionnaire asked: Does your jurisdiction currently use an electronic data management system for mapping critical facility status during a disaster in your emergency operation center? Of the 48 agencies that responded to this question 13 (38%) indicated that they do utilize a system that map critical facility status. Table 4.1 provides agency scoring regarding critical facility mapping within the EOC.

Table 4.1

*Agencies use specific information management software to map critical facility status.*

Yes	No
13	35

A subset of question number four on the questionnaire was for agencies that responded “yes” to indicate the name/manufacturer of the software system. Table 4.2 identifies the product name and the number of agencies that use a specific product to electronically map critical facilities status.

Table 4.2

*Agencies using specific information management software to map critical facility status.*

Number of Agencies (%)	Product Name
3 (23)	Web EOC
3 (23)	ESRI <sup>a</sup>
2 (15)	GIS w/Autodesk
2 (15)	City GIS
1 (8)	Filemaker Pro 8.0 w/GIS
1 (8)	E-TEAM
1 (8)	IRIS

a. One of the agencies that use the product ESRI also uses Arc Map™

The agencies that scored in the twenty-three percentile and used the product Web EOC were Los Angeles County- City of Los Angeles, San Bernardino County and Santa Clara County-NASA Ames Research Center. Agencies that use the product ESRI are Los Angeles County-Long Beach Fire Department, Los Angeles County and Los Angeles County-Downy Fire Department.

Question number five of the EOC questionnaire asked: Does your jurisdiction currently use an electronic data management system for tracking expenses during a disaster in your emergency operation center? Of the 48 agencies that responded to this question 19 (50%) indicated that they do utilize a system for tracking expenses. Table 5.1 provides agency scoring regarding tracking expenses within the EOC.

Table 5.1

*Agencies use specific information management software to track expenses.*

Yes	No
19	38 <sup>a</sup>

a. One of the agencies responded that that did not know if their system had this capability.

A subset of question number five on the questionnaire was for agencies that responded “yes” to indicate the name/manufacturer of the software system. Table 5.2 identifies the product name and the number of agencies that use a specific product to electronically track expenses in their EOC.

Table 5.2

*Agencies using specific information management software to track expenses.*

Agency Name	Product Name/Type of System
Marin County OES Imperial County Irrigation District Contra Costa County – Richmond Fire	SAP Accounting software
Santa Cruz County – City of Watsonville Sonoma County – Rohnert Park DPS Orange County – Health Care Agency Lake County OES Los Angeles County- DPW	Microsoft Office Product – Access Excel Excel Excel Excel
Los Angeles County-Los Angeles City Los Angeles County- Ontario Fire Dept. Santa Clara County – NASA Ames	Web EOC
San Joaquin County OES	Developed own system using Filemaker Pro 8.0
Santa Barbara County-City of Santa Barbara San Diego County-City of La Mirada San Diego County-City of San Marcos Santa Clara County-San Jose State University	Uses Finance Department RMS system
Orange County-City of Newport Beach	Pentamation
Los Angeles County-Downy Fire Dept.	EDEN financial management system
Los Angeles County City of Azusa P.D.	Bi-tech System

Question number six of the EOC questionnaire asked: Does your jurisdiction currently use an electronic data management system for tracking logistic needs during a disaster in your emergency operation center? Of the 48 agencies that responded to this question 12 (25%) indicated that they do utilize a system for tracking expenses. Table 6.1 provides agency scoring regarding tracking logistic needs within the EOC.

Table 6.1

*Agencies use specific information management software to track expenses..*

Yes	No
12	36

A subset of question number six on the questionnaire was for agencies that responded “yes” to indicate the name/manufacturer of the software system. Table 6.2 identifies the product name and the number of agencies that use a specific product to electronically track logistic needs in their EOC.

Table 6.2

*Agencies using specific information management software to track logistic needs.*

Number of Agencies (%)	Product Name
5 (42)	Web EOC
2 (17)	Microsoft Excel or Access
1 (8)	ESRI ArcMap
1 (8)	Filemaker Pro 8.0 w/GIS
1 (8)	In-house system developed
1 (8)	PACE
1 (8)	Maximo

Question number seven of the EOC questionnaire asked: Is the system internal to your EOC or can it be shared outside your IT network? If “yes” how broadly? Of the 48 agencies that responded to this question 18 (38%) indicated that they do have a system that can be shared

outside of their network. Table 7.1 provides agency scoring regarding tracking expenses within the EOC.

Table 7.1

*Agencies use specific information management software to track expenses..*

Yes	No	Did not answer
18	23	7

The subset of question number seven on the questionnaire was for agencies that responded “yes” to indicate how broadly their system could be shared. Table 7.2 identifies the agency and their response to this question.

Table 7.2

*Agencies using specific information management software to track logistic needs.*

Agency Name	Product Name/Type of System
Marin County OES	Via the net
Alpine, Amador, Calaveras, Mariposa and Stanislaus Counties	Inernet based
Los Angeles County- City of Los Angeles	Countywide and multiple UASI Cities
Los Angeles County-Downy Fire Dept.	With all Los Angeles County
Los Angeles County-Los Angeles Unified School District	With Los Angeles City
Los Angeles County-City of Azusa P.D.	Internal to organization only
Los Angeles County-Long Beach Fire Dept.	City’s intranet system
Orange County-City of Newport Beach	Shared Citywide
Orange County-City of La Habra	Web based system
Placer County-OES	Web based-unlimited users
Santa Clara County-Gilroy Fire Dept.	Shared via Excel or PACE spreadsheet
Santa Clara County-San Jose State University	California State University System only
San Diego County-City of San Marcos	Unlimited
San Diego County-City of San Diego	Regionally
San Joaquin County-OES	Interactive web based system
Sonoma County-ESD	Internal to EOC only
Sonoma County-Rohnert Park DPS	GIS, Microsoft Word and Excel documents only
Stanislaus County-OES	Web based

Question number eight of the EOC questionnaire asked: How would you rate the effectiveness of the jurisdictions EOC information management system? Of the 48 agencies that responded to this question only 5 agencies (10%) indicated that their system was above average or excellent. Table 8.1 provides agency scoring regarding ranking of the effectiveness of the jurisdictions EOC information management system.

Table 8.1

*Agencies use specific information management software to track expenses..*

Rank	1 <sup>a</sup>	2	3 <sup>b</sup>	4	5 <sup>c</sup>	Did not answer
Responses	12	10	17	3	2	4

a. Rank means: Needs improvement

b. Rank means: Average

c. Rank means: Excellent

Of the responses from the 48 agencies, only five felt that their system was above average or excellent. The two agencies that responded to the excellent rank were: Placer County Office of Emergency Services and Los Angeles County-Long Beach Fire Department. The three agencies that responded to the above average rank were: San Joaquin County-Office of Emergency Services, San Diego County-City of San Marcos, and San Bernardino County-Ontario Fire Department. Raw data for the agencies responses are found in Appendix D.

3. How can information management systems aid in more effective and efficient management of natural and manmade disasters?

To answer research question number 3, this author conducted literature reviews of journal articles, EFO ARP papers, and data results from the electronic questionnaire instrument. The research findings revealed that a variety of commercially available software information

management and mapping technologies currently exist. The various programs and platforms are similar but not all exactly aligned.

Program applications that were identified and used by California emergency management agencies include but not limited to:

- ESRI GIS products
- Web EOC
- E-TEAM
- IRIS
- EMIS

Based on the responses to survey, Web EOC and ESRI GIS products are the tool of choice. These products also scored above average to excellent (on a scale of 1 to 5) from the agencies that responded to the EOC questionnaire.

The literature suggests that information should be readily available during the event phases of an incident or disaster. As such, managing data should be incorporated into the day to day operations of an organization so as to provide factual and current references. This point was emphasized by Radke, Cova, Shridan, Troy, Mu and Johnson (2000) in a white paper *Challenges for GIS in Emergency Preparedness and Response*. The authors reported that “Data acquisition and integration may be the single-largest contribution area needed for emergency preparedness and response. Although models can be developed for handling disasters, making them operational on a day-to-day basis means huge investments in data acquisition and integration”.

(p.12)

Discussion



Research conducted by this author indicates prodigious studies in various forms of GIS utilization for specific applications such as fire modeling, flood hazard mapping, seismic hazards mapping, damage assessment and infrastructure management have been previously conducted. Evidence exists through literary review and empirical datum that economies of scale and improved efficiencies are benefits of a regionalized approach to providing GIS services. The systems application gap that currently exists is that few agencies, of those that responded to this author's questionnaire, indicated that seamless implementation and integration of information management systems are used with their respective EOC's.

According to Greene, R.W. (2002), "by placing accurate physical geography of a disaster event on a computer monitor, and then aligning other features, events, conditions or threats with that geography lets police, fire, medical and managerial personnel make decisions based on data they can see and judge for themselves". This finding supports those claims by emergency responders particularly those interviewed by this author and who were members of Federal IMT's.

FEMA developed plans at the national level to assist local government agencies and insurance companies to identify and potentially mitigate those assets that are within flood imperiled areas. In order to accomplish this, FEMA integrated a software program that would manage the ongoing maintenance and updates. This information is now shared through a GIS database with ArcGIS to view and have the data available over the internet.

Since FEMA has developed a process for managing and providing maintenance and updates of flood maps at the national level, it would seem appropriate that the template platform for that ability be mirrored across other forms of risk assessment and analysis. Those might

include: earthquake fault zones, hazardous material transportation routes, WMD and Anti-Terror targets, and wildland fire threat zones.

The NFPA has developed standards that provide templates for agencies to use in developing their disaster response plans. NFPA identifies that hazard identification as part of the risk assessment phase of the program should include natural hazards, human-caused events, and technological-caused events. NFPA (2007) has identified that detrimental impacts to the community are determined through an impact analysis of the following hazards:

1. Health and Safety of persons in the affected area at the time of the incident (death and injury)
2. Health and safety of personnel responding to the incident
3. Continuity of operations
4. Property, facilities, and infrastructure
5. Delivery of services
6. The environment
7. Economic and financial condition
8. Regulatory and contractual obligations
9. Reputation of or confidence in the entity
10. Regional, national and international considerations (p.1600-5)

The literature suggests that information should be readily available during the event phases of an incident or disaster. As such, managing data should be incorporated into the day to day operations of an organization so as to provide factual and current references. This point was emphasized by Radke, Cova, Shridan, Troy, Mu and Johnson (2000). The authors reported that “Data acquisition and integration may be the single-largest contribution area needed for

emergency preparedness and response. Although models can be developed for handling disasters, making them operational on a day-to-day basis means huge investments in data acquisition and integration”. (p.12)

In an interview with Captain Chris Wikeen, member of Federal IMT Type 2, indicated that the ROSS system is used statewide in California and also at the Federal level and used primarily for ordering resources that typed according to national qualifications system. This is primarily used at the Emergency Communications Center (ECC). This system shows the number, type and kind of resources available to respond to any given incident nationwide. Captain Wikeen also stated that I-Suite was a software application that is used for tracking resources once they arrived on scene and also for the logistics functions. Unfortunately, these systems are not integrated into the Emergency Operations Centers to date.

#### Recommendations

The research suggests the following recommendations to help the City of Novato and the Novato Fire Protection District determine alternative risk reduction service delivery systems and concepts that may provide greater efficiency.

1. The Novato Fire Protection District should conduct a feasibility study that would investigate the effectiveness and efficiencies of integrating a fully functional GIS component into the City of Novato and Novato Fire Protection District’s organizations including the Emergency Operations Center. ESRI GIS software modules and Web EOC products should be considered in this feasibility study.
2. Further study should be conducted in the area of funding standardized mapping and data information management systems that are FEMA compliant

nationwide to be utilized by local and state agencies in natural and human made disasters.

3. The Marin County Office of Emergency Services should consider adopting a regional standardized records management and mapping system for countywide risk analysis for managing EOC functions and information that can be integrated and migrated into a Geographic Information System (GIS) countywide.

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## Appendix A

## Interviews

Interview with Fire Captain Chris Wikeen  
Novato Fire Protection District, CA  
Federal Incident Management Team 2  
Plans Section  
October 2, 2006

Captain Wikeen was asked what if any, software applications were used on the IMT which he is assigned. He indicated that there were two primary applications: 1) Resource Ordering Status System (ROSS); and 2) I-Suite.

As stated by Captain Wikeen, the ROSS system is used statewide in California and also at the Federal level and used primarily for ordering resources that typed according to national qualifications system. This is primarily used at the Emergency Communications Center (ECC). This system shows the number, type and kind of resources available to respond to any given incident nationwide.

Captain Wikeen explained that I-Suite was a software application that is used for tracking resources once they arrived on scene and also for the logistics functions.

Captain Wikeen stated that he is a member of the Federal Incident Management Team Type 2 and has experienced the operability of both systems as a responding team member in use at the Katrina Incident, Camp Shelby, Hattiesburg, Mississippi in 2005 and the Rita Incident, Big Branch Marsh, Lacombe, Louisiana.

End of Interview  
By: Forrest M. Craig

Interview with Director Michael Myers (SC-TF1)  
South Carolina Emergency Response Task Force  
Urban Search and Rescue Program  
December 11, 2006

Director Myers is the Team member responsible for the overall administration and response for the South Carolina Emergency Response Task Force – Urban Search and Rescue Program.

When asked if SC-TF1 used any software applications or IMT resource management, Director Meyers stated that the only application they are using at this time is “Fire Trax” for tracking resource allocation and logistic needs during an incident. He is as this time however, having the program re-evaluated due to the lack of performance. He is recommending that the system be scrapped at this point unless the vendor can make the required program corrections. The system application does not have mapping capability.

End of Interview  
By: Forrest M. Craig



EOC Agency Questionnaire

Appendix B

Name \_\_\_\_\_  
 Contact Telephone# \_\_\_\_\_  
 Email \_\_\_\_\_  
 Department/Agency \_\_\_\_\_  
 County \_\_\_\_\_  
 State \_\_\_\_\_  
 Jurisdiction population served \_\_\_\_\_

1. Does your jurisdiction currently use an electronic data management system for **tracking resource allocation** during a disaster in your emergency operations center?  
 YES  NO   
 1b. If YES, what is the name/manufacture of the system? \_\_\_\_\_
  
2. Does your jurisdiction currently use an electronic data management system for **mapping resource allocation** during a disaster in your emergency operations center?  
 YES  NO   
 2b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
  
3. Does your jurisdiction currently use an electronic data management system for **tracking critical facility status** during a disaster in your emergency operations center?  
 YES  NO   
 3b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
  
4. Does your jurisdiction currently use an electronic data management system for **mapping critical facilities status** during a disaster in your emergency operations center?  
 YES  NO   
 4b. If YES  Same system as above, OR  Other \_\_\_\_\_
  
5. Does your jurisdiction currently use an electronic data management system for **tracking expenses** during a disaster in your emergency operations center?  
 YES  NO   
 5b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
  
6. Does your jurisdiction currently use an electronic data management system for **tracking logistic needs** during a disaster in your emergency operations center?  
 YES  NO   
 6b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
  
7. Is the system internal to your EOC or can information be shared outside your IT network?  
 YES  NO   
 If YES, how broadly? \_\_\_\_\_
  
8. How would you rate the effectiveness of the jurisdiction's EOC information management system?  
 (needs improvement) 1  2  3  4  5  (excellent)  
 Comments: \_\_\_\_\_
  
9. Would you mind if there was follow up contact regarding this questionnaire?  
 YES  NO

## Appendix C

Emergency service agencies that responded to the questionnaire listed by county

Alpine County, CA	Mountain Valley EMS Agency
Amador County, CA	Mountain Valley EMS Agency
Calaveras County, CA	Mountain Valley EMS Agency
Contra Costa County, CA	Office of Emergency Services
Contra Costa County, CA	Richmond Fire - OES
Contra Costa County, CA	San Ramon Office of Emergency Services
Mariposa County, CA	Mountain Valley EMS Agency
Modoc County, CA	Office of Emergency Services
Glenn County, CA	Office of Emergency Services
Imperial County, CA	Imperial Irrigation District
Lake County, CA	Office of Emergency Services
Los Angeles County, CA	City of Los Angeles Emergency Preparedness Department
Los Angeles County, CA	City of La Mirada
Los Angeles County, CA	City of West Covina
Los Angeles County, CA	Long Beach Fire Department
Los Angeles County, CA	Aquarium of the Pacific
Los Angeles County, CA	Los Angeles Unified School District
Los Angeles County, CA	City of Azusa Police Department
Los Angeles County, CA	Downey Fire Department
Los Angeles County, CA	Department of Public Works
Marin County, CA	Office of Emergency Services

## Appendix B continued

Mendocino County, CA	Office of Emergency Services
Orange County, CA	City of La Habra
Orange County, CA	City of Newport Beach
Orange County, CA	Health Care Disaster Management Agency
Placer County, CA	Office of Emergency Services
Sacramento, CA	Sacramento Chapter of the American Red Cross
San Bernardino County, CA	City of Chino Hills
San Bernardino County, CA	City of Upland
San Bernardino County, CA	Town of Upland – Fire Department
San Bernardino County, CA	Ontario Fire Department
San Diego County, CA	City of San Marcos
San Diego County, CA	City of San Diego
San Joaquin County, CA	Office of Emergency Services
San Mateo County, CA	Office of Emergency Services
Santa Barbara County, CA	City of Santa Barbara Office of Emergency Services
Santa Clara County, CA	Cupertino Office of Emergency Services
Santa Clara County, CA	Santa Clara Valley Chapter American Red Cross
Santa Clara County, CA	Gilroy Office of Emergency Services
Santa Clara County, CA	NASA Ames Research Center Moffett Field Complex
Santa Clara County, CA	San Jose State University
Santa Cruz County, CA	City of Watsonville
Sonoma County, CA	Rohnert Park Department of Public Safety

Appendix B continued

Sonoma County, CA	Department of Emergency Services
Stanislaus County, CA	Mountain Valley EMS Agency
Stanislaus County, CA	Office of Emergency Services
Trinity County, CA	Sheriff's Department
Ventura County, CA	County Public Health-Emergency Preparedness Office

## Appendix D

Raw data responses from agencies which responded to the EOC questionnaire

Name Kathryn Gerk, CEM  
 Contact Telephone# (510) 620.6866  
 Email Kathy\_gerk@ci.richmond.ca.us  
 Department/Agency Richmond Fire OES  
 County Contra Costa  
 State CA  
 Jurisdiction population served 110,000.

2. Does your jurisdiction currently use an electronic data management system for **tracking resource allocation** during a disaster in your emergency operations center?  
 YES  NO X  
 1b. If YES, what is the name/manufacturer of the system? \_\_\_\_\_
  
2. Does your jurisdiction currently use an electronic data management system for **mapping resource allocation** during a disaster in your emergency operations center?  
 YES  NO X  
 5b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
  
3. Does your jurisdiction currently use an electronic data management system for **tracking critical facility status** during a disaster in your emergency operations center?  
 YES  NO X  
 2b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
  
4. Does your jurisdiction currently use an electronic data management system for **mapping critical facilities status** during a disaster in your emergency operations center?  
 YES X NO   
 6b. If YES  Same system as above, OR  Other City GIS
  
5. Does your jurisdiction currently use an electronic data management system for **tracking expenses** during a disaster in your emergency operations center?  
 YES X NO   
 3b. If YES,  
 Same system as above? OR  
 X Other SAP
  
6. Does your jurisdiction currently use an electronic data management system for **tracking logistic needs** during a disaster in your emergency operations center?  
 YES  NO X  
 4b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
  
7. Is the system internal to your EOC or can information be shared outside your IT network?  
 YES X NO   
 If YES, how broadly? \_\_\_\_\_
  
8. How would you rate the effectiveness of the jurisdiction's EOC information management system?  
 (needs improvement) 1 X 2  3  4  5  (excellent)  
 Comments: \_\_\_\_\_
  
9. Would you mind if there was follow up contact regarding this questionnaire?  
 YES  NO X

Name Frannie Edwards  
 Contact Telephone# 408-806-7937  
 Email kc6thm@yahoo.com  
 Department/Agency San Jose State University  
 County Santa Clara  
 State CA  
 Jurisdiction population served 37,000

3. Does your jurisdiction currently use an electronic data management system for **tracking resource allocation** during a disaster in your emergency operations center?  
 YES  NO x  
 1b. If YES, what is the name/manufacturer of the system? \_\_\_\_\_
  
2. Does your jurisdiction currently use an electronic data management system for **mapping resource allocation** during a disaster in your emergency operations center?  
 YES  NO x  
 5b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
  
3. Does your jurisdiction currently use an electronic data management system for **tracking critical facility status** during a disaster in your emergency operations center?  
 YES  NO x  
 2b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
  
4. Does your jurisdiction currently use an electronic data management system for **mapping critical facilities status** during a disaster in your emergency operations center?  
 YES x NO   
 6b. If YES  Same system as above, ORx  Other GIS
  
5. Does your jurisdiction currently use an electronic data management system for **tracking expenses** during a disaster in your emergency operations center?  
 YES x NO   
 3b. If YES,  
 Same system as above? OR  
 x Other separate number set within normal financial management system
  
6. Does your jurisdiction currently use an electronic data management system for **tracking logistic needs** during a disaster in your emergency operations center?  
 YES  NOx   
 4b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
  
7. Is the system internal to your EOC or can information be shared outside your IT network?  
 YES x NO   
 If YES, how broadly? CSU system for financial tracking information
  
8. How would you rate the effectiveness of the jurisdiction's EOC information management system?  
 (needs improvement) 1  2  3 x 4  5  (excellent)  
 Comments: meets our needs and is simple\_\_\_\_\_
  
9. Would you mind if there was follow up contact regarding this questionnaire?  
 YES  NO You are welcome to call.



Name Ronald Baldwin  
 Contact Telephone# (209) 468-3962  
 Email rbaldwin@sjgov.org  
 Department/Agency San Joaquin County Office of Emergency Services  
 County San Joaquin  
 State CA  
 Jurisdiction population served 650,000

4. Does your jurisdiction currently use an electronic data management system for **tracking resource allocation** during a disaster in your emergency operations center?  
 YES  NO   
 1b. If YES, what is the name/manufacturer of the system? We develop our own software to give us flexibility and prevent dependence on outside vendors. The Logistics Database we use is web based and developed from Filemaker Pro 8.0.
  
2. Does your jurisdiction currently use an electronic data management system for **mapping resource allocation** during a disaster in your emergency operations center?  
 YES  NO   
 5b. If YES,  
 Same system as above? OR with GIS mapping services in the Planning Section  
 Other \_\_\_\_\_
  
3. Does your jurisdiction currently use an electronic data management system for **tracking critical facility status** during a disaster in your emergency operations center?  
 YES  NO   
 2b. If YES,  
 Same system as above? OR Developed our own with FMP and we have GIS evacuation maps with critical facility information which allows tracking of the status of critical facility notification and evacuation.  
 Other \_\_\_\_\_
  
4. Does your jurisdiction currently use an electronic data management system for **mapping critical facilities status** during a disaster in your emergency operations center?  
 YES  NO   
 6b. If YES  Same system as above, OR  Other \_\_\_\_\_
  
5. Does your jurisdiction currently use an electronic data management system for **tracking expenses** during a disaster in your emergency operations center?  
 YES  NO   
 3b. If YES,  
 Same system as above? OR self developed systems with FMP  
 Other \_\_\_\_\_
  
6. Does your jurisdiction currently use an electronic data management system for **tracking logistic needs** during a disaster in your emergency operations center?  
 YES  NO   
 4b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
  
7. Is the system internal to your EOC or can information be shared outside your IT network?  
 YES  NO   
 If YES, how broadly? Logistics information and Status information systems are posted on the web. In the case of the Logistics System it is inter-active on the web for some functions and reports. \_\_\_\_\_
  
8. How would you rate the effectiveness of the jurisdiction's EOC information management system?  
 (needs improvement) 1  2  3  4  5  (excellent)  
 Comments: We prefer systems developed by ourselves since we can customize them for our own use, have less ongoing licensing or maintenance contract costs, do not rely on outside vendors who may go belly up, and

can make rapid changes on the system during an emergency. Since we develop them ourselves we also do not tend to get fixated on software programs as if that is the most important thing in the emergency. A lot of time is wasted entering data in systems or collecting information because there is a field there that ends up being irrelevant to the emergency response. Our systems are probably more limited than many canned packages but more to the point. Our Logistics tracking system is pretty sophisticated though particularly for floods which are our primary threat and was developed from scratch internally. \_\_\_\_\_

9. Would you mind if there was follow up contact regarding this questionnaire?  
YES  NO

Name Jacob Green  
 Contact Telephone# 909-238-8536  
 Email jgreen@ci.ontario.ca.us  
 Department/Agency Ontario Fire Dept.  
 County San Bernardino  
 State CA  
 Jurisdiction population served 175,000

5. Does your jurisdiction currently use an electronic data management system for **tracking resource allocation** during a disaster in your emergency operations center?  
 YES  NO   
 1b. If YES, what is the name/manufacturer of the system? WebEOC
  
2. Does your jurisdiction currently use an electronic data management system for **mapping resource allocation** during a disaster in your emergency operations center?  
 YES  NO   
 5b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
  
3. Does your jurisdiction currently use an electronic data management system for **tracking critical facility status** during a disaster in your emergency operations center?  
 YES  NO   
 2b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
  
4. Does your jurisdiction currently use an electronic data management system for **mapping critical facilities status** during a disaster in your emergency operations center?  
 YES  NO   
 6b. If YES  Same system as above, OR  Other \_\_\_\_\_
  
5. Does your jurisdiction currently use an electronic data management system for **tracking expenses** during a disaster in your emergency operations center?  
 YES  NO   
 3b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
  
6. Does your jurisdiction currently use an electronic data management system for **tracking logistic needs** during a disaster in your emergency operations center?  
 YES  NO   
 4b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
  
7. Is the system internal to your EOC or can information be shared outside your IT network?  
 YES  NO   
 If YES, how broadly? \_\_\_\_\_
  
8. How would you rate the effectiveness of the jurisdiction's EOC information management system?  
 (needs improvement) 1  2  3  4  5  (excellent)  
 Comments: Limited only by staff time to enhance capabilities.
  
9. Would you mind if there was follow up contact regarding this questionnaire?  
 YES  NO

Name Cathy Malizia  
 Contact Telephone# 909-364-2713  
 Email cmalizia@chinohills.org  
 Department/Agency City of Chino Hills  
 County San Bernardino  
 State CA  
 Jurisdiction population served 78,000

6. Does your jurisdiction currently use an electronic data management system for **tracking resource allocation** during a disaster in your emergency operations center?  
 YES  NO  **No**  
 1b. If YES, what is the name/manufacturer of the system? \_\_\_\_\_
  
2. Does your jurisdiction currently use an electronic data management system for **mapping resource allocation** during a disaster in your emergency operations center?  
 YES  NO  **No**  
 5b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
  
3. Does your jurisdiction currently use an electronic data management system for **tracking critical facility status** during a disaster in your emergency operations center?  
 YES  NO  **No**  
 2b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
  
4. Does your jurisdiction currently use an electronic data management system for **mapping critical facilities status** during a disaster in your emergency operations center?  
 YES  NO  **No**  
 6b. If YES  Same system as above, OR  Other \_\_\_\_\_
  
5. Does your jurisdiction currently use an electronic data management system for **tracking expenses** during a disaster in your emergency operations center?  
 YES  NO  **No**  
 3b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
  
6. Does your jurisdiction currently use an electronic data management system for **tracking logistic needs** during a disaster in your emergency operations center?  
 YES  NO  **No**  
 4b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
  
7. Is the system internal to your EOC or can information be shared outside your IT network?  
 YES  NO  **N/A**  
 If YES, how broadly? \_\_\_\_\_
  
8. How would you rate the effectiveness of the jurisdiction's EOC information management system?  
 (needs improvement) 1  2  3  4  5  (excellent)  
 Comments: Satisfactory, although Never had the opportunity to use it in a real situation
  
9. Would you mind if there was follow up contact regarding this questionnaire?  
 YES  NO  **No**

**Note: The City Yard uses iworks to track service orders and we use Excel. Other than that we don't have any electronic data management system that we would use during a disaster.**

Name Olga Bruno  
 Contact Telephone# (626) 812-3265  
 Email obruno@ci.azusa.ca.us  
 Department/Agency City of Azusa Police Department  
 County Los Angeles  
 State California  
 Jurisdiction population served 45,000

7. Does your jurisdiction currently use an electronic data management system for **tracking resource allocation** during a disaster in your emergency operations center?  
 YES  NO  XX  
 1b. If YES, what is the name/manufacturer of the system? N/A
  
2. Does your jurisdiction currently use an electronic data management system for **mapping resource allocation** during a disaster in your emergency operations center?  
 YES  NO  XX  
 5b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
  
3. Does your jurisdiction currently use an electronic data management system for **tracking critical facility status** during a disaster in your emergency operations center?  
 YES  NO  XX  
 2b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
  
4. Does your jurisdiction currently use an electronic data management system for **mapping critical facilities status** during a disaster in your emergency operations center?  
 YES  NO  XX  
 6b. If YES  Same system as above, OR  Other \_\_\_\_\_
  
5. Does your jurisdiction currently use an electronic data management system for **tracking expenses** during a disaster in your emergency operations center?  
 YES  XX NO   
 3b. If YES,  
 Same system as above? OR  
 Other BiTech System
  
6. Does your jurisdiction currently use an electronic data management system for **tracking logistic needs** during a disaster in your emergency operations center?  
 YES  NO  XX  
 4b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
  
7. Is the system internal to your EOC or can information be shared outside your IT network?  
 YES  XX NO   
 If YES, how broadly? Internal to organization only.
  
8. How would you rate the effectiveness of the jurisdiction's EOC information management system?  
 (needs improvement) 1  2  XX 3  4  5  (excellent)  
 Comments: Lack of funding for equipment, technology, and training.
  
9. Would you mind if there was follow up contact regarding this questionnaire?  
 YES  XX NO   
 Note: Unless it was a county or state funded project with means to support standardization.

Name Donna Faller  
 Contact Telephone# 619-533-6763  
 Email dfaller@sandiego.gov  
 Department/Agency City of San Diego  
 County San Diego  
 State CA  
 Jurisdiction population served 1.3 million

8. Does your jurisdiction currently use an electronic data management system for **tracking resource allocation** during a disaster in your emergency operations center?  
 YES  NO   
 1b. If YES, what is the name/manufacturer of the system? WebEOC (Resource Manager add-on)
2. Does your jurisdiction currently use an electronic data management system for **mapping resource allocation** during a disaster in your emergency operations center?  
 YES  NO   
 5b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
3. Does your jurisdiction currently use an electronic data management system for **tracking critical facility status** during a disaster in your emergency operations center?  
 YES  NO   
 2b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
4. Does your jurisdiction currently use an electronic data management system for **mapping critical facilities status** during a disaster in your emergency operations center?  
 YES  NO   
 6b. If YES  Same system as above, OR  Other \_\_\_\_\_
5. Does your jurisdiction currently use an electronic data management system for **tracking expenses** during a disaster in your emergency operations center?  
 YES  NO   
 3b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
6. Does your jurisdiction currently use an electronic data management system for **tracking logistic needs** during a disaster in your emergency operations center?  
 YES  NO   
 4b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
7. Is the system internal to your EOC or can information be shared outside your IT network?  
 YES  NO   
 If YES, how broadly? Regionally
8. How would you rate the effectiveness of the jurisdiction's EOC information management system?  
 (needs improvement) 1  2  3  4  5  (excellent)  
 Comments: Still needs development for additional boards and improvement to current boards to meet the needs of the City as the 8<sup>th</sup> largest metropolitan area in the US.
9. Would you mind if there was follow up contact regarding this questionnaire?  
 YES  NO

Name Michael Marchiano  
 Contact Telephone# 925 -313-9636  
 Email Mmarc@so.cccounty.us  
 Department/Agency Sheriff's OES  
 County Contra Costa Co  
 State CA  
 Jurisdiction population served 1,100,000 plus

9. Does your jurisdiction currently use an electronic data management system for **tracking resource allocation** during a disaster in your emergency operations center?  
 YES  NO   
 1b. If YES, what is the name/manufacturer of the system? We use State RIMS only
  
2. Does your jurisdiction currently use an electronic data management system for **mapping resource allocation** during a disaster in your emergency operations center?  
 YES  NO   
 5b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
  
3. Does your jurisdiction currently use an electronic data management system for **tracking critical facility status** during a disaster in your emergency operations center?  
 YES  NO   
 2b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
  
4. Does your jurisdiction currently use an electronic data management system for **mapping critical facilities status** during a disaster in your emergency operations center?  
 YES  NO   
 6b. If YES  Same system as above, OR  Other \_\_\_\_\_
  
5. Does your jurisdiction currently use an electronic data management system for **tracking expenses** during a disaster in your emergency operations center?  
 YES  NO   
 3b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
  
6. Does your jurisdiction currently use an electronic data management system for **tracking logistic needs** during a disaster in your emergency operations center?  
 YES  NO   
 4b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
  
7. Is the system internal to your EOC or can information be shared outside your IT network?  
 YES  NO   
 If YES, how broadly? \_\_\_\_\_
  
8. How would you rate the effectiveness of the jurisdiction's EOC information management system?  
 (needs improvement) 1  2  3  4  5  (excellent)  
 Comments: \_\_\_\_\_
  
9. Would you mind if there was follow up contact regarding this questionnaire?  
 YES  NO



Name Marsha Hovey  
 Contact Telephone# 408-777-3335  
 Email marshah@cupertino.org  
 Department/Agency Cupertino OES  
 County Santa Clara  
 State CA  
 Jurisdiction population served 52,000

10. Does your jurisdiction currently use an electronic data management system for **tracking resource allocation** during a disaster in your emergency operations center?  
 YES  NO   
 1b. If YES, what is the name/manufacturer of the system? \_\_\_\_\_
2. Does your jurisdiction currently use an electronic data management system for **mapping resource allocation** during a disaster in your emergency operations center?  
 YES  NO   
 5b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
3. Does your jurisdiction currently use an electronic data management system for **tracking critical facility status** during a disaster in your emergency operations center?  
 YES  NO   
 2b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
4. Does your jurisdiction currently use an electronic data management system for **mapping critical facilities status** during a disaster in your emergency operations center?  
 YES  NO   
 6b. If YES  Same system as above, OR  Other CITY GIS MAP
5. Does your jurisdiction currently use an electronic data management system for **tracking expenses** during a disaster in your emergency operations center?  
 YES  NO   
 3b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
6. Does your jurisdiction currently use an electronic data management system for **tracking logistic needs** during a disaster in your emergency operations center?  
 YES  NO   
 4b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
7. Is the system internal to your EOC or can information be shared outside your IT network?  
 YES  NO   
 If YES, how broadly? \_\_\_\_\_
8. How would you rate the effectiveness of the jurisdiction's EOC information management system?  
 (needs improvement) 1  2  3  4  5  (excellent)  
 Comments: \_\_\_\_\_
9. Would you mind if there was follow up contact regarding this questionnaire?  
 YES  NO

Name Darren Moon  
 Contact Telephone# 562-904-7346  
 Email dmoon@downeyca.org  
 Department/Agency Downey Fire Department  
 County Los Angeles  
 State CA  
 Jurisdiction population served 115,000

11. Does your jurisdiction currently use an electronic data management system for **tracking resource allocation** during a disaster in your emergency operations center?

YES  NO

1b. If YES, what is the name/manufacturer of the system? Emergency Management Information System (EMIS) through Los Angeles County EOC

2. Does your jurisdiction currently use an electronic data management system for **mapping resource allocation** during a disaster in your emergency operations center?

YES  NO

5b. If YES,

Same system as above? OR

Other ESRI—ARC Map

3. Does your jurisdiction currently use an electronic data management system for **tracking critical facility status** during a disaster in your emergency operations center?

YES  NO

2b. If YES,

Same system as above? OR

Other \_\_\_\_\_

4. Does your jurisdiction currently use an electronic data management system for **mapping critical facilities status** during a disaster in your emergency operations center?

YES  NO

6b. If YES  Same system as above, OR  Other \_\_\_\_\_

5. Does your jurisdiction currently use an electronic data management system for **tracking expenses** during a disaster in your emergency operations center?

YES  NO

3b. If YES,

Same system as above? OR

Other EDEN Financial Mgt System

6. Does your jurisdiction currently use an electronic data management system for **tracking logistic needs** during a disaster in your emergency operations center?

YES  NO

4b. If YES,

Same system as above? OR

Other \_\_\_\_\_

7. Is the system internal to your EOC or can information be shared outside your IT network?

YES  NO

If YES, how broadly? With all of LA County—except Financial Information

8. How would you rate the effectiveness of the jurisdiction's EOC information management system? (needs improvement) 1  2  3  4  5  (excellent)

Comments: \_\_\_\_\_

9. Would you mind if there was follow up contact regarding this questionnaire?

YES  NO

Name Yolanda McGlinchey  
 Contact Telephone# 805-564-5711  
 Email ymcglinchey@santabarbaraca.gov  
 Department/Agency City of Santa Barbara Fire/Office of Emergency Services  
 County Santa Barbara  
 State California  
 Jurisdiction population served 100,000

12. Does your jurisdiction currently use an electronic data management system for **tracking resource allocation** during a disaster in your emergency operations center?

YES  NO

1b. If YES, what is the name/manufacturer of the system? \_\_\_\_\_

2. Does your jurisdiction currently use an electronic data management system for **mapping resource allocation** during a disaster in your emergency operations center?

YES  NO

5b. If YES,

Same system as above? OR

Other \_\_\_\_\_

3. Does your jurisdiction currently use an electronic data management system for **tracking critical facility status** during a disaster in your emergency operations center?

YES  NO

2b. If YES,

Same system as above? OR

Other \_\_\_\_\_

4. Does your jurisdiction currently use an electronic data management system for **mapping critical facilities status** during a disaster in your emergency operations center?

YES  NO

6b. If YES  Same system as above, OR  Other \_\_\_\_\_

5. Does your jurisdiction currently use an electronic data management system for **tracking expenses** during a disaster in your emergency operations center?

YES  NO

3b. If YES,

Same system as above? OR

Other Finance Department has an RMS system to track expenses

6. Does your jurisdiction currently use an electronic data management system for **tracking logistic needs** during a disaster in your emergency operations center?

YES  NO

4b. If YES,

Same system as above? OR

Other \_\_\_\_\_

7. Is the system internal to your EOC or can information be shared outside your IT network?

YES  NO

If YES, how broadly? \_\_\_\_\_

8. How would you rate the effectiveness of the jurisdiction's EOC information management system?

(needs improvement) 1  2  3  4  5  (excellent)

Comments: We are currently trying to add an information management system into our EOC. However, it is all being done in-house without outside vendors.

9. Would you mind if there was follow up contact regarding this questionnaire?

YES  NO

Name Roy J. Shackel  
 Contact Telephone# 408-846-0382  
 Email rshackel@ci.gilroy.ca.us  
 Department/Agency Gilroy FD/OES  
 County Santa Clara  
 State CA  
 Jurisdiction population served City of Gilroy, 49,000

13. Does your jurisdiction currently use an electronic data management system for **tracking resource allocation** during a disaster in your emergency operations center?  
 YES x NO   
 1b. If YES, what is the name/manufacturer of the system? PASE
  
2. Does your jurisdiction currently use an electronic data management system for **mapping resource allocation** during a disaster in your emergency operations center?  
 YES  NO x  
 5b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
  
3. Does your jurisdiction currently use an electronic data management system for **tracking critical facility status** during a disaster in your emergency operations center?  
 YES x NO   
 2b. If YES,  
 x Same system as above? OR  
 Other \_\_\_\_\_
  
4. Does your jurisdiction currently use an electronic data management system for **mapping critical facilities status** during a disaster in your emergency operations center?  
 YES x NO   
 6b. If YES  Same system as above, OR x Other Autodesk GIS
  
5. Does your jurisdiction currently use an electronic data management system for **tracking expenses** during a disaster in your emergency operations center?  
 YES  NO x  
 3b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
  
6. Does your jurisdiction currently use an electronic data management system for **tracking logistic needs** during a disaster in your emergency operations center?  
 YES x NO   
 4b. If YES,  
 x Same system as above? OR  
 Other \_\_\_\_\_
  
7. Is the system internal to your EOC or can information be shared outside your IT network?  
 YES x NO   
 If YES, how broadly? whoever can run excel can open a PASE spreadsheet
  
8. How would you rate the effectiveness of the jurisdiction's EOC information management system?  
 (needs improvement) 1  2  3 x 4  5  (excellent)  
 Comments: \_\_\_\_\_
  
9. Would you mind if there was follow up contact regarding this questionnaire?  
 YES  NO x

Name Phil Revolinsky  
 Contact Telephone# (530) 934-6441  
 Email prevolinsky@countyofglenn.net  
 Department/Agency Glenn County S.O. - OES  
 County Glenn  
 State CA  
 Jurisdiction population served 28,600

14. Does your jurisdiction currently use an electronic data management system for **tracking resource allocation** during a disaster in your emergency operations center?  
 YES  NO   
 1b. If YES, what is the name/manufacturer of the system? \_\_\_\_\_
  
2. Does your jurisdiction currently use an electronic data management system for **mapping resource allocation** during a disaster in your emergency operations center?  
 YES  NO   
 5b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
  
3. Does your jurisdiction currently use an electronic data management system for **tracking critical facility status** during a disaster in your emergency operations center?  
 YES  NO   
 2b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
  
4. Does your jurisdiction currently use an electronic data management system for **mapping critical facilities status** during a disaster in your emergency operations center?  
 YES  X  
 6b. If YES  Same system as above, OR  Other \_\_\_\_\_
  
5. Does your jurisdiction currently use an electronic data management system for **tracking expenses** during a disaster in your emergency operations center?  
 YES  NO   
 3b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
  
6. Does your jurisdiction currently use an electronic data management system for **tracking logistic needs** during a disaster in your emergency operations center?  
 YES  X  
 4b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
  
7. Is the system internal to your EOC or can information be shared outside your IT network?  
 YES  NO   
 If YES, how broadly? \_\_\_\_\_
  
8. How would you rate the effectiveness of the jurisdiction's EOC information management system?  
 (needs improvement) 1  2  XX 4  5  (excellent)  
 Comments: \_\_\_\_\_
  
9. Would you mind if there was follow up contact regarding this questionnaire?  
 YES  NO

From: Pamela Cummings [Pamela.Cummings@lacity.org]  
 Sent: Monday, October 29, 2007 11:05 AM  
 To: Craig, Forrest  
 Subject: Reply

Name Pamela Cummings  
 Contact Telephone# 213-978-0534  
 Email Pamela.cummings@lacity.org  
 Department/Agency Emergency Preparedness Dept., City of Los Angeles County L.A.  
 State CA  
 Jurisdiction population served 4,000,000

1. Does your jurisdiction currently use an electronic data management system for tracking resource allocation during a disaster in your emergency operations center?

YES X0 NO 0

1b. If YES, what is the name/manufacturer of the system? Web EOC

2. Does your jurisdiction currently use an electronic data management system for mapping resource allocation during a disaster in your emergency operations center?

YES X0 NO 0

5b. If YES,

0 Same system as above? OR

X0 Other ESRI

3. Does your jurisdiction currently use an electronic data management system for tracking critical facility status during a disaster in your emergency operations center?

YES 0 NO 0

2b. If YES,

0 Same system as above? OR

X0 Other Don't know

4. Does your jurisdiction currently use an electronic data management system for mapping critical facilities status during a disaster in your emergency operations center?

YES X0 NO 0

6b. If YES X0 Same system as above, OR 0 Other

5. Does your jurisdiction currently use an electronic data management system for tracking

expenses during a disaster in your emergency operations center?

YES 0 NO 0

3b. If YES,

0 Same system as above? OR  
X0 Other Don't know

6. Does your jurisdiction currently use an electronic data management system for tracking logistic needs during a disaster in your emergency operations center?

YES X0 NO 0

4b. If YES,

X0 Same system as above? OR  
0 Other Web EOC

7. Is the system internal to your EOC or can information be shared outside your IT network?

YES X0 NO 0

If YES, how broadly? County & multiple UASI cities

8. How would you rate the effectiveness of the jurisdiction's EOC information management system?

(needs improvement) 1 0 2 0 3 X0 4 0

5 0

(excellent)

Comments:

9. Would you mind if there was follow up contact regarding this questionnaire?

YES 0 NO X0

Pamela Cummings  
Management Analyst II  
Emergency Preparedness Department  
200 N. Spring St., Rm. 1533, LA, CA 90012 Phone - (213) 978-0534; Fax - (213) 978-0517, Mail Stop 988 K16CRX  
Pamela.Cummings@lacity.org

Name Anthony Santos  
 Contact Telephone# (562) 902-2991  
 Email asantos@cityoflamirada.org  
 Department/Agency City of La Mirada  
 County Los Angeles  
 State California  
 Jurisdiction population served 50,000

15. Does your jurisdiction currently use an electronic data management system for **tracking resource allocation** during a disaster in your emergency operations center?  
 YES  NO   
 1b. If YES, what is the name/manufacturer of the system? \_\_\_\_\_
  
2. Does your jurisdiction currently use an electronic data management system for **mapping resource allocation** during a disaster in your emergency operations center?  
 YES  NO   
 5b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
  
3. Does your jurisdiction currently use an electronic data management system for **tracking critical facility status** during a disaster in your emergency operations center?  
 YES  NO   
 2b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
  
4. Does your jurisdiction currently use an electronic data management system for **mapping critical facilities status** during a disaster in your emergency operations center?  
 YES  NO   
 6b. If YES  Same system as above, OR  Other \_\_\_\_\_
  
5. Does your jurisdiction currently use an electronic data management system for **tracking expenses** during a disaster in your emergency operations center?  
 YES  NO   
 3b. If YES,  
 Same system as above? OR  
 Other MUNIS Accounting System
  
6. Does your jurisdiction currently use an electronic data management system for **tracking logistic needs** during a disaster in your emergency operations center?  
 YES  NO   
 4b. If YES,  
 Same system as above? OR  
 Other Internally developed excel spreadsheet
  
7. Is the system internal to your EOC or can information be shared outside your IT network?  
 YES  NO   
 If YES, how broadly? \_\_\_\_\_
  
8. How would you rate the effectiveness of the jurisdiction's EOC information management system?  
 (needs improvement) 1  2  3  4  5  (excellent)  
 Comments: \_\_\_\_\_
  
9. Would you mind if there was follow up contact regarding this questionnaire?  
 YES  NO



Name Ceci Cheng  
 Contact Telephone# 562-801-2039  
 Email ccheng@pico-rivera.org  
 Department/Agency Public Works  
 County Los Angeles  
 State CA  
 Jurisdiction population served 67,000

16. Does your jurisdiction currently use an electronic data management system for **tracking resource allocation** during a disaster in your emergency operations center?  
 YES  NO   
 1b. If YES, what is the name/manufacturer of the system? \_\_\_\_\_
2. Does your jurisdiction currently use an electronic data management system for **mapping resource allocation** during a disaster in your emergency operations center?  
 YES  NO   
 5b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
3. Does your jurisdiction currently use an electronic data management system for **tracking critical facility status** during a disaster in your emergency operations center?  
 YES  NO   
 2b. If YES,  
 Same system as above? OR  
 Other EMIS - the County's Emergency Management Information System
4. Does your jurisdiction currently use an electronic data management system for **mapping critical facilities status** during a disaster in your emergency operations center?  
 YES  NO   
 6b. If YES  Same system as above, OR  Other \_\_\_\_\_
5. Does your jurisdiction currently use an electronic data management system for **tracking expenses** during a disaster in your emergency operations center?  
 YES  NO   
 3b. If YES,  
 Same system as above? OR  
 Other Internal Excel Spreadsheet
6. Does your jurisdiction currently use an electronic data management system for **tracking logistic needs** during a disaster in your emergency operations center?  
 YES  NO   
 4b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
7. Is the system internal to your EOC or can information be shared outside your IT network?  
 YES  NO   
 If YES, how broadly? \_\_\_\_\_
8. How would you rate the effectiveness of the jurisdiction's EOC information management system?  
 (needs improvement) 1  2  3  4  5  (excellent)  
 Comments: \_\_\_\_\_
9. Would you mind if there was follow up contact regarding this questionnaire?  
 YES  NO

Name: Willie Sapeta  
 Contact Telephone: # 707-262-4091  
 Email: divchief703@yahoo.com  
 Department/Agency: Lake County Sheriff's Department OES  
 County: Lake  
 State: Ca  
 Jurisdiction population served: 62,500

17. Does your jurisdiction currently use an electronic data management system for **tracking resource allocation** during a disaster in your emergency operations center?  
 YES  NO   
 1b. If YES, what is the name/manufacturer of the system? \_\_\_\_\_
  
2. Does your jurisdiction currently use an electronic data management system for **mapping resource allocation** during a disaster in your emergency operations center?  
 YES  NO   
 5b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
  
3. Does your jurisdiction currently use an electronic data management system for **tracking critical facility status** during a disaster in your emergency operations center?  
 YES  NO   
 2b. If YES,  
 Same system as above? OR  
 Other: Manually via radio communications and face to face
  
4. Does your jurisdiction currently use an electronic data management system for **mapping critical facilities status** during a disaster in your emergency operations center?  
 YES  NO   
 6b. If YES  Same system as above, OR  Other \_\_\_\_\_
  
5. Does your jurisdiction currently use an electronic data management system for **tracking expenses** during a disaster in your emergency operations center?  
 YES  NO   
 3b. If YES,  
 Same system as above? OR  
 Other: Microsoft xcell
  
6. Does your jurisdiction currently use an electronic data management system for **tracking logistic needs** during a disaster in your emergency operations center?  
 YES  NO   
 4b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
  
7. Is the system internal to your EOC or can information be shared outside your IT network?  
 YES  NO   
 If YES, how broadly? \_\_\_\_\_
  
8. How would you rate the effectiveness of the jurisdiction's EOC information management system?  
 (needs improvement) 1  2  3  4  5  (excellent)  
 Comments: \_\_\_\_\_
  
9. Would you mind if there was follow up contact regarding this questionnaire?  
 YES  NO

Name: Casey Chel  
 Contact Telephone#: 562.570.9251  
 Email: Casey\_Chel@LongBeach.gov  
 Department/Agency: Long Beach Fire Department/Support Services Bureau/Disaster Management Division  
 County: Los Angeles  
 State: California  
 Jurisdiction population served: 500,000

18. Does your jurisdiction currently use an electronic data management system for **tracking resource allocation** during a disaster in your emergency operations center?  
 YES X NO   
 1b. If YES, what is the name/manufacturer of the system? Web EOC
  
2. Does your jurisdiction currently use an electronic data management system for **mapping resource allocation** during a disaster in your emergency operations center?  
 YES X NO   
 5b. If YES,  
 Same system as above? OR  
 Other Vrisk
  
3. Does your jurisdiction currently use an electronic data management system for **tracking critical facility status** during a disaster in your emergency operations center?  
 YES X NO   
 2b. If YES,  
 X Same system as above? OR  
 Other \_\_\_\_\_
  
4. Does your jurisdiction currently use an electronic data management system for **mapping critical facilities status** during a disaster in your emergency operations center?  
 YES X NO   
 6b. If YES  Same system as above, OR  Other ESRI
  
5. Does your jurisdiction currently use an electronic data management system for **tracking expenses** during a disaster in your emergency operations center?  
 YES X NO   
 3b. If YES,  
 X Same system as above? OR  
 Other \_\_\_\_\_
  
6. Does your jurisdiction currently use an electronic data management system for **tracking logistic needs** during a disaster in your emergency operations center?  
 YES X NO   
 4b. If YES,  
 X Same system as above? OR  
 Other \_\_\_\_\_
  
7. Is the system internal to your EOC or can information be shared outside your IT network?  
 YES X NO   
 If YES, how broadly? City's Intranet System
  
8. How would you rate the effectiveness of the jurisdiction's EOC information management system?  
 (needs improvement) 1  2  3  4  5 X (excellent)  
 Comments: \_\_\_\_\_
  
9. Would you mind if there was follow up contact regarding this questionnaire?  
 YES  NO X

Name Bob Spears  
 Contact Telephone# 213-241-3889  
 Email bob.spears@lausd.net  
 Department/Agency Los Angeles Unified School District  
 County Los Angeles  
 State CA  
 Jurisdiction population served 4 million, give or take

19. Does your jurisdiction currently use an electronic data management system for **tracking resource allocation** during a disaster in your emergency operations center?  
 YES XX NO   
 1b. If YES, what is the name/manufacturer of the system? Web EOC
2. Does your jurisdiction currently use an electronic data management system for **mapping resource allocation** during a disaster in your emergency operations center?  
 YES  NO XX  
 5b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
3. Does your jurisdiction currently use an electronic data management system for **tracking critical facility status** during a disaster in your emergency operations center?  
 YES XX NO  
 2b. If YES,  
 XX Same system as above? OR  
 Other \_\_\_\_\_
4. Does your jurisdiction currently use an electronic data management system for **mapping critical facilities status** during a disaster in your emergency operations center?  
 YES  NO XX  
 6b. If YES  Same system as above, OR  Other \_\_\_\_\_
5. Does your jurisdiction currently use an electronic data management system for **tracking expenses** during a disaster in your emergency operations center?  
 YES  NO XX  
 3b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
6. Does your jurisdiction currently use an electronic data management system for **tracking logistic needs** during a disaster in your emergency operations center?  
 YES XX NO   
 4b. If YES,  
 Same system as above? OR  
 XX Other Maximo
7. Is the system internal to your EOC or can information be shared outside your IT network?  
 YES XX NO   
 If YES, how broadly? We share with LA City
8. How would you rate the effectiveness of the jurisdiction's EOC information management system?  
 (needs improvement) 1  2  3 XX 4  5  (excellent)  
 Comments: \_\_\_\_\_
9. Would you mind if there was follow up contact regarding this questionnaire?  
 YES  NO XX

Name Bill Woodworth  
 Contact Telephone# 707.463.5667  
 Email woodworb@co.mendocino.ca.us  
 Department/Agency OES  
 County Mendocino  
 State CA  
 Jurisdiction population served 50K

20. Does your jurisdiction currently use an electronic data management system for **tracking resource allocation** during a disaster in your emergency operations center?  
 YES  NO   
 1b. If YES, what is the name/manufacturer of the system? \_\_\_\_\_
2. Does your jurisdiction currently use an electronic data management system for **mapping resource allocation** during a disaster in your emergency operations center?  
 YES  NO   
 5b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
3. Does your jurisdiction currently use an electronic data management system for **tracking critical facility status** during a disaster in your emergency operations center?  
 YES  NO   
 2b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
4. Does your jurisdiction currently use an electronic data management system for **mapping critical facilities status** during a disaster in your emergency operations center?  
 YES  NO   
 6b. If YES  Same system as above, OR  Other \_\_\_\_\_
5. Does your jurisdiction currently use an electronic data management system for **tracking expenses** during a disaster in your emergency operations center?  
 YES  NO   
 3b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
6. Does your jurisdiction currently use an electronic data management system for **tracking logistic needs** during a disaster in your emergency operations center?  
 YES  NO   
 4b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
7. Is the system internal to your EOC or can information be shared outside your IT network?  
 YES  NO   
 If YES, how broadly? \_\_\_\_\_
8. How would you rate the effectiveness of the jurisdiction's EOC information management system?  
 (needs improvement) 1  2  3  4  5  (excellent)  
 Comments: \_\_\_\_\_
9. Would you mind if there was follow up contact regarding this questionnaire?  
 YES  NO

Name Nancy Ballard  
 Contact Telephone# 530-233-4416  
 Email nballard@modocounty.us  
 Department/Agency Office of Emergency Services  
 County Modoc  
 State CA  
 Jurisdiction population served 9800

21. Does your jurisdiction currently use an electronic data management system for **tracking resource allocation** during a disaster in your emergency operations center?  
 YES  NO   
 1b. If YES, what is the name/manufacturer of the system? \_\_\_\_\_
2. Does your jurisdiction currently use an electronic data management system for **mapping resource allocation** during a disaster in your emergency operations center?  
 YES  NO   
 5b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
3. Does your jurisdiction currently use an electronic data management system for **tracking critical facility status** during a disaster in your emergency operations center?  
 YES  NO   
 2b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
4. Does your jurisdiction currently use an electronic data management system for **mapping critical facilities status** during a disaster in your emergency operations center?  
 YES  NO   
 6b. If YES  Same system as above, OR  Other \_\_\_\_\_
5. Does your jurisdiction currently use an electronic data management system for **tracking expenses** during a disaster in your emergency operations center?  
 YES  NO   
 3b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
6. Does your jurisdiction currently use an electronic data management system for **tracking logistic needs** during a disaster in your emergency operations center?  
 YES  NO   
 4b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
7. Is the system internal to your EOC or can information be shared outside your IT network?  
 YES  NO   
 If YES, how broadly? \_\_\_\_\_
8. How would you rate the effectiveness of the jurisdiction's EOC information management system?  
 (needs improvement) 1  2  3  4  5  (excellent)  
 Comments: \_\_\_\_\_
9. Would you mind if there was follow up contact regarding this questionnaire?  
 YES  NO

Name Doug Buchanan  
 Contact Telephone# 209-605-7844  
 Email dbuchanan@mvemsa.com  
 Department/Agency Mountain-Valley EMS Agency  
 County (Multi-County: Alpine, Amador, Calaveras, Mariposa, Stanislaus)  
 State CA  
 Jurisdiction population served 600,000

22. Does your jurisdiction currently use an electronic data management system for **tracking resource allocation** during a disaster in your emergency operations center?  
 YES  NO   
 1b. If YES, what is the name/manufacturer of the system? ETeam (California Disaster Medical Network)
2. Does your jurisdiction currently use an electronic data management system for **mapping resource allocation** during a disaster in your emergency operations center?  
 YES  NO   
 5b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
3. Does your jurisdiction currently use an electronic data management system for **tracking critical facility status** during a disaster in your emergency operations center?  
 YES  NO   
 2b. If YES,  
 Same system as above? OR  
 Other EMSystem (and ETeam/CDMN)
4. Does your jurisdiction currently use an electronic data management system for **mapping critical facilities status** during a disaster in your emergency operations center?  
 YES  NO   
 6b. If YES  Same system as above, OR  Other \_\_\_\_\_
5. Does your jurisdiction currently use an electronic data management system for **tracking expenses** during a disaster in your emergency operations center?  
 YES  NO   
 3b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
6. Does your jurisdiction currently use an electronic data management system for **tracking logistic needs** during a disaster in your emergency operations center?  
 YES  NO   
 4b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
7. Is the system internal to your EOC or can information be shared outside your IT network?  
 YES  NO   
 If YES, how broadly? Internet-based
8. How would you rate the effectiveness of the jurisdiction's EOC information management system?  
 (needs improvement) 1  2  3  4  5  (excellent)  
 Comments: \_\_\_\_\_
9. Would you mind if there was follow up contact regarding this questionnaire?  
 YES  NO

Name Erik Lowman  
 Contact Telephone# 714-720-1069  
 Email elowman@ochca.com  
 Department/Agency Health Care Agency / Health Disaster Management  
 County Orange  
 State California  
 Jurisdiction population served 3,002,048

23. Does your jurisdiction currently use an electronic data management system for **tracking resource allocation** during a disaster in your emergency operations center?  
 YES  NO   
 1b. If YES, what is the name/manufacturer of the system? \_\_\_\_\_
2. Does your jurisdiction currently use an electronic data management system for **mapping resource allocation** during a disaster in your emergency operations center?  
 YES  NO   
 5b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
3. Does your jurisdiction currently use an electronic data management system for **tracking critical facility status** during a disaster in your emergency operations center?  
 YES  NO   
 2b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
4. Does your jurisdiction currently use an electronic data management system for **mapping critical facilities status** during a disaster in your emergency operations center?  
 YES  NO   
 6b. If YES  Same system as above, OR  Other \_\_\_\_\_
5. Does your jurisdiction currently use an electronic data management system for **tracking expenses** during a disaster in your emergency operations center?  
 YES  NO   
 3b. If YES,  
 Same system as above? OR  
 Other Excel
6. Does your jurisdiction currently use an electronic data management system for **tracking logistic needs** during a disaster in your emergency operations center?  
 YES  NO   
 4b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
7. Is the system internal to your EOC or can information be shared outside your IT network?  
 YES  NO   
 If YES, how broadly? \_\_\_\_\_
8. How would you rate the effectiveness of the jurisdiction's EOC information management system?  
 (needs improvement) 1  2  3  4  5  (excellent)  
 Comments: \_\_\_\_\_
9. Would you mind if there was follow up contact regarding this questionnaire?  
 YES  NO



Name Richard Simmons  
 Contact Telephone# (530) 886-5300  
 Email rsimmons@placer.ca.gov  
 Department/Agency OES  
 County Placer  
 State CA  
 Jurisdiction population served 300,000

24. Does your jurisdiction currently use an electronic data management system for **tracking resource allocation** during a disaster in your emergency operations center?  
 YES  NO  X  
 1b. If YES, what is the name/manufacturer of the system? We use WebEOC but for crisis mgmt
2. Does your jurisdiction currently use an electronic data management system for **mapping resource allocation** during a disaster in your emergency operations center?  
 YES  NO  X  
 5b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
3. Does your jurisdiction currently use an electronic data management system for **tracking critical facility status** during a disaster in your emergency operations center?  
 YES  NO  X  
 2b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
4. Does your jurisdiction currently use an electronic data management system for **mapping critical facilities status** during a disaster in your emergency operations center?  
 YES  NO  x  
 6b. If YES  Same system as above, OR  Other \_\_\_\_\_
5. Does your jurisdiction currently use an electronic data management system for **tracking expenses** during a disaster in your emergency operations center?  
 YES  NO  x  
 3b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
6. Does your jurisdiction currently use an electronic data management system for **tracking logistic needs** during a disaster in your emergency operations center?  
 YES  NO  x  
 4b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
7. Is the system internal to your EOC or can information be shared outside your IT network?  
 YES  X NO   
 If YES, how broadly? Again – WebEOC – unlimited users
8. How would you rate the effectiveness of the jurisdiction's EOC information management system?  
 (needs improvement) 1  2  3  4  5  x (excellent)  
 Comments: WebEOC – easy to use easy to train on, but we still need to fully “operationalize” it
9. Would you mind if there was follow up contact regarding this questionnaire?  
 YES  NO  x

Name Scott McClintock  
 Contact Telephone# (760) 744-1050 ext 3263  
 Email smcclintock@san-marcos.net  
 Department/Agency City of San Marcos Fire Dept  
 County San Diego  
 State CA  
 Jurisdiction population served 80,000

25. Does your jurisdiction currently use an electronic data management system for **tracking resource allocation** during a disaster in your emergency operations center?  
 YES X  NO   
 1b. If YES, what is the name/manufacturer of the system? WebEOC
2. Does your jurisdiction currently use an electronic data management system for **mapping resource allocation** during a disaster in your emergency operations center?  
 YES  NO X   
 5b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
3. Does your jurisdiction currently use an electronic data management system for **tracking critical facility status** during a disaster in your emergency operations center?  
 YES  NO X   
 2b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
4. Does your jurisdiction currently use an electronic data management system for **mapping critical facilities status** during a disaster in your emergency operations center?  
 YES  NO X   
 6b. If YES  Same system as above, OR  Other \_\_\_\_\_
5. Does your jurisdiction currently use an electronic data management system for **tracking expenses** during a disaster in your emergency operations center?  
 YES X  NO   
 3b. If YES,  
 Same system as above? OR  
 Other Internal City fiscal system
6. Does your jurisdiction currently use an electronic data management system for **tracking logistic needs** during a disaster in your emergency operations center?  
 YES X  NO   
 4b. If YES,  
 Same system as above? OR  
 Other WebEOC
7. Is the system internal to your EOC or can information be shared outside your IT network?  
 YES  NO  This is a badly worded question. It can be shared  
 If YES, how broadly? Unlimited
8. How would you rate the effectiveness of the jurisdiction's EOC information management system?  
 (needs improvement) 1  2  3  4 X  5  (excellent)  
 Comments: \_\_\_\_\_
9. Would you mind if there was follow up contact regarding this questionnaire?  
 YES  NO X

Name Bill O'Callahan  
 Contact Telephone# 650-599-1294  
 Email wocallahan@co.sanmateo.ca.us  
 Department/Agency San Mateo County Sheriff's Area OES  
 County San Mateo County  
 State CA  
 Jurisdiction population served 750,000

26. Does your jurisdiction currently use an electronic data management system for **tracking resource allocation** during a disaster in your emergency operations center?  
 YES  NO   
 1b. If YES, what is the name/manufacturer of the system? \_\_\_\_\_
2. Does your jurisdiction currently use an electronic data management system for **mapping resource allocation** during a disaster in your emergency operations center?  
 YES  NO   
 5b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
3. Does your jurisdiction currently use an electronic data management system for **tracking critical facility status** during a disaster in your emergency operations center?  
 YES  NO   
 2b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
4. Does your jurisdiction currently use an electronic data management system for **mapping critical facilities status** during a disaster in your emergency operations center?  
 YES  NO   
 6b. If YES  Same system as above, OR  Other \_\_\_\_\_
5. Does your jurisdiction currently use an electronic data management system for **tracking expenses** during a disaster in your emergency operations center?  
 YES<sub>xx</sub>  NO   
 3b. If YES,  
 Same system as above? OR  
 Other county fiscal code system
6. Does your jurisdiction currently use an electronic data management system for **tracking logistic needs** during a disaster in your emergency operations center?  
 YES  NO <sub>xxx</sub>  
 4b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
7. Is the system internal to your EOC or can information be shared outside your IT network?  
 YES  NO <sub>xxx</sub>  
 If YES, how broadly? \_\_\_\_\_
8. How would you rate the effectiveness of the jurisdiction's EOC information management system?  
 (needs improvement) 1  <sub>xxx</sub> 2  3  4  5  (excellent)  
 Comments: \_\_\_\_\_
9. Would you mind if there was follow up contact regarding this questionnaire?  
 YES  NO  <sub>xxxx</sub>

Name Raymond Riordan  
 Contact Telephone# 925.973.3304  
 Email rriordan@sanramon.ca.gov or rayriordan@comcast.net  
 Department/Agency Police Department – Emergency Management  
 County Contra Costa County  
 State CA  
 Jurisdiction population served 60 k

27. Does your jurisdiction currently use an electronic data management system for **tracking resource allocation** during a disaster in your emergency operations center?  
 YES  NO   
 1b. If YES, what is the name/manufacturer of the system? \_\_\_\_\_
2. Does your jurisdiction currently use an electronic data management system for **mapping resource allocation** during a disaster in your emergency operations center?  
 YES  NO   
 5b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
3. Does your jurisdiction currently use an electronic data management system for **tracking critical facility status** during a disaster in your emergency operations center?  
 YES  NO   
 2b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
4. Does your jurisdiction currently use an electronic data management system for **mapping critical facilities status** during a disaster in your emergency operations center?  
 YES  NO   
 6b. If YES  Same system as above, OR  Other \_\_\_\_\_
5. Does your jurisdiction currently use an electronic data management system for **tracking expenses** during a disaster in your emergency operations center?  
 YES  NO   
 3b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
6. Does your jurisdiction currently use an electronic data management system for **tracking logistic needs** during a disaster in your emergency operations center?  
 YES  NO   
 4b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
7. Is the system internal to your EOC or can information be shared outside your IT network?  
 YES  NO   
 If YES, how broadly? \_\_\_\_\_
8. How would you rate the effectiveness of the jurisdiction's EOC information management system?  
 (needs improvement) 1  2  3  4  5  (excellent)  
 Comments: All systems manual at this time.
9. Would you mind if there was follow up contact regarding this questionnaire?  
 YES  NO

Name John Rees  
 Contact Telephone# 562-905-9753  
 Email john\_rees@lahabracity.com  
 Department/Agency City of La Habra  
 County Orange  
 State CA  
 Jurisdiction population served 62,000

28. Does your jurisdiction currently use an electronic data management system for **tracking resource allocation** during a disaster in your emergency operations center?  
 YES  NO   
 1b. If YES, what is the name/manufacturer of the system? WebEOC
2. Does your jurisdiction currently use an electronic data management system for **mapping resource allocation** during a disaster in your emergency operations center?  
 YES  NO   
 5b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
3. Does your jurisdiction currently use an electronic data management system for **tracking critical facility status** during a disaster in your emergency operations center?  
 YES  NO   
 2b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
4. Does your jurisdiction currently use an electronic data management system for **mapping critical facilities status** during a disaster in your emergency operations center?  
 YES  NO   
 6b. If YES  Same system as above, OR  Other \_\_\_\_\_
5. Does your jurisdiction currently use an electronic data management system for **tracking expenses** during a disaster in your emergency operations center?  
 YES  NO   
 3b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
6. Does your jurisdiction currently use an electronic data management system for **tracking logistic needs** during a disaster in your emergency operations center?  
 YES  NO   
 4b. If YES,  
 Same system as above? OR  
 Other \_\_\_\_\_
7. Is the system internal to your EOC or can information be shared outside your IT network?  
 YES  NO   
 If YES, how broadly? Web based program
8. How would you rate the effectiveness of the jurisdiction's EOC information management system?  
 (needs improvement) 1  2  3  4  5  (excellent)  
 Comments: \_\_\_\_\_
9. Would you mind if there was follow up contact regarding this questionnaire?  
 YES  NO  Please, no sales contacts.

From: Chris Rivera [CPR@co.lake.ca.us]  
Sent: Monday, October 29, 2007 10:27 AM  
To: Craig, Forrest  
Subject: Survey

Name  
Christopher Rivera, Sergeant  
Contact Telephone# 707-262-4090  
Email  
cpr@co.lake.ca.us  
Department/Agency Lake County  
Sheriff/OES  
County Lake  
State  
California  
Jurisdiction population served 65K estimate

Does your jurisdiction currently use an electronic data management system for tracking resource allocation during a disaster in your emergency operations center?

NO

2. Does your jurisdiction currently use an electronic data management system for mapping resource allocation during a disaster in your emergency operations center?

NO

3. Does your jurisdiction currently use an electronic data management system for tracking critical facility status during a disaster in your emergency operations center?

NO

4. Does your jurisdiction currently use an electronic data management system for mapping critical facilities status during a disaster in your emergency operations center?

NO

5. Does your jurisdiction currently use an electronic data management system for tracking expenses during a disaster in your emergency operations center?

NO

6. Does your jurisdiction currently use an electronic data management system for tracking logistic needs during a disaster in your emergency operations center?

NO

7. Is the system internal to your EOC or can information be shared outside your IT network?

NO

8. How would you rate the effectiveness of the

jurisdiction's EOC information management system?  
(needs improvement) 1

Comments: Because ours is nonexistent.

9. Would you mind if there was follow up contact  
regarding this questionnaire?

NO But I can't see you going into the past 20 years for  
answers to questions I can't give you.