Emergency Medical Services Agency
2001 Annual Program Report

July 1, 2001 - June 30, 2002

- September 2002 -

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I. Introduction

A. Overview of EMS

Emergency Medical Services is a system of services organized to provide rapid response to serious medical emergencies, including immediate medical care and patient transport to definitive care in an appropriate medical setting. An effective EMS system involves a variety of agencies and organizations working together to accomplish the goal of providing rapid emergency medical response and treatment. While most EMS responses are day-to-day emergencies, EMS agencies also plan and prepare for disaster medical response.

The EMS system includes:

- Public safety dispatch centers
- Fire services
- Ground and air ambulance services
- Law enforcement agencies
- Hospitals and specialty care centers
- Training institutions and organizations
- Citizen, professional, and technical advisory groups
- Local and State EMS Agencies
- Other governmental and voluntary organizations

In California, EMS systems are organized on a county or regional basis. Local EMS Agencies (LEMSA's) are designated by county boards of supervisors as the lead agencies responsible for coordinating EMS services at the county or regional level consistent with State law and regulations.

The California Emergency Medical Services Authority (EMSA) approves local EMS system plans, provides guidance to local EMS agencies, develops EMS regulations, administers the Regional Poison Control Center program, and carries out other EMS activities. The State EMS Commission, with members appointed by the Governor and certain other State officials, is advisory to the EMSA and reviews and approves all EMS regulations.

In Contra Costa County, the Board of Supervisors has designated County Health Services as its Local EMS Agency. The EMS Director, EMS Medical Director, and staff carry out the EMS functions of Health Services. The EMS Medical Director has statutory responsibilities to oversee medical aspects of the EMS program. An Emergency Medical Care Committee (EMCC) provides advice regarding EMS matters to the Board of Supervisors and to the EMS Agency.

B. Local EMS Agency Functions.

Principal functions of a local EMS agency as specified in the Health & Safety Code include:

- Planning, implementing, and evaluating emergency medical services.
- Monitoring and approving EMT-I, paramedic, and Mobile Intensive Care Nurse

(MICN) training programs.

- Conducting credentialing programs for EMT-I's, paramedics and MICN's.
- Authorizing advanced life support (ALS) programs.
- Establishing policies and procedures for medical control of the EMS system, including those for dispatch, patient destination, patient care, and quality improvement.
- Establishing ordinances and/or exclusive operating areas for the regulation of ambulance services.
- Approving and monitoring Prehospital Continuing Education Providers.
- Developing and implementing a trauma system plan.
- Conducting an impact evaluation when notified that an acute care hospital plans to downgrade or cease providing emergency medical services.

The County Board of Supervisors has further charged the Health Services Department as the local EMS Agency with the following responsibilities:

- Monitoring interfacility patient transfers.
- Implementing EMS program enhancements funded under County Service Area EM-1 (Measure H).
- Tracking and monitoring hospital emergency and critical care capacity.

Additionally, the EMS Agency is the lead agency responsible for:

- Procuring and monitoring emergency ambulance services countywide.
- Implementing and monitoring an Emergency Medical Services for Children Program countywide.
- Planning for and coordinating disaster medical response at local and regional levels.

To accomplish these functions, the EMS Agency employees a staff of 10, including the EMS director, part-time EMS medical director, program coordinator, Health Services disaster preparedness manager, two prehospital care coordinators, trauma coordinator, training coordinator, and two clerks.

C. Emergency Medical Care Committee.

Each county may, under the Health & Safety Code, establish an Emergency Medical Care Committee (EMCC) with membership prescribed and appointed by the county board of supervisors. The EMCC acts as an advisory body to its board of supervisors and local EMS agency on all matters relating to EMS.

The Contra Costa EMCC consists of five consumer representatives, one from each of the five supervisorial districts, and representatives of the following groups and organizations:

- Alameda-Contra Costa Medical Association
- American Heart Association
- American Red Cross
- California Highway Patrol
- Contra Costa Contract Ambulance Provider
- Air Medical Transportation Provider

- Emergency Department Physicians
- Emergency Nurses Association
- Contra Costa Fire Chiefs' Association
- Field Paramedic (1 private/1public)
- County Health Services
- Hospital Council – Bay Area Division
- Contra Costa EMS Training Institution
- Contra Costa Police Chiefs' Association
- Contra Costa Public Managers' Association
- Contra Costa Sheriff-Coroner
- Base Hospital
- Trauma Center
- Community Awareness and Emergency Response (CAER)
- Communications Center Managers Association
- EMS Director

The EMCC meets quarterly and all meetings of the EMCC and its subcommittees are open to the public.

D. Delivery of EMS Services.

EMS services are typically provided in response to a medical emergency reported through the 9-1-1 emergency telephone system. A 9-1-1 call placed from any telephone is automatically routed to the appropriate designated Public Safety Answering Point (PSAP). A dispatcher or complaint operator at the PSAP determines the nature of the emergency and, if the PSAP is part of a fire/medical dispatch center, obtains information necessary to dispatch the appropriate response units. If the PSAP is not part of a fire/medical dispatch center, the call may be transferred to a "secondary PSAP" where a dispatcher then obtains information necessary to dispatch fire and medical units.

The initial response to a potentially life threatening incident generally includes both a fire first responder unit and a paramedic staffed ambulance. The location of fire stations throughout the county enables firefighters to make a rapid initial response to a medical emergency. All fire fighters are trained in first aid, CPR and defibrillation. Most are trained and certified as Emergency Medical Technicians. In situations involving patient problems such as obstructed airway, severe bleeding, or cardiac arrest, fire fighters arriving early on scene may be able to initiate lifesaving measures and achieve some patient stabilization before the ambulance arrives. In several areas of the county, fire agencies staff first responder units with paramedics who are able to initiate advanced life support services prior to ambulance arrival.

A private company, American Medical Response under contract with the County, provides emergency ambulance services in most parts of the County. In the San Ramon Valley and Moraga-Orinda areas, emergency ambulance service is provided by the fire service. Depending upon the nature of the incident, an ambulance may be dispatched Code 3 (red lights and siren) or Code 2 (immediate response, but following normal traffic regulations). Ambulances may be staffed with either paramedic-trained or EMT-I trained personnel.

The staffing standard for response to potentially life threatening incidents is an advanced life support (ALS) ambulance staffed with paramedics. Paramedics are able to administer lifesaving drugs and perform other lifesaving procedures. Basic life support (BLS) ambulances are staffed with two EMT-I's and may be used for non-emergency response or to provide additional support at an emergency incident.

Patient treatment and transport are carried out under State and local EMS agency policies and procedures. These policies include, in the case of paramedics, making contact with a mobile intensive care nurse (MICN) or physician at the designated base hospital for medical consultation in patient management according to County EMS treatment guidelines.

Patients are transported to hospitals able to provide needed services. Hospital destination is determined based upon patient preference and County EMS protocols. Critical patients may be directed to the nearest emergency department or to the trauma center. Non-critical patients may be transported to hospitals of choice within reasonable travel time.

Medical helicopter service is available to transport critical patients when ground ambulance transport time would be excessive. Two medical helicopter services, CALSTAR and REACH, are authorized to respond to local EMS calls on a daily rotation schedule. Both agencies provide advanced life support services and maintain 24-hour helicopter unit availability based at Buchanan Field in Concord. Other helicopter services are available to respond from neighboring counties if both CALSTAR and REACH are unavailable.

E. County Service Area EM-1 (Measure H) Funding.

In 1988 Contra Costa voters countywide passed ballot “Measure H” which provides for enhancements to the EMS system including increased paramedic ambulance service, additional medical training and equipment for firefighter first responders, and an improved EMS communications system. Following a 71.6% affirmative vote, the Board of Supervisors, with the support of the 18 city councils, formed County Service Area EM-1 to levy charges on real property as specified in Measure H. Assessments are limited to $10.00 annually for a single-family residence. Commercial and industrial properties are generally assessed at $30.00 or higher, depending upon the use code classification of the parcel.

Measure H assessments have been used to finance the following:

- Increased paramedic ambulance units available to respond to 9-1-1 calls,
- A countywide firefighter first responder defibrillation program including automated external defibrillators purchased and maintained for all fire response units,
- Medical supply caches purchased and maintained for multicasualty/disaster response,
- An upgrade to the MEDARS radio system used for ambulance-to-hospital communications,
- Radios for ambulances to communicate with fire first responders,
- An upgraded ambulance dispatch system and dispatcher preparedness and,
- Enhanced response to Hazardous Materials incidents.

II. List of Major Accomplishments – 2001

- Developed an on-line EMS website which includes EMS policies, protocols and other EMS-related information including meeting schedules and agendas available for downloading.
- Provided ongoing oversight to the countywide emergency medical services and trauma system, which included some 64,391 responses to emergency medical calls made by County-contracted ambulance services, 428 medical helicopter transports by County-designated air ambulance services, and 811 serious trauma patients treated at John Muir Medical Center, the County-designated trauma center.
- Assisted with ongoing development and expansion of fire first responder paramedic services now provided by Moraga-Orinda Fire and San Ramon Valley Fire and, on a partial coverage basis, by Bethel Island Fire, Contra Costa County Fire, and El Cerrito Fire; provided ongoing oversight to the countywide fire first responder defibrillation program.
- Continued sponsorship of the Bay Area Disaster Medical Assistance Team (DMAT CA-6), which was deployed to the New York City World Trade Center following the 9/11 terrorist attack and the Presidential Inauguration in Washington D.C.
- Updated the County Trauma System Plan to reflect changes in California Trauma regulations requirements.
- Completed Year Two of the EMS for Children Grant Project which included finalization of EMSC Plan; Pediatric Education for Prehospital Professionals training to nearly 100% of ALS personnel; Emergency Nurse Pediatric Course to over 120 emergency department nurses; Child Passenger Safety systems purchased for ALS ambulances,
- Implemented ReddiNet system that provides a communications link among the EMS Agencies and hospitals in Alameda and Contra Costa counties.
- Implemented new skills programs that permit the use of cardiac pacing and a new specialized airway management device.
- Participated in Annual Statewide Disaster Exercise
- Participated on Health Services Bioterrorism Response Planning Committee to develop protocols for response to “white powder” incidents and to provide education and training on biological threats for emergency responders, clinicians, and the public.

III. Issues in the Forefront

A. Response to the Threat of Bioterrorism

Following the terrorist attacks of September 2001 on the World Trade Center and Pentagon and the subsequent introduction of anthrax powder into the U.S. postal system, public health and emergency response agencies throughout the nation have had to focus resources on biological threats. While actual anthrax exposures were limited to a few areas on the east coast, communities across the country were called upon to respond "white powder" scares. In Contra Costa County, Health Services Hazardous Materials teams, fire, and law enforcement responded to hundreds of cases of reported white powders. In many cases, samples were gathered for testing at the County's Public Health Laboratory. Altogether, 88 samples were brought to the Public Health Laboratory during the last three months of 2001 for testing.

Under the auspices of the Health Services Public Health Division a Bioterrorism Response Planning Committee was formed. This committee included representation from fire, law enforcement, EMS, and other Health Services divisions. Tasks undertaken by the committee included development protocols for "white power" responses; meeting with hospitals, medical staffs, and law enforcement groups; conducting training for public health and other personnel in clinical aspects of bioterrorism; and development of educational materials for the public and for clinicians. As the initial anthrax threat subsided, the work of the Bioterrorism Response Planning Committee has turned toward more general bioterrorism preparedness, including preparation receiving pharmaceuticals and medical supplies from the National Pharmaceutical Stockpile and preparation mass immunization plans.

B. Paramedic First Responder Services

Paramedic first responder services have continued to expand during 2001 and the first part of 2002. As of August 2002, units stationed at 30 of the county's 66 fire stations included paramedic staffing. It is anticipated that at least one additional paramedic first responder unit will become available by the end of 2002. A change scheduled to be made in connection with the consolidation of the Bethel Island, Oakley, and East Diablo fire districts in late 2002 is the addition of an AMR first responder paramedic unit to be stationed in Bethel Island. The new AMR first responder unit will operate in a similar fashion to the existing AMR first responder unit in Byron and will respond simultaneously with the paramedic ambulance to those areas of East Diablo where it may have a shorter response time. The AMR first responder unit will replace paramedic staffing of the engine company stationed at Bethel Island.

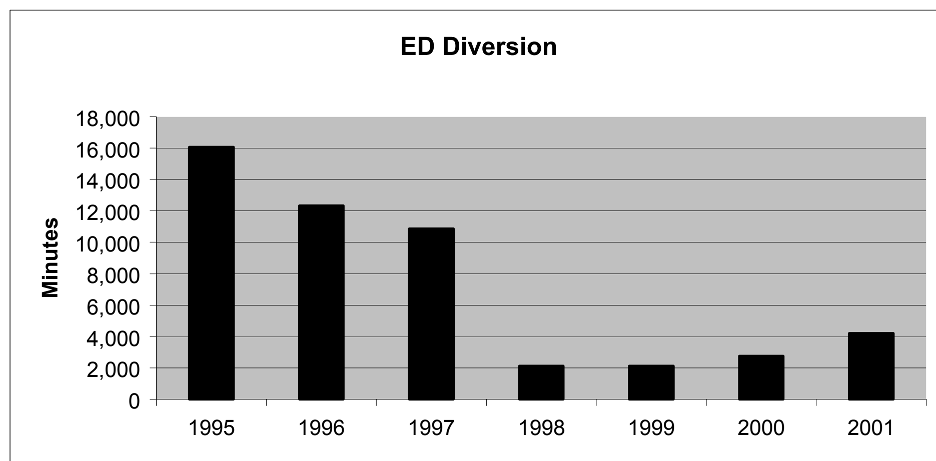
To continue the Board of Supervisors' direction to identify methods of implementing paramedic first responder services without incurring additional County costs, the EMS Agency issued an RFP in May 2002 for consultant services to assistance in designing a plan for integrating fire paramedic first responder service with paramedic ambulance service in those areas of the county where emergency ambulance service is currently provided by private ambulance. Fitch and Associates was selected as consultant and is

scheduled to begin work on this project in September 2002.

Fire Service	Stations	Stations with Paramedics	Comment
Bethel Island	1	1	Paramedic staffing to be replaced with AMR first responder unit in late 2002 following merger of Bethel Island Fire with East Diablo Fire.
Contra Costa County	30	15	Includes west county units added August 2002.
Crockett-Carquinez	2	0	
East Diablo	5	1	AMR 1st responder unit at Station 75 (Byron).
El Cerrito	3	1	Kensington station.
Moraga-Orinda	4	4	
Oakley	2	0	
Pinole	1	1	
Richmond	7	0	
Rodeo-Hercules	2	0	
San Ramon Valley	9	8	Paramedic response to Station 37 (volunteer) provided from adjacent station.
Total	**66**	**30**	

C. Hospital Overcrowding and ED Diversion

Hospital overcrowding and emergency department diversion remain issues in Contra Costa County. After taking steps to limit diversion during the influenza epidemic of 1997-98, emergency department ambulance diversion fell dramatically within the county. However, as can be seen in the figure below, diversion is now trending upward.



The following is a breakdown of the number of hours of emergency department diversion in 2001 by hospital:

Hospital	Hours	Hospital	Hours
Sutter Delta	29.6 hours	Mt. Diablo	4.3
San Ramon	15.8	Doctors	-
John Muir	12.8	Kaiser/Richmond	-
Contra Costa	7.6	Kaiser/WC	-

Because of the potential for delaying patient care and the adverse impact diversion may have on ambulance resource availability, EMS has sought to keep emergency department diversion to a minimum. Diversion, however, is only one aspect of hospital overcrowding, and reducing or eliminating diversion may not lessen overcrowding. In some cases, reducing diversion may result in increased overcrowding.

D. EMS Vision

The EMS Vision process was undertaken by the State EMS Authority (EMSA) in late 1997 to develop goals for the improvement of EMS in California. The first report issued in June 1999 entitled “Shaping the Future of EMS in California” contained some 66 recommendations for the future of EMS. These recommendations were developed through a stakeholder consensus process.

A major objective and a major stumbling block for the Vision process had been resolving the issue of “shared governance” for local EMS systems. Competing “county” and “municipal” governance models had been proposed by the Vision governance group. This lead to the undertaking of a joint California State Association of Counties (CSAC) and California League of Cities (CLC) study of local EMS system governance. A final EMS Vision report will be issued by EMSA following a final Vision conference scheduled for December 2002.

IV. EMS System Participants

A. Advisory Committees

Emergency Medical Care Committee (EMCC):

The EMCC is a multidisciplinary committee appointed by and advisory to the County Board of Supervisors, to the Health Services Director and its EMS Agency. Membership consists of representatives of EMS related organizations and consumers. From 1968 until 1994 the Contra Costa EMCC was appointed by and provided advice to the County Board of Supervisors. At that time the Health Services Department assumed the EMCC as an advisory body. In 1997, the Board of Supervisors re-established the EMCC as being advisory to the Board. The EMCC meets quarterly (March, June, September, December), and meetings are open to the public. Specific meeting information is available through the EMS Agency.

Medical Advisory Committee (MAC):

The Medical Advisory Committee provides advice and recommendations to the EMS Agency and EMS Medical Director on medically related topics. Examples include ALS and BLS medical treatment guidelines; new prehospital skills and/or medications; prehospital policies and procedures related to patient medical management; and review of medical quality issues. Membership consists of base hospital coordinator/liaison physician, ALS provider agency representatives, and receiving hospital emergency physician representatives.

Trauma Audit/Pre-Trauma Audit Committees (TAC/Pre-TAC):

These committees evaluate trauma system care and monitor compliance to the trauma system standards established in the County Trauma System Plan according to provisions of State trauma regulations. Both TAC and Pre-TAC are held jointly with Alameda County and provide monitoring for two separate trauma systems. County EMS Medical Directors appoint members of these confidential quality improvement committees. Pre-TAC, which meets monthly, is responsible for initial committee review of all trauma related system issues, including select trauma center cases. Cases identified by Pre-TAC are referred to the Bi-County Trauma Audit Committee (TAC).

Co-chaired by the county EMS Medical Directors, TAC meets bimonthly and includes multidisciplinary representation from the four Alameda/Contra Costa County trauma centers, as well as representatives of non-trauma center receiving hospitals, prehospital care providers, ACCMA, coroner's offices, and EMS agency staff. Trauma surgeons from trauma centers outside of Contra Costa and Alameda County also participate in case review activities. Cases referred from Pre-TAC are reviewed along with cases identified as having teaching value. This committee presents observations and makes recommendations to respective EMS agencies regarding identified trauma system or trauma center issues.

Multicasualty Advisory Committee (MCAC):

This ad hoc multidisciplinary committee was originally organized by the EMS Agency in 1978 to develop an integrated emergency response plan for multicasualty incidents. The committee has also developed additional procedures for emergency response to varying

magnitudes of emergency medical incidents. Representatives from police, fire, EMS, ambulance providers (both ground and air) and receiving hospitals participate. The Multicasualty Incident Plan was last revised in 1998.

First Responder Defibrillation Operations Committee:

This committee is charged with reviewing and evaluating operational matters related to the first responder defibrillation program. Membership consists of training representatives from each fire first-responder agencies. This group meets quarterly.

EMCC Facilities/Critical Care Committee:

This committee evaluates and makes recommendations to the EMCC with respect to issues that impact hospitals and their interface with the EMS system.

Hospital Disaster Forum (HDF):

This is a quarterly meeting of disaster planners from hospitals, cities, ambulance, fire, OES, and EMS. HDF provides for discussion of issues of mutual concern regarding hospital disaster preparedness.

B. PSAP's and Dispatch Centers

PUBLIC SAFETY ANSWERING POINTS:

- Antioch Police Department
- California Highway Patrol
- Concord Police Department
- East Bay Regional Park Police
- Martinez Police Department
- Pinole Police Department
- Pleasant Hill Police Department
- Richmond Police Department
- Sheriff's Communications
- Walnut Creek Police Department

FIRE/MEDICAL DISPATCH CENTERS:

- Contra Costa County Fire Dispatch
- West County Consolidated Communications Operations (Richmond Police)
- San Ramon Valley Fire Dispatch
- Sheriff's Dispatch – (Multicasualty coordination)

AMBULANCE DISPATCH CENTERS:

- American Medical Response
- San Ramon Valley Fire
- Contra Costa County Fire (Moraga-Orinda only)

C. First Responders

COUNTY FIRE PROTECTION DISTRICTS:

- Bethel Island Fire Protection District - 1 station (merged with East Diablo Fire 2002)
- Contra Costa County Fire Protection District - 30 stations
- Crockett-Carquinez Fire Protection District - 2 stations
- East Diablo Fire Protection District - 5 stations
- Oakley Fire Protection District - 2 stations (merged with East Diablo Fire 2002)
- Pinole Fire Protection District (served by Pinole Fire Department)

MUNICIPAL FIRE DEPARTMENTS:

- El Cerrito Fire Department - 3 stations
- Pinole Fire Department - 1 station
- Richmond Fire Department - 7 stations

INDEPENDENT FIRE PROTECTION DISTRICTS:

- San Ramon Valley Fire Protection District (10 stations)
- Rodeo-Hercules Fire Protection District (2 stations)
- Moraga-Orinda Fire Protection District (5 stations)
- Kensington Fire Protection District (served by El Cerrito Fire Department)

OTHER FIRST RESPONDERS:

- East Bay Regional Parks
- California Division of Forestry
- Private & military fire services

PARAMEDIC FIRST RESPONDER PROGRAMS:

- Moraga-Orinda Fire - Paramedic Engine (3 units)
- American Medical Response - Byron/Discovery Bay area – Medic Unit (1 unit)
- Bethel Island Fire Protection District - Paramedic Engine (1 unit)
- Contra Costa Fire - Paramedic Engine and Medic Units (13 units)
- San Ramon Valley Fire – Paramedic Engine/Ambulance (8 stations)
- El Cerrito Fire Department – Paramedic Engine in Kensington (1 station)
- California Highway Patrol - Helicopter Unit
- East Bay Regional Park - Helicopter Unit

D. Emergency Ambulance Providers

- American Medical Response (16 – 33 ambulances)
- San Ramon Valley Fire (5 ambulances)
- Moraga-Orinda Fire (2 ambulances)

E. EMS Helicopters

AIR AMBULANCES:

- CALSTAR (1) Buchanan Field; (other helicopters in Gilroy and Roseville).
- REACH (1) Buchanan Field; (another helicopter in Vacaville).
- Helicopter services available in surrounding counties include Stanford Life Flight, Palo Alto; Davis Life Flight, Sacramento; Medi-Flight, Modesto; Air Med Team, Stanislaus County

RESCUE AIRCRAFT:

- California Highway Patrol (ALS helicopter)
- East Bay Regional Parks (BLS helicopter-upgraded to ALS in 2001)
- U.S. Coast Guard (BLS rescue capabilities, including hoist ability)

F. Hospitals

RECEIVING HOSPITALS:

- Contra Costa Regional Medical Center, Martinez
- Doctors' Hospital, San Pablo Campus
- John Muir Medical Center, Walnut Creek
- Kaiser Medical Center, Walnut Creek
- Mt. Diablo Hospital Medical Center, Concord
- San Ramon Regional Medical Center
- Sutter Delta Medical Center, Antioch
- Kaiser Medical Center, Richmond

BASE HOSPITALS:

- John Muir Medical Center
- Mt. Diablo Medical Center (relinquished base hospital status in February 2001)

TRAUMA CENTERS:

- John Muir Medical Center
- Children's Hospital, Oakland is the regional trauma center for pediatric patients.

V. EMS Program Activities

A. Emergency Ambulance Services

Emergency ambulance services are provided countywide under **performance based contracts** in each of three exclusive operating areas. The County currently contracts with American Medical Response, San Ramon Valley Fire Protection District and Moraga-Orinda Fire Protection District. Contracts are awarded on a competitive basis, as required by law, except for Moraga-Orinda Fire, which is exempt from the competitive bid requirement under of the Health & Safety Code.

American Medical Response	All of west, east county and north/central county. Includes cities of Richmond, San Pablo, El Cerrito, Hercules, Pinole, Pittsburg, Antioch, Oakley, Brentwood, Martinez, Pleasant Hill, Lafayette, Walnut Creek, Concord, and Clayton.	**16 – 33 ALS/BLS ambulances**
Moraga-Orinda Fire	Area of Moraga-Orinda Fire Protection District including town of Moraga and city of Orinda.	**2 ALS ambulances**
San Ramon Valley Fire	Area of San Ramon Valley Fire Protection District including cities of Danville and San Ramon.	**5 ALS ambulances (3 reserve)**

Contracts with all three providers require ALS level response to all life threatening or potentially life threatening emergencies, and a 10-minute or shorter response time for at least 95 percent of all Code 3 calls within urban areas. An exception to the 10 minute/95% response standard is in the central county area of the Contra Costa Fire Protection District where a ten-minute/90% ambulance response standard has been set based on rapid paramedic first response by Contra Costa Fire paramedics.

During **2001**, the EMS system received 64,391 requests for emergency ambulance response. Of these, 48,950 (76.0%) were considered to involve potentially life-threatening situations to which a Code 3 (red lights and siren) ambulance response was necessary. The remaining 15,441 (24.0%) ambulance responses were dispatched Code 2 (immediate response without lights and siren). Of the total responses, 58,860 (91.4%) were handled by American Medical Response, 3,943 (6.1%) by San Ramon Valley Fire Protection District ambulance, and 1,588 (2.5%) by Moraga-Orinda Fire Protection District ambulance. Average Code 3 ambulance response time countywide was 7.18 minutes. The county ambulance staffing standards were met on 48,118 (98.3%) of 48,950 Code 3 ambulance responses.

Not all ambulance responses result in patient transport. Of the 64,391 emergency ambulance responses during the year, 47,625 (74.0%) resulted in patient transport to an emergency receiving hospital. Ambulances responding to the remaining 16,766 (26.0%) requests were canceled either enroute or at the scene without the need for patient transport. Reasons for cancellation vary from poor information regarding patient severity, to the patient having been transported by other means such as private auto, to

the patient refusing ambulance transport. In many instances a situation, which was initially perceived to be a medical emergency, had been resolved or stabilized by the time an ambulance unit arrived on the scene.

Emergency Ambulance Dispatches

	1997		1998		1999		2000		2001	
All EMS Ambulance Dispatches	**52,143**	**100.0%**	**53,490**	**100.0%**	**57,568**	**100.0%**	**61,531**	**100.0%**	**64,391**	**100.0%**
Code 3 (lights & siren)	41,849	80.3%	42,199	78.9%	44,851	77.9%	47,381	77.0%	48,950	76.0
Code 2	10,294	19.7%	11,291	21.1%	12,717	22.1%	14,150	23.0%	15,441	24.0
American Medical Response	48,311	92.7%	50,007	93.5%	52,169	90.7%	56,202	91.3%	58,860	91.4
San Ramon Fire	3,209	6.2%	2,368	4.4%	3,825	6.6%	3,624	5.9%	3,943	6.1
Moraga-Orinda Fire	623	1.1%	1,115	2.1%	1,574	2.7%	1,705	2.8%	1,588	2.5
Transport	36,877	70.7%	38,510	72.0%	40,081	69.6%	44,931	73.0%	47,625	74.0
No Transport (Dry Run)	15,266	29.3%	14,980	28.0%	17,487	30.4%	16,600	27.0%	16,776	26.0
Average Code 3 Response Time	6.98 minutes		7.22 minutes		7.10 minutes		7.07 minutes		7.18 minutes	
Code 3 Responses Not Meeting Ambulance Staffing Standard	447	1.1%	499	1.2%	914	2.0%	869	1.8%	832	1.7

NOTE: Orinda Fire and Moraga Fire combined into the Moraga-Orinda Fire Protection District in 1997. Prior to that time, American Medical Response handled calls in Orinda.

B. Base Hospital and Paramedic Service Programs

Base Hospital Services:

John Muir Medical Center provides direct (on-line) and indirect (retrospective review) medical oversight services for ambulances countywide. In 2001 there were 4,763 base hospital contacts by field personnel. Mt. Diablo ceased providing base hospital services on February 1, 2001.

Treatment Protocols:

First responders, paramedics, EMT's, MICN's, and base hospital physicians use **EMS Field Treatment Guidelines** to provide care to patients in the field. These guidelines are reviewed and endorsed by the Medical Advisory Committee based on current research and medical need in the county and are adopted by the EMS Medical Director. Field treatment protocols are reviewed and revised on an ongoing basis. Changes made in Changes in treatment protocols, implemented in December 2000, increased the number of standing orders for paramedics and led to a significant decrease in base contact compared to prior years. Treatment protocols changes in **2001** included adding external cardiac pacing, esophageal/tracheal double lumen airway (Combitube), and replacing diazepam with midzolam.

C. First Responder Services

Most EMS responses involve dispatch of both fire and ambulance units. All firefighters are required by law to be trained in emergency first aid and most are certified as EMT-I's. Firefighters respond from the nearest fire station and are normally the first responder on the scene of a medical emergency. Twelve County-governed, independent district and municipal fire departments respond from a total of 68 fire stations within the county.

First Responder Automated External Defibrillator (AED) Program:

The first responder defibrillation program, established on a countywide basis in 1992, provides rapid access to life-saving care for patients with cardiac arrest. The survival rate since program implementation has remained steady over the past several years, but the number of patients shocked as decreased. In part, this is due to the increased presence of first responder paramedic units, which utilize manual defibrillators instead of AED's. Data for first responder paramedic units is not included with AED program data.

First Responder Paramedic Programs:

First responder paramedics provide a method for combining early advanced life support care with the generally shorter response times provided by first responder units. Several models of paramedic first responder service are provided in Contra Costa County.

➤ In 1988, the EMS Agency approved the use of a pilot program ALS Engine in Moraga Fire District, to provide back up ALS service to the Moraga paramedic ambulance. An ALS Engine, staffed with at least 1 (one) paramedic and 1 (one) EMT-1 and stocked with ALS equipment/supplies, was dispatched simultaneously with an ALS transport unit to emergency medical requests. This program received permanent approval in 1992.

In 1997, Moraga Fire Protection District merged with the Orinda Fire Protection District to form the Moraga-Orinda Fire Protection District. By 1999 all first responder units were staffed to provide paramedic advanced life support care.

➤ In 1992, American Medical Response, East Diablo Fire District and the EMS Agency entered into a formal cooperative effort to provide a timelier, cost effective method of delivering ALS to citizens in the Discovery Bay/Byron areas by implementing an ALS First Responder Paramedic Unit. This program has had a positive impact on the manner in which ALS care is delivered to this low call volume area.

➤ In 1996, the EMS Agency approved an ALS Engine pilot program in the Bethel Island Fire Protection District, to provide ALS service prior to the arrival of the AMR paramedic transport ambulance. In this largely volunteer district, experienced full-time paramedic employees of other ALS provider agencies are hired by Bethel Island on a part-time, on-call basis to staff its ALS Engine. This program was extended through 2001.

➤ In 1997, San Ramon Valley Fire Protection District implemented a program under which minimum ambulance staffing was dropped from two paramedics to one paramedic. This enabled the District to increase the number of stations with paramedic staffing and provided flexibility for responses of paramedic ambulances and paramedic engines for critical patients. A dispatch plan was developed based on Medical Priority's Emergency Medical Dispatch System to assure two paramedics are on scene when needed for certain categories of patients.

➤ In 1997, Contra Costa County Fire Protection District implemented a pilot first-responder paramedic program in the Walnut Creek area. Two engines staffed with a paramedic and 2 firefighters, and "Medic Unit", a non-transporting unit staffed with one paramedic provides first responder services. In 1998 the program expanded to 3 (three) engines and a "Medic Unit", the additional engine having been added in the Martinez area. In 1999 the program expanded to seven engines and a "Medic Unit" extending coverage throughout Contra Costa Fire's district in the central county area. In 2001 the program was expanded further to twelve units.

➤ In 2001, El Cerrito Fire Department implemented an ALS program by providing a paramedic engine to cover the Kensington and El Cerrito hills areas where long ambulance response times are typically over 10 minutes.

All five First Responder Paramedic programs operate under base hospital medical direction as well as EMS Agency policies and procedures.

Emergency Medical Guidelines for Law Enforcement Agencies:

Emergency Medical Guidelines For Law Enforcement Agencies were developed and implemented in 1992 following approval by the County Police Chiefs' Association and the Emergency Medical Care Committee. These guidelines provide direction to law enforcement personnel when they are the first to arrive on the scene of a medical emergency. The guidelines, newly revised in 2002, address only the medical aspects of the officer's responsibility. EMS staff periodically attends the Law Enforcement Training Advisory committee (LETAC) to address system changes/issues.

D. Dispatch and Communications

MEDARS:

The **Medical Emergency & Disaster Ambulance Radio System** is the County radio system used for ambulance-to-hospital and for Sheriff's Dispatch-to-ambulance communications. This radio system includes four channels. Med-11 is used for communications between ambulances and Sheriff's Dispatch. Med-12, Med-13, and Med 14 are for ambulance-to-hospital communications.

Message Transmission Network (MTN):

MTN is a computer network designed to interconnect the county's four fire/medical dispatch centers, Sheriff's dispatch, and American Medical Response (AMR) dispatch. Currently, the MTN system is in use at Contra Costa Fire Dispatch and AMR Dispatch and handles about 70% of all EMS dispatches countywide. By establishing a direct data link among the various computer-aided dispatch systems, MTN decreases dispatch time, reduces dispatch errors, and provides system response data.

MTN makes use of the All County Criminal Justice Information Network (ACCJIN), which provides an existing linkage among 9-1-1 answering points using similar protocols (TCP/IP) to those used on the Internet.

Priority Dispatching:

Emergency Medical Dispatch (EMD) is a process where EMS dispatchers screen calls to provide appropriate EMS first-responder/ambulance response, and provide simple emergency medical instructions for the caller to initiate prior to the arrival of EMS

personnel. In 1993, Medical Priority's ProQA Dispatch System, the only available computerized medical dispatch system at the time, was piloted in the San Ramon Valley Fire Protection District's dispatch center. By 2000, all fire/medical dispatch centers provided fire/ambulance dispatch utilizing the Medical Priority Dispatch System. In 2001, Contra Costa Fire Protection District began using the Medical Priority Pro-QA Dispatch System, and the West County Communications Center was recognized as a Medical Priority Center of Excellence. .

Fire Radios:

Hi-band mobile radios, programmed with existing fire service radio channels, have been installed in all paramedic units, to facilitate communication among paramedics, fire dispatch centers, and fire first responders except Richmond, which has an 800-trunking radio system.

ReddiNet:

The ReddiNet system, integrated locally in 2001, was designed as a microwave communications link between hospitals. Hospitals and the EMS Agencies in Alameda and Contra Costa Counties are included in our local ReddiNet system. In Contra Costa, Sheriff's Dispatch is the coordination point, and the dispatch centers for all three emergency ambulance providers are also included. On a day-to-day basis, hospitals can receive alert notices and timely incident updates from EMS and from Sheriff's dispatch, post hospital diversion and "census alert" status, and send any important message to other hospitals individually or as a group. During multicasualty incidents, ReddiNet facilitates the reporting of hospital information and tracking ambulance assignments and patient information. During a major disaster, ReddiNet is designed to provide a reliable communication path between hospitals the counties' disaster operations centers.

E. Trauma System

In 1986, the Board of Supervisors approved a comprehensive Trauma System Plan for the County and designated John Muir Medical Center as the county's Level II Trauma Center, and in June of that year, ambulance personnel began transporting critical trauma patients directly to John Muir. Ambulance and base hospital personnel use triage protocols, which include evaluation of mechanisms of injury and anatomic factors as well as a physiologic trauma scoring system to identify critical trauma patients. In 2001, a revised trauma system plan was developed to meet new State trauma system planning requirements.

In 2001, 2,828 patients were identified as requiring trauma triage, 811 of which were transported directly to John Muir Trauma Center. One hundred twenty-two patients were transported to Children's Hospital, Oakland, and 32 to out of county adult trauma centers, primarily Eden Hospital, Castro Valley and Highland Hospital, Oakland. Patients in traumatic full arrest or whose airway cannot be managed (total of 15 in 2001) are triaged to the closest basic emergency department for resuscitation. During the past 15.5 years of operation, a total of 46,380 patients have been triaged through the County trauma system.

Critically injured patients who arrive at a non-trauma center hospital may be transferred to a trauma center. Thirty-two of the 48 injured patients transferred to John Muir from

within Contra Costa in 2001 were retrospective “major trauma victims”. John Muir Trauma Center also received 203 trauma patients from surrounding counties, generally by air transport.

If trauma center resources are temporarily overwhelmed the trauma center may consider "Trauma Center Bypass", directing any additional critical trauma patients to out of county trauma centers until resources are again available. In 2001 John Muir Trauma Center bypass rate was 2.3% and was most often due to operating room overload. Fifteen critical trauma patients were triaged to out of county trauma centers during trauma center bypass periods. Four critical trauma patients were triaged to non-trauma centers due to bypass periods, 2 of which were retrospectively major trauma victims.

Trauma System Evaluation:

A major aspect of the trauma system is an extensive trauma system and trauma center monitoring program. Included in the monitoring program is a unique, bi-county audit system held in conjunction with Alameda County EMS and Alameda County trauma centers. This joint county evaluation system has been in place since the inception of the county trauma system. Trauma surgeons from other California trauma systems also participate in our trauma system evaluation & monitoring process, bringing outside perspectives and the additional expertise from teaching facilities.

Trauma Injury Prevention:

The EMS Agency supported injury prevention activities in 2001, by participating in the Childhood Injury Prevention Coalition and on the County's Child Death Review Team. John Muir Trauma Center supports an active injury prevention program that includes car seat inspections, school based presentations, participation in health fairs, representation on a number of injury prevention organizations, target groups and committees. John Muir Injury Prevention has received National Awards of Recognition for their programs and service to the community including recognition for the development of “Nurses & Cops Caring for Contra Costa Children”, which provides free car seat inspections for all areas of Contra Costa County throughout the year.

F. Helicopter Transport

The Operational Procedures for Patient Transport by Helicopter were originally developed during trauma system planning in 1985/1986 and most recently updated in 1994. Most helicopter transports are for trauma patients from distant areas of Contra Costa or from other counties to the John Muir Trauma Center in Walnut Creek. Doctors’ Hospital, San Pablo also has a helipad that may be used as an ambulance/helicopter rendezvous point, or to receive patients with major burns to its Burn Unit. The County’s current standard of care for emergency patients transport by air is by an "air ambulance" which is staffed with two ALS care providers. Rescue aircraft are also requested for their special resources. As an example, a U.S. Coast Guard helicopter has been used for its hoist capability. Additionally, a formal procedure for access of military aircraft has been adopted.

In 2001 there were 208 transports of local patients by helicopter, almost exclusively to trauma centers. Local authorized air ambulance helicopter providers, CALSTAR and REACH, are dispatched on a daily rotation schedule and performed the majority of

transports in 2001. John Muir Trauma Center received an additional 122 patients from other Bay area counties.

G. Hospital Emergency Services

Interfacility Transfer Process:

The County Board of Supervisors initially approved County Patient Transfer Guidelines on February 2, 1988. These guidelines established the procedures necessary for the transfer of patients between acute care facilities. In 1998 a revision of the transfer review process was initiated to focus on aggregate data. In 2001, 3,146 transfers were reported. Trends and issues identified through this process are used to modify policy and to educate hospital and prehospital personnel throughout the county.

Emergency Department Diversion of Ambulances:

Diversion of ambulances by emergency departments of acute care receiving facilities in the County is permitted by EMS Policy, which was initially developed and implemented in 1985. Under ambulance diversion policy, hospitals whose emergency departments are temporarily overloaded, may direct certain ambulance patients to other nearby hospitals. The purpose of this policy is to assure that patients are transported to a hospital that is able to provide immediate emergency treatment. EMS staff reviews the documentation pertaining to all reported incidents of ED ambulance diversion. In 2001, the ED diversion policy was amended to allow diversion of certain types of patients when the hospital’s CAT scan machine was not functional. During 2001, there were 5 facilities that utilized full diversion a total of 34 times for a total of 70.1 hours. There were no reports of problems in patient care resulting from these diversion incidents. During that same period, 6 of 8 facilities utilized CAT Scan diversion a total of 44 times for a total of 1,042.9 hours. CAT Scan diversion permits ambulances to divert patients who may require this procedure to another area hospital when the hospital’s CAT Scanner is down for repairs or maintenance.

At the end of 1997, and into the first quarter of 1998, Contra Costa experienced an acute shortage of ED and critical care resources. This phenomenon was felt in surrounding counties and throughout much of the State. As a result of this shortage, in 1998 the hospitals in Contra Costa worked in conjunction with the Hospital Council and EMS Agency to develop a framework for hospital response to scarcity in staffing, equipment, and/or bed capacity. Each hospital has developed and has internally integrated this Hospital Census Alert System for shortages in their facility. Starting in 2001, hospitals now report their census alert status on the ReddiNet system.

H. Disaster/Multicasualty Planning and Response

Disaster Planning Grant:

Since 1990, the EMS Agency has received a series of disaster planning grants through the State EMS Authority. The granted disaster planning process has resulted in the designation of the Contra Costa County Health Officer as Regional Disaster Medical/Health Coordinator (RDMHC) and the assignment of a Regional disaster medical/Health Specialist (RDMHCS) as staff to the project for the northern California coastal area (OES Region II). These grants have enabled the EMS Agency to enhance and support the County's disaster preparedness and that of the other 15 operational

areas within Region II by facilitating coordination among cities, hospitals, county EMS agencies and State EMS Authority in the event of an earthquake or other major disaster.

In 2001 the major objectives of the disaster planning grant were:

- ➤ To continue to develop and update the medical mutual aid system regionwide.
- ➤ To update Region II contact and resource information.
- ➤ To facilitate Region II participation in the annual Statewide Disaster Exercise,
- ➤ To act as a resource to operational area medical and health planners; to provide assistance in regional medical/health disaster related grant projects including DMAT activities; to conduct quarterly regional meetings and communications drills and an annual regional table top exercise; and disseminate information and promote education within the region including mitigation and recovery planning.

Disaster Medical Assistance Team (DMAT):

A DMAT is volunteer team established under the National Disaster Medical System (NDMS), through the U.S. Public Health Service. DMAT volunteer teams are organized, trained, and prepared to provide medical and health care to disaster victims. In 1997, County Health Services began sponsoring a DMAT, drawing support from 4 other Bay area counties. Over 130 individuals have submitted applications volunteering to become a part of the response team or of team support services. DMAT CA-6 is the only DMAT based in northern California and one of just eight within the State (a Sacramento-based DMAT is in the formative stages).

In 2001 DMAT members were deployed to a number of events including the Presidential Inauguration; Hurricane Allison, Texas; and the NYC World Trade Center Terrorist Event. An MOU with CDF was established to provide medical coverage for firefighters responding to wild land fires. CA-6 was the pilot DMAT team to undertake this type of response, and was the prototype for a nationwide collaborative between DMAT's and U.S. Dept of Forestry.

Multicasualty Plan:

Following the Yuba City/Martinez school bus accident in 1976, which killed 29 and injured another 23 young adults, the EMS Agency recognized the need for a coordinated response to multicasualty events by dispatch, police, fire, ambulance, and hospital personnel. The multidisciplinary Multicasualty Advisory Committee (MCAC), produced the first Multicasualty Incident Plan in 1982. This plan established a common organization and management structure for coordination of emergency response to multicasualty incidents, and may be implemented whenever the number of injured exceeds local medical capabilities. The plan was most recently updated in 1998 to incorporate the most current emergency medical response information.

Medical Advisory Alert:

The Medical Advisory Alert, a notification procedure developed in 1987, may be implemented when an incident has occurred or a condition exists which *might* tax the local medical resources. When an MAA is implemented, Sheriff's Communications alerts those agencies with responsibilities in providing administrative or other support during a multicasualty incident that the potential for such a situation exists.

Community Warning System:

Refineries and other industrial sites which use or store potentially hazardous chemicals use the Community Warning System to issue alerts that incidents have occurred. These

alerts range from Level 0 alerts at the low end to Level 3 alerts at the high end. EMS staff is alerted by pager to Level 2 (an incident has occurred resulting in minimal off-site impact) and Level 3 (an incident has occurred resulting in significant off-site impact) events. Both Level 2 and Level 3 alerts normally result in a Medical Advisory Alert.

Expanded Medical Emergency:

Operational procedures were developed to provide an on-scene organizational structure for incidents requiring more than one ambulance, but not requiring the outside support services activated with the Multicasualty Plan. It is designed to avoid overloading one hospital with patients and to eliminate multiple calls to the base hospital regarding the same incident. Developed and initiated in 1992, this procedure is used frequently and successfully throughout the County.

Multi-Casualty Supply Caches:

In 1991 the EMS Agency purchased emergency medical supplies to be available for use countywide in a multicasualty or disaster situation. Supplies are organized into 25 multi-casualty supply caches that are stored and maintained in fire stations throughout the County. Fire agencies have agreed to rapidly transport caches to incidents if possible. Cache supplies include bandaging equipment, splinting supplies, oxygen administration supplies, and blood pressure equipment.

Health Services Emergency Preparedness Program:

Emphasis in 2001 was on earthquake preparedness and response as we continued our effort to implement, practice, and refine the Health Services Emergency Plan. The Emergency Management Team (EMT) meets quarterly, and the Emergency Preparedness Work Group meets monthly. Health Services was the recipient of another $23,675 Center for Disease Control Grant for the purchase of Bioterrism Response preparedness communications equipment for the Public Health Laboratory.

Department of Justice (DOJ) Programs State and Local Domestic Preparedness Equipment Support Program

Contra Costa EMS continued preparedness activities with various Fire, Law, OES and EMS agencies to implement the $300,000 Department of Justice Grant for the purchase of communications equipment, decontamination equipment, and personal protective equipment. The funds have been used to enhance the capabilities first response agencies that may be called upon to respond to acts of terrorism. The equipment is currently staged in four caches maintained at designated fire stations throughout the county for rapid transport and deployment at any location. A second DOJ Grant administered by Richmond Fire, has been processed for the purchase of additional preparedness equipment.

I. Certification Programs

Paramedics:

Paramedics are licensed by the State of California and are accredited by the local EMS Agency to practice in each county or EMS region in which they are employed. In 2001, 191 paramedics were either accredited or re-accredited by the Contra Costa County EMS Agency to practice as paramedics within the County.

EMT-I's:

Any local EMS Agency may certify EMT-I's within the State. Once certified, an EMT-I may function as such statewide. In 2001, 364 EMT-I's were either certified or recertified in Contra Costa County. (In 2002, a background check by the Department of Justice (DOJ)was added to the EMT-I certification/recertification requirements.

MICN's:

In 2001, 12 RN's were either authorized or re-authorized in Contra Costa to practice in the expanded MICN role within the County.

J. Training Programs

Local EMS Agencies are required to review and approve training programs for prehospital personnel as meeting all requirements established by State regulations.

Paramedic Training Programs: There are no paramedic programs currently offered in the county.

EMT Training Programs: The EMS Agency has approved the local EMT courses offered by Los Medanos Community College, Mt. Diablo Adult Education, Contra Costa College and Safety Compliance Management.

- Los Medanos Community College offers EMT training each fall at its Pittsburg campus.
- Contra Costa College offers EMT training each year at its San Pablo campus.
- Mt. Diablo Adult Education offers EMT training at various times throughout the year at its facility in Concord.
- Safety Compliance Management offers EMT training programs for contracted agencies at various times throughout the year.

Contra Costa Fire and Moraga-Orinda Fire Protection Districts offer training and continuing education to in-house personnel only.

MICN Training Programs: John Muir Medical Center conducted two MICN training programs in 2001.

K. Public Information Education Programs

The Public Information and Education (PIE) Subcommittee of the Emergency Medical Care Committee is charged with providing public information and education concerning Emergency Medical Services. Emphasis has been on EMS system access, recognition of life threatening situations, prevention of injuries, self-help techniques and first-aid skills that the public can utilize in emergency situations (CPR specifically).

- Local CPR class availability is accessible through the 1-800-GIVE-CPR number maintained by the Contra Costa EMS Agency. This number is advertised in the EMS 9-1-1 Brochure, local newspapers, telephone books and CCC Cable TV.
- EMS has continued to provide speakers for a number of community and wellness organizations such as Junior Chamber of Commerce, the Rotary Club, acute care receiving and skilled nursing facilities, and school districts.
- Revised the EMS 9-1-1 Brochure

L. Other Programs

DNR Program:

A Do-Not-Resuscitate (DNR) program for patients with terminal medical problems was implemented in 1993. This program evolved in response to concern from the public over the patient's right to self-determination. The Do-Not-Resuscitate program allows patients, in conjunction with their physicians, to refuse resuscitative measures in the prehospital setting, even if the 9-1-1 system is inadvertently activated. The DNR form is signed by both the patient and the patient's physician and is recognized by prehospital personnel statewide. The DNR form provides prehospital personnel with a physician order to not resuscitate the patient. Comfort measures and care other than resuscitative measures are still provided by first responders and ambulance personnel. The EMS Agency has distributed thousands of DNR forms to hospitals, nursing homes, hospices, home health agencies, and private physicians throughout the county.

EMS for Children Program:

In 1999, the EMS Agency obtained a two-year grant to develop and implement an EMS for Children (EMSC) program for Contra Costa. During 2001, an EMSC Plan was adopted which will be integrated into the County EMS System Plan; pediatric restraint devices were purchased and distributed for use in emergency ambulances; over 95% of ALS personnel were provided training in Pediatric Education for Prehospital Professionals (PEPP); over 100 Emergency Department RN's took part in Emergency Nursing Pediatric Course (ENPC) training; and multi-lingual brochures and posters addressing the new California Child Passenger Safety (Booster Seat) and Child Abandonment laws were distributed to receiving hospitals countywide.

VI. 2001 Statistical Report

A. Ambulance Dispatch Report

Year 2001

Number of Dispatches, Response Code, and Response Level by Ambulance Provider

American Medical Response, San Ramon Valley Fire District, Moraga-Orinda Fire District

Response Code and Level	All Providers		American Medical Response		San Ramon Valley Fire*		Moraga/Orinda Fire	
	#	%	#	%	#	%	#	%
Total Dispatches	**64,391**	**100.0**	**58,860**	**100.0**	**3,943**	**100.0**	**1,588**	**100.0**
Code 3 Dispatches	48,950	76.0	44,042	74.8	3,739	94.8	1,169	73.6
Code 2 Dispatches	15,441	24.0	14,818	25.2	204	5.2	419	26.4
Total Code 3 Dispatches	**48,950**	**100.0**	**44,042**	**100.0**	**3,739**	**100.0**	**1,169**	**100.0**
ALS Response	48,118	98.3	43,210	98.1	3,739	100.0	1,169	100.0
BLS Response	832	1.7	832	1.9	0	0.0	0	0.0
Total Code 2 Dispatches	**15,481**	**100.0**	**14,818**	**100.0**	**204**	**100.0**	**459**	**100.0**
ALS Response	9,299	60.1	8,636	58.3	204	100.0	459	100.0
BLS Response	6,182	39.9	6,182	41.7	0	0.0	0	0.0

Ambulance Dispatch Report (cont.)

Year 2001

Patient Transport by Ambulance Provider

American Medical Response, San Ramon Valley Fire District, Moraga-Orinda Fire District

Response Code and Level	All Providers		American Medical Response		San Ramon Valley Fire		Moraga/Orinda Fire	
	#	%	#	%	#	%	#	%
Total Dispatches	**64,391**	**100.0**	**58,860**	**100.0**	**3,943**	**100.0**	**1,588**	**100.0**
Transported	47,625	74.0	43,828	74.5	2,891	73.3	906	57.1
Cancelled	16,766	26.0	15,032	25.5	1,052	26.7	682	42.9
Total Patient Transports	**47,625**	**100.0**	**43,828**	**100.0**	**2,891**	**100.0**	**906**	**100.0**
Transported Code 3	2,581	5.4	2,335	5.3	191	6.6	55	6.1
Transported Code 2	44,779	94.0	41,228	94.1	2,700	93.4	851	93.9
Helicopter	265	0.6	265	0.6	0	0.0	0	0.0
Transport Code Not Reported	0	0	0	0.0	0	0.0	0	0.0
Total Cancelled	**16,766**	**100.0**	**15,032**	**100.0**	**1,052**	**100.0**	**682**	**100.0**
Enroute	3,422	20.4	3,070	20.4	263	25.0	89	13.0
On Scene	13,344	79.6	11,962	79.6	789	75.0	593	87.0

Ambulance Dispatch Report (cont.)

Year 2001

Responses by Community, Response Code, Average Code 3 Response Time, and BLS Response on Code 3

American Medical Response West, San Ramon Valley Fire District, and Moraga-Orinda Fire District

Community	All Responses		Code Two		Code Three				
	#	%	#	%	#	%	Avg. Response Time*	BLS Unit Only on Response	
Totals	**64,391**	**100.0**	**15,441**	**24.0**	**48,950**	**76.0**	**7.18**	**832**	**1.7**
Richmond	11,172	17.4	1,543	13.8	9,629	86.2	6.81	173	1.8
San Pablo	2,753	4.3	769	27.9	1,984	72.1	6.42	31	1.6
El Cerrito	1,666	2.6	200	12.0	1,466	88.0	7.61	21	1.4
El Sobrante	525	0.8	112	21.3	413	78.7	8.30	9	2.2
Kensington	211	0.3	26	12.3	185	87.7	11.32	2	1.1
Pinole	1,494	2.3	357	23.9	1,137	76.1	6.36	31	2.7
Hercules	835	1.3	205	24.6	630	75.4	8.30	10	1.6
Rodeo	472	0.7	133	28.2	339	71.8	8.60	5	1.5
Crockett	237	0.4	48	20.3	189	79.7	12.76	3	1.6
Concord	9,726	15.1	3,031	31.2	6,695	68.8	6.88	137	2.0
Martinez	3,151	4.9	942	29.9	2,209	70.1	8.16	65	2.9
Pleasant Hill	2,477	3.8	656	26.5	1,821	73.5	6.71	23	1.3
Pacheco	208	0.3	62	29.8	146	70.2	7.34	7	4.8
Clayton*	438	0.7	133	30.4	305	69.6	10.36	5	1.6
Clyde	6	0.0	1	16.7	5	83.3	10.00	0	0.0
Walnut Creek	5,901	9.2	1,488	25.2	4,413	74.8	7.31	70	1.6
Lafayette	1,126	1.7	331	29.4	795	70.6	9.02	13	1.6
Orinda	896	1.4	257	28.7	639	71.3	8.30	2	0.3
Moraga	727	1.1	180	24.8	547	75.2	7.61	0	0.0
Alamo	507	0.8	41	8.1	466	91.9	5.38	2	0.4
Danville	1,688	2.6	96	5.7	1,592	94.3	4.82	0	0.0
San Ramon	1,628	2.5	84	5.2	1,544	94.8	4.68	0	0.0
Diablo	27	0.0	2	7.4	25	92.6	7.19	0	0.0
Blackhawk	147	0.2	8	5.4	139	94.6	5.79	0	0.0
Antioch	6,166	9.6	1,842	29.9	4,324	70.1	6.77	83	1.9
Pittsburg	5,309	8.2	1,474	27.8	3,835	72.2	7.07	73	1.9
Bay Point	1,304	2.0	363	27.8	941	72.2	7.33	27	2.9
Oakley	1,134	1.8	334	29.5	800	70.5	9.30	14	1.8
Bethel Island	336	0.5	123	36.6	213	63.4	14.45	2	0.9
Brentwood*	1,593	2.5	422	26.5	1,171	73.5	9.34	20	1.7
Discovery Bay*	255	0.4	113	44.3	142	55.7	16.70	1	0.7
Byron*	204	0.3	60	29.4	144	70.6	15.20	3	2.1
Out of County	8	0.0	2	25.0	6	75.0	7.25	0	0.0
Other/Unknown	64	0.1	3	4.7	61	95.3	8.61	0	0.0

*Average response times do not include calls cancelled enroute or calls by Unit 75 (first responder)

Ambulance Dispatch Report (cont.)

Year 2001

Transports by Hospital Destination, Transport Code, and Major Trauma Victim Status

American Medical Response West, San Ramon Valley Fire District, and Moraga-Orinda Fire District

Hospital	All Transports		Code Three Transports		Code Two Transports	
	#	%	#	%	#	%
Totals	**47,625**	**100.0**	**2,762**	**100.0**	**44,863**	**100.0**
Contra Costa Reg.	6,453	13.5	103	3.7	6,350	14.2
Doctors, San Pablo	8,125	17.1	473	17.1	7,652	17.1
John Muir	5,559	11.7	586	21.2	4,973	11.1
Kaiser, Richmond	3,104	6.5	104	3.8	3,000	6.7
Kaiser, Walnut Creek	4,508	9.5	217	7.9	4,291	9.6
Mt. Diablo	8,734	18.3	475	17.2	8,259	18.4
San Ramon Regional	1,543	3.2	122	4.4	1,421	3.2
Sutter/Delta	7,066	14.8	390	14.1	6,676	14.9
Valley Care	53	0.1	0	0.0	53	0.1
Alta Bates	886	1.9	24	0.9	862	1.9
Children's	240	0.5	49	1.8	191	0.4
Highland	23	0.0	5	0.2	18	0.0
Kaiser, Vallejo	293	0.6	7	0.3	286	0.6
Summit	40	0.1	2	0.1	38	0.1
Kaiser, San Rafael	12	0.0	0	0.0	12	0.0
Marin General	26	0.1	0	0.0	26	0.1
Helicopter Transport	265	0.6	181	6.6	84	0.2
Other/Unknown	694	1.5	24	0.9	670	1.5

B. Helicopter Utilization Report

Contra Costa Patients Transported by Helicopter - 2001

Origin	1997		1998		1999		2000		2001	
	Pts	%	Pts	%	Pts	%	Pts	%	Pts	%
TOTAL	**273**	**100.0**	**376**	**100.0**	**400**	**100.0**	**380**	**100.0**	**428**	**100.0**
West County	130	47.6	127	33.8	140	35.0	163	42.9	173	40.4
East County	103	37.7	122	32.4	176	44.0	136	35.8	191	45.1
South County	12	4.4	9	2.4	21	5.3	33	8.7	40	9.4
Central County	28	10.3	29	7.7	55	13.8	43	11.3	22	5.1
Unknown			89*	23.7	8	2.0	5	1.3	0	0.0

*Information unavailable from air ambulance providers. A significant portion of these patients is thought to have been transported from outside of Contra Costa.

Helicopter Transports Originating Within Contra Costa by Provider Agency

Provider	1997		1998		1999		2000		2001	
	Pts	%	Pts	%	Pts	%	Pts	%	Pts	%
TOTAL	**273**	**100.0**	**376**	**100.0**	**400**	**100.0**	**380**	**100.0**	**428**	**100.0**
CALSTAR	244	89.4	195	51.9	182	45.5	197	51.8	213	49.8
REACH	13	4.8	86	22.9	204	51.0	174	45.8	204	47.7
CHP	3	1.1	3	<1	5	1.3	2	<1	5	1.2
Other	13	4.8	0	0.0		<1	4	1.1	6	1.4
Unknown	0	0.0	92*	24.5	9	2.3	5	1.3	0	0.0

*Information unavailable from air ambulance providers. A significant portion of these patients is thought to have been transported from out side of Contra Costa.

C. Trauma System Report

On-scene Triage of Patients Within Contra Costa Meeting Field Trauma Criteria

	1997	1998	1999	2000	2001
Total Patients Meeting One or More Field Trauma Triage Criteria	2,853	2,920	2,909	2,885	2,828
Triaged in field as major trauma	997	964	1,025	983	984
Transported to a trauma center	957	925	984	953	965
John Muir Medical Center	841	814	827	776	811
Children's Hospital, Oakland	88	99	129	129	122
Other trauma center	28	12	28	48	32
Transported to the closest receiving hospital	40	39	41	34	19
CPR/Unstable airway	39	38	41	29	15
Trauma center on bypass	1	1	0	5	4
Triaged in the field as not having major trauma	1,856	1,956	1,884	1,903	1,844

Field Triage Errors (errors per 100 patients triaged with major trauma) – 2001

Undertriage error rate	=	Patients field-triaged as not having major trauma, but subsequently found to have major trauma / Total number of patients triaged in the field as having major trauma	=	27 / 984	=	**2.7**
Overtriage error rate	=	Patients field-triaged as having major trauma, but subsequently found not to have major trauma / Total number of patients triaged in the field as having major trauma	=	471* / 984	=	**47.9**

* Not all follow-ups received from Eden, Highland, or Children's Hospital Oakland.

Definitions:

Field triaged major trauma - All patients meeting County EMS criteria based on CRAMS score or anatomic factors for automatic consideration as major trauma patients plus all patients meeting trauma base hospital call-in criteria for whom a trauma center destination is given.

Retrospective major trauma determination - All patients whose hospital Injury Severity Score (ISS) is over 15 or who have an ISS between 10 and 14 with at least three-day hospital stay are considered to be major trauma patients. All patients not meeting these criteria are considered non-major trauma patients.

Undertriage and Overtriage Rates by Year

Type of Triage Error	1997	1998	1999	2000	2001
Undertriage	3.8	2.9	1.3	1.1	2.7
Overtriage	50.3	45.0	52.0	43.7	47.9

D. First Responder Defibrillation Program Reports

First Responder Defibrillation Activity Report

	1997		1998		1999		2000		2001	
	#	%	#	%	#	%	#	%	#	%
Total patients in cardiac arrest	**387**	**100.0**	**411**	**100.0**	**336**	**100.0**	**326**	**100.0**	DATA UNAVAILABLE	
Patients with shockable cardiac rhythm	107	27.6	164	39.9	130	38.7	80	24.5		
Patients without shockable rhythm	280	72.4	247	60.1	206	61.3	246	75.5		
Patients with shockable cardiac rhythm	Information not available		**164**	**100.0**	**130**	**100.0**	**80**	**100.0**		
Witnessed arrest			73	44.5	69	53.1	48	60.0		
Unwitnessed arrest			91	55.5	46	35.4	21	26.3		
Unknown			0	0.0	15	11.5	11	13.8		
CPR prior to EMS arrival			40	24.4	54	41.5	32	40.0		
No CPR prior to EMS arrival			117	71.3	57	43.8	38	47.5		
Unknown			7	4.3	19	14.6	10	12.5		
Patients with shockable cardiac rhythm	**107**	**100.0**	**164**	**100.0**	**130**	**100.0**	**80**	**100.0**		
"Field Saves"	23	21.5	20	12.2	23	17.7	21	26.3		
"System Saves"(patient discharged from hospital)	13	12.1	11	6.7	11	8.5	8	10.0		

E. Patient Transfer Report

Interfacility Transfer Statistics by Transferring Hospital

	1997	1998	1999	2000	2001
Total reported transfers	**2,520**	**4,085**	**3,126**	**3,549**	**3,146****
Contra Costa Regional	5	38	52	68	70
Doctors, Pinole	88	194	114	16*	Closed
Doctors, San Pablo	244	686	652	599	118**
John Muir	19	38	150	184	136
Kaiser Martinez	257	118*	Closed		
Kaiser Richmond	1,312	1,498	809	1,138	1,029
Kaiser Walnut Creek	128	635	285	292	322
Mt. Diablo	148	203	253	267	190
San Ramon	21	52	62	50	149
Sutter Delta	302	623	749	933	1,131
Unknown	0	0	0	2	1

*Kaiser Martinez closed 1/98. Doctors Medical Center, Pinole Campus closed its emergency department 3/00.
**Complete data not available from Doctors Hospital, San Pablo.

Reason for Transfer

Reason for Transfer	1999		2000		2001	
	#	%	#	%	#	%
Total reported transfers.	**3,126**	**100.0**	**3,549**	**100.0**	**3,146**	**100.0**
Higher Level of Care	1,274	40.8	1,570	44.2	1,519	48.3
5150	86	28.2	1,038	29.2	792	25.2
No Bed	308	9.9	276	7.8	100	3.2
Insurance Status	430	13.8	446	12.6	564	17.9
Other	137	4.4	126	3.6	122	3.9
Patient Request	78	2.5	78	2.2	41	1.3
Not Marked	13	0.4	15	0.4	8	0.3

Patient Transfer Report (cont.)

Type of Transfer

Transfer Type	1999		2000		2001	
	#	%	#	%	#	%
Total reported transfers.	**3,126**	**100.0**	**3,549**	**100.0**	**3,146**	**100.0**
Psychiatric	909	29.1	1,045	29.4	795	25.3
Pediatric	480	15.4	607	17.1	509	16.2
Cardiac	193	6.2	178	5.0	267	8.5
Respiratory	144	4.6	71	2.0	89	2.8
Neurosurgery	123	3.9	182	5.1	147	4.7
General Surgery	179	5.7	421	11.9	284	9.0
OB/GYN	106	3.4	132	3.7	158	5.0
Trauma	89	2.8	75	2.1	63	2.0
Other Medical	854	27.3	814	22.9	825	26.2
Other	46	1.5	14	<1	3	<1
Not Marked	3	<1	10	<1	6	<1

Mode of Transfer

Transfer Mode	1999		2000		2001	
	#	%	#	%	#	%
Total reported transfers.	**3,126**	**100.0**	**3,549**	**100.0**	**3,146**	**100.0**
EMT-I Ambulance	2,063	66.0	2,403	67.7	1,873	59.5
Critical Care Transport	826	26.4	943	26.6	978	31.1
Paramedic Ambulance	69	2.2	47	1.3	59	1.9
Auto/Taxi	74	2.4	57	1.6	40	1.3
Other (including Helicopter)	77	2.5	74	2.1	60	1.9
Not Marked	17	<1	25	<1	136	4.3

Emergency Department Diversion Report

Emergency Department Diversion (By-Pass)

	1997	1998	1999	2000	2001
All Hospitals					
# of events	**88**	**21**	**20**	**23**	**34**
Total hours	**181.2**	**35.2**	**35.3**	**46.0**	**70.1**
Avg hours/event	**2.1**	**1.7**	**1.8**	**2.0**	**2.1**
Contra Costa Regional					
# of events	25	4	2	0	3
Total hours	41.3	17.1	2.5	0	7.6
Avg hours/event	1.7	4.3	1.3	-	2.5
Doctors Pinole					
# of events	3	0	1	Closed	
Total hours	5.4	0.0	2.5		
Avg hours/event	1.8	-	2.5		
Doctors San Pablo					
# of events	34	6	1	0	0
Total hours	77.8	6.2	2.5	0	0.0
Avg hours/event	2.3	1.0	2.5	-	-
John Muir					
# of events	1	0	0	1	7
Total hours	1.4	0.0	0.0	1.5	12.8
Avg hours/event	1.4	-	-	1.5	1.8
Kaiser Martinez					
# of events	0	Closed			
Total hours	0.0				
Avg hours/event	-				
Kaiser Richmond					
# of events	4/97 – Did not receive ambulance patients		0[1]	0	0
Total hours			0.0	0.0	0.0
Avg hours/event			-	-	-
Kaiser Walnut Creek					
# of events	3	0	0	1	0
Total hours	12.8	0	0.0	2.2	0.0
Avg hours/event	4.3	-	-	2.2	-
Mt Diablo					
# of events	9	1	0	0	2
Total hours	14.0	1.7	0.0	0.0	4.3
Avg hours/event	1.5	1.7	-	-	2.2
San Ramon Regional					
# of events	0	0	0	4	6
Total hours	0	0	0.0	22.6	15.8
Avg hours/event	-	-	-	5.7	2.6
Sutter Delta					
# of events	13	10	16	17	16
Total hours	28.5	10.2	27.8	19.7	29.6
Avg hours/event	2.2	1.0	1.7	1.2	1.9

[1] Limited ambulance traffic resumed 2/99.

CAT Scan Diversion (By-Pass)

	2000	2001
All Hospitals		
# of events	**5**	**44**
Total hours	**26.9**	**1,042.9**
Avg hours/event	**5.4**	**23.7**
Contra Costa Regional		
# of events	0	6
Total hours	0.0	422.8
Avg hours/event	-	70.5
Doctors San Pablo		
# of events	2	6
Total hours	15.3	26.8
Avg hours/event	7.6	4.5
John Muir		
# of events	0	3
Total hours	0.0	1.6
Avg hours/event	-	0.5
Kaiser Richmond		
# of events	0	7
Total hours	0.0	203.8
Avg hours/event	-	29.1
Kaiser Walnut Creek		
# of events	0	0
Total hours	0.0	0.0
Avg hours/event	-	-
Mt Diablo		
# of events	0	0
Total hours	0.0	0.0
Avg hours/event	-	-
San Ramon Regional		
# of events	2	15
Total hours	8.3	283.0
Avg hours/event	4.2	18.9
Sutter Delta		
# of events	1	7
Total hours	3.3	104.9
Avg hours/event	3.3	15.0

Base Hospital Contact Report

Base Hospital Activity Summary

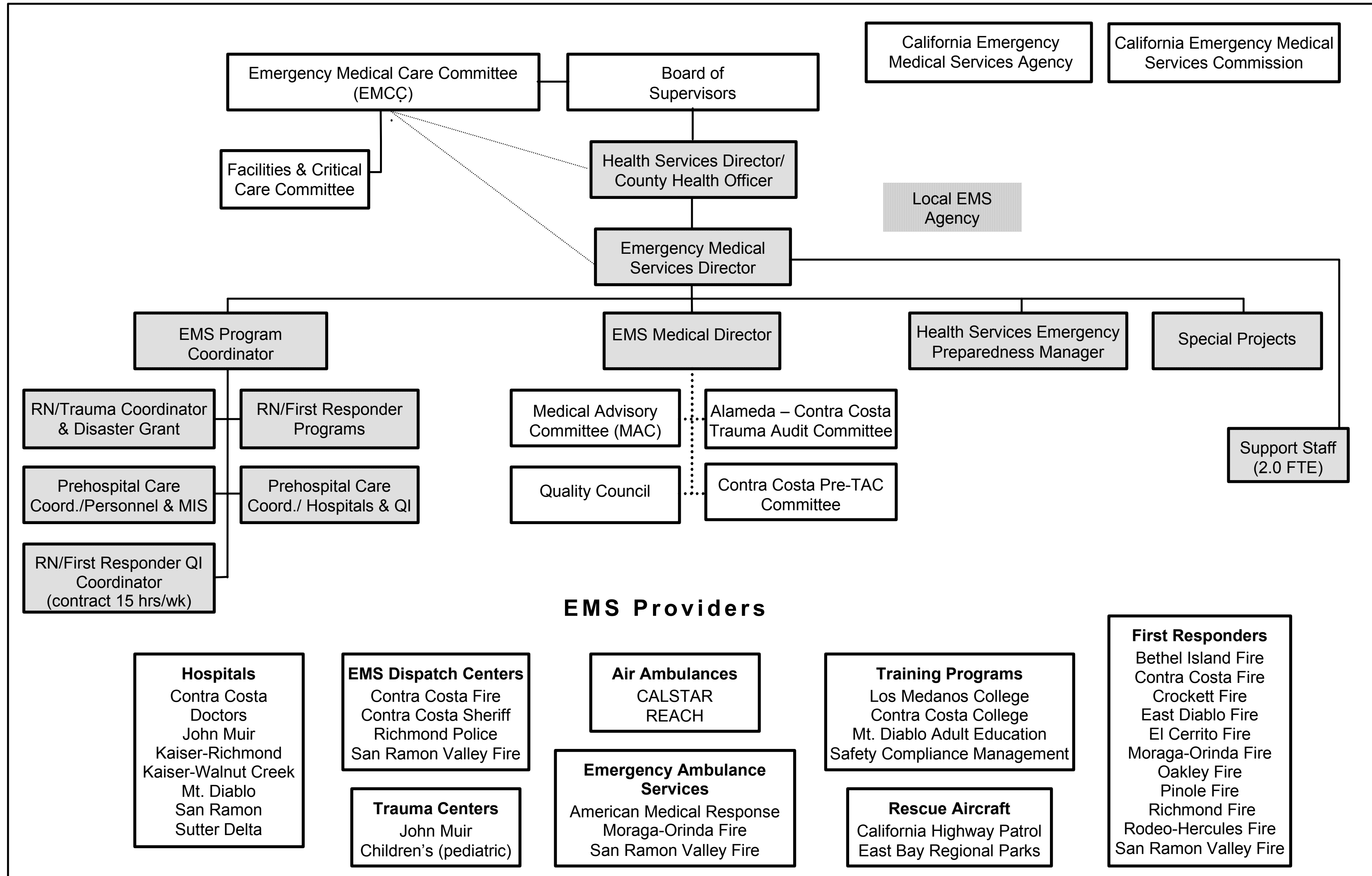
	1997		1998		1999		2000		2001	
	#	%	#	%	#	%	#	%	#	%
Total Base Contacts	10,426	100.0	7,270	100.0	7,379	100.0	8,401	100.0	4,763	100.0
ALS Care Provided	8,572	82.2	4,819	66.3	4,816	65.3	6,050	72.0	2,138	44.9
No ALS Provided	1,854	17.8	2,451	33.7	2,224	30.1	2,351	28.0	2,625	55.1
EMT-P Contacts	9,633	92.4	6,482	89.2	6,738	91.3	7,661	91.2	4,021	84.4
EMT-I Contacts	186	1.8	132	1.8	132	1.8	149	1.8	129	2.7
EMT Not Identified	607	5.8	103	1.4	509	6.9	591	7.0	613	12.9
Adult Patients	9,781	93.8	6,849	94.2	6,581	89.2	7,946	94.6	4,107	86.2
Pediatric Patients (age < or = 14)	403	3.9	290	4.0	589	8.0	290	3.5	502	10.5
Age Not Identified	231	2.2	149	2.0	209	2.8	165	2.0	154	3.3

Contacts by Base Hospital -- 2001

	System Totals	John Muir Base	Mt. Diablo Base*
Total Base Contacts	**4,763**	**4,537**	**226**
ALS Care Provided	2,138	1,847	191
No ALS Care Provided	2,625	2590	35
EMT-P Contacts	4,021	3,833	188
EMT-I Contacts	129	128	1
EMT Not Identified	613	576	37
Adult Patients	4,107	3,899	208
Pediatric Patients (age < or = 14)	502	489	13
Age Not Identified	154	149	5

* Mt. Diablo Medical Center ceased providing Base Hospital Services as of February 2001.

VII. EMS Agency Organizational Chart



VIII. EMS Expenditures

EMS Expenditures by Year

Fiscal Years Ending 1993 – 2002

	FY 92-93	FY 93-94	FY 94-95	FY 95-96	FY 96-97	FY 97-98	FY 98-99	FY 99-00	FY 00-01	FY 01-02 (Preliminary)
Total expenditures	$4,163,059	$4,606,456	$4,788,824	$5,792,767	$4,957,692	$5,038,620	$5,206,356	$4,816,578	$5,244,796	$5,871,544
Basic EMS Expenditures (Budget Unit #6543)	563,714	545,747	564,743	620,945	600,131	827,423	835,386	774,444	931,745	1,514,038
Grant programs (approximate)	35,000	30,000	30,000	160,000	136,000	105,000	124,500	228,175	150,000	768,175
Regional Disaster Planning (EMSA)				80,000	90,000	80,000	80,000	80,000	80,000	120,000
Trauma Care (EMSA)										648,175
Public Health Preparedness (DHS)								23,675		
Data Linkage (EMSA)							44,500	44,500		
EMS for Children (EMSA)								80,000	70,000	
Domestic Preparedness (OJP)								[290,644]*	[9,355]*	
Poison Control Alternatives (EMSA)				80,000	46,000	25,000				
Trauma Registry Computer (OTS)	5,000									
Disaster Planning (EMSA)	30,000	30,000	30,000							
Injury Prevention (EMSA)		[130,000]*	[70,000]*							
Non-grant programs	528,714	515,747	534,743	460,945	464,131	722,423	710,886	546,269	781,745	745,863
County Service Area EM-1 (Measure H)	3,597,990	4,060,709	4,224,082	4,991,185	4,922,581	4,211,197	4,370,970	4,042,134	4,313,052	4,357,506
Zone A (San Ramon Valley)	67,530	99,033	96,773	149,998	334,020	115,149	266,796	273,183	166,545	173,776
Zone B (balance of county)	3,530,460	3,961,676	4,127,308	4,841,187	4,588,561	4,096,048	4,104,174	3,768,951	4,146,507	4,183,730

*Amount not included in expenditure totals.

IX. Development of EMS in Contra Costa County.

The emergency medical services system approach and the use of paramedic personnel to provide advanced life support care under the supervision of a base hospital physician or mobile intensive care nurse began evolving as a new model for health care delivery in the late 1960's. Contra Costa as well as a number of other progressive counties throughout California began developing their emergency medical services systems during this time. Following are milestones in the development of the EMS system in Contra Costa County:

1968 ➤ **Emergency Medical Care Committee (EMCC)** appointed by County Board of Supervisors to provide oversight of emergency medical services within the county.

1970 ➤ State **Wedworth-Townsend Act** enabled counties to conduct pilot projects using **paramedics and mobile intensive care nurses** (MICN's) to provide advanced life support services to patients in the field.

➤ **Ambulance Regulations** added to the County Ordinance Code which included permit and ambulance registration processes.

1972 ➤ Ten **ambulance zones** established for the provision of emergency ambulance service within the county.

1975 ➤ In response to EMCC's recommendation and with county approval, Health Department agreed to develop an **advanced life support program** and to provide coordination of emergency medical services countywide. Initial EMS Program developed with Federal funding under auspices of Comprehensive Health Planning.

1976 ➤ Los Medanos Community College, in conjunction with Stanford University, developed first **training programs** for paramedics and MICN's.

1977 ➤ **First paramedics and MICN's graduated** from Los Medanos Community College training programs and were certified by County Health Officer.

➤ John Muir Medical Center and Mt. Diablo Medical Center designated **Base Hospitals** for medical control of paramedic units throughout the county. (Initial base hospital services were provided on a monthly rotation schedule.)

➤ **Joint Exercise of Powers Agreement** between Alameda and Contra Costa Counties established an East Bay EMS Region for the development of a Regional EMS program.

➤ **First paramedic-staffed ambulances** responded in Walnut Creek (Pomeroy Ambulance in May 1977); in Moraga (Moraga Fire Protection District in June 1977); in Concord (Michael's Ambulance in January 1978); and in Richmond (Cadillac Ambulance February 1978 - Labor issues delayed active participation in program until 1979).

1980 ➤ Joint Powers Agreement for Regional emergency medical services disbanded following the recommendations of EMCC's from Alameda and Contra Costa Counties.

➤ Comprehensive **California Emergency Medical Services System and Prehospital Emergency Medical Care Personnel Act enacted**. This legislation set EMS system standards, as well as prehospital personnel training/certification standards, and provided a basic standardized structure for EMS systems throughout the State.

➤ Provision added to the County Ambulance Ordinance which established **exclusive**

ambulance zones for emergency and non-emergency transport.

➤ Brookside Hospital designated by county as third base hospital to provide medical direction for west county paramedic units.

1982 ➤ **Multicasualty Incident Plan** approved by County Board of Supervisors providing for on-scene coordination, resource notification, and patient distribution in multicasualty situations.

1983 ➤ Health Services Department designated as **Local EMS Agency** and County Health Officer designated as **EMS Medical Director** by Board of Supervisors pursuant to State EMS Act.

➤ Competitive bid process for **emergency ambulance service contracts** established pursuant to a revised County Ambulance Ordinance. A Request for Proposal process that sought the highest level of service possible without County subsidy resulted in exclusive contracts with Cadillac Ambulance, Regional Ambulance, Moraga Fire District, San Ramon Valley Fire District, and East County Ambulance.

1984 ➤ Paramedic level ambulance transport services implemented by San Ramon Valley Fire District in a joint program with John Muir Medical Center.

➤ Ten ambulance zones consolidated into 5 **Emergency Response Areas** (ERA's). Exclusive ambulance service contracts awarded to Cadillac Ambulance, Regional Ambulance, Moraga Fire and San Ramon Valley Fire following competitive bid.

1985 ➤ **EMS System Plan** developed according to standards set by EMS Authority.

➤ First formal RFP process for paramedic **base hospital designation** developed and administered for 4 base hospital zones countywide.

➤ Small **plan crashed** into the Sun Valley Mall injuring some 80 victims.

➤ **Emergency Medical Dispatch** (EMD) standards and criteria developed and recommended by the EMCC.

➤ Procedure for **Emergency Department (ED) diversion** implemented to allow diversion of emergency ambulances away from an ED if number of critical patients in ED was such that any more critical patients could not be cared for adequately.

➤ Brookside Hospital emergency department downgraded licensure to "Standby Emergency Services" and relinquished paramedic base hospital designation.

1986 ➤ Comprehensive **Trauma System Plan** approved by Board of Supervisors providing for the designation of a single Level II Trauma Center. Trauma system **treatment and triage protocols** adopted. Ambulance personnel and first responders trained in specialized critical trauma patient management.

➤ John Muir Medical Center designated as County's **Level II Trauma Center**.

➤ Bay Area **Trauma Registry Project** initially funded by State EMSA.

➤ Operational Procedures for **Patient Transport by Helicopter** implemented.

➤ Cadillac Ambulance purchased by Regional Medical Systems making RMS the single private emergency ambulance provider in county.

➤ **Competitive bidding process** for emergency ambulance service providers in 5 ERA's. Service contracts awarded to Regional Ambulance, Moraga Fire and San Ramon Valley Fire.

➤ Base Hospital contracts established with John Muir Medical Center, Mt. Diablo Medical Center and Los Medanos Community Hospital.

➤ Emergency medical dispatch program including pre-arrival instructions implemented by Contra Costa County Fire Dispatch Center.

1987 ➤ Formal **Patient Transfer Guidelines**, which included a multi-disciplinary quality assurance process to be administered by the EMS Agency, adopted by Board of Supervisors, as well as by all hospitals within the county.

➤ Health Services Department **Emergency Management Team** consisting of key Health Services personnel designated to respond to the County EOC or Medical/Health Operations Center in a disaster.

➤ Program for reporting **communicable disease exposure** developed and available to fire, police and ambulance agencies countywide.

➤ Brookside Hospital restored to basic emergency licensure status.

1988 ➤ **"Measure H"**, a general election ballot advisory measure calling for the establishment of a benefit assessment for enhanced EMS services, approved by 71.6% of the voters countywide.

➤ Joint **Solano/Contra Costa County EMS Hazardous Materials Training Project** established with 5 year funding under consent agreement between IT Corporation and State Department of Health Services; administered by EMS Agency.

➤ Pilot "**first responder paramedic engine**" program undertaken by Moraga Fire Protection District.

1989 ➤ Countywide **Benefit Assessment District for Enhanced Emergency Medical Services**, County Service Area EM-1, approved by all city councils and established by Board of Supervisors under administration of Health Services.

1990 ➤ C**ounty Service Area EM-1** became operational.

➤ **EMS Disaster Planning Project** funded by State EMSA and administered by local EMS Agency. The County Health Officer is designated **Regional Disaster Medical Health Coordinator** (RDMHC) for OES Region 2 counties.

➤ San Ramon Regional Medical Center licensed for Basic Emergency Services opened in San Ramon.

1991 ➤ **High-performance ambulance contracts** initiated with Regional Ambulance, San Ramon Valley Fire, and Moraga Fire. Standards set for required paramedic-staffed ambulance response to emergency calls at a 95% 10 minute maximum response for urban areas of county. Number of paramedic staffed ambulances increased from 12 to 19 to meet this standard with ambulance service subsidies funded by Measure H.

➤ **First Responder Defibrillation Program** developed. PhysioControl semi-automatic defibrillation equipment selected through RFP competitive bid process.

➤ Countywide system of M**ulticasualty Medical Caches** established including supplies to be used in multicasualty or disaster situations.

➤ Specialized **Hazardous Materials Response Protocols** and training program developed and implemented for ambulance personnel.

➤ P**aramedic training program** provided at Los Medanos Community College.

➤ Veterans Administration **Hospital closed.**

1992 ➤ **Fire First Responder Defibrillation Program** implemented countywide.

➤ "**Emergency Medical Guidelines for Law Enforcement Agencies**" endorsed by

the EMCC and the County Police Chiefs' Association.

➤ "EMS **Operational Procedures For Response to an Expanded Medical Emergency**" (EME) developed and implemented.

➤ **"Do Not Resuscitate" program** instituted, which provides patients with option of predetermining levels of resuscitation to be performed by field personnel.

➤ E**MS treatment protocols for children** developed and implemented.

➤ Two new **radio channels** for ambulance-hospital communications available.

➤ John Muir Trauma Center permanently (20 years) designated as **Level II trauma center** following request-for-proposal review process.

➤ **In Fire Service EMS Models Assessment** completed.

➤ **Base Hospital** contracts renegotiated with Mt. Diablo, John Muir and Los Medanos hospitals.

➤ The **Medical Transmission Network**, a fire/medical dispatch computer linkage project began.

➤ **First responder paramedic** program funded by Measure H and provided by American Medical Response implemented in Byron/Discovery Bay area.

➤ **MEDARS** radio system upgraded from two channels to four channels.

1993 ➤ Base hospital services no longer provided by Los Medanos Hospital.

➤ **Chemical release** from General Chemical Company in Richmond area triggered a large-scale fire, police and EMS response. Thousands of patients requested evaluation at local medical facilities in following weeks.

➤ Poison control public hotline terminated by San Francisco Poison Control Center due to funding issues. EMS Agency maintained PCC access via local 911 system.

➤ Medical Priority's computerized ProQA Dispatch System for prehospital EMS dispatch was piloted by San Ramon Valley Fire's Dispatch Center.

➤ Functional integration of 5 County fire districts (Contra Costa County, Riverview, Orinda, Moraga and West County).

➤ "**Quality Action Team**" formed to improve EMS incident review.

➤ 16 channel **mobile radios** programmed with existing fire service radio channels, installed in all paramedic units.

➤ State funding for **Highway Injury Record Linkage Software** (HIRLS) and **Firearm Injury Reporting, Surveillance and Tracking (FIRST) System** projects obtained by EMS Agency; programs administered by Health Services Injury Prevention Program.

1994 ➤ Continuing education activities approved for EMT-I's to maintain State certification.

➤ Los Medanos Community **Hospital closed 4/23/94.**

➤ Responsibility for paramedic certification transferred from individual counties/regions to State EMSA.

➤ **Hospital Emergency Incident Command System** (HEICS) adopted by hospitals to provide an organized approach to hospital disaster management.

➤ **Medical/health mutual aid response** to Northridge earthquake in southern California coordinated among northern California coastal counties (Region II).

➤ **EMT-I training program for firefighters** established by EMS Agency.

➤ EMS Agency obtained State EMSA grant to study poison control center alternatives

➤ Emergency Medical Care Committee restructured to report to Health Services Director.

➤ 1-800-GIVE CPR number continued under auspices of the EMS Agency.

1995 ➤ Kaiser, Richmond and Oakland merged. Richmond facility received only non-critical ambulance patients due to lack of ICU capabilities.

➤ Paramedic certification changed to State licensure.

➤ **Revised EMS System Plan** approved by EMCC and County Board.

➤ EMS Agency gained part-time Assistant EMS Medical Director.

➤ San Ramon Valley Fire Protection District successfully completed pilot **computerized medical dispatch program**.

➤ EMS started the **1-800-GIVE-CPR** public information program locally.

➤ **BLS standards** added to EMS Prehospital Care Manual.

1996 ➤ Asst. EMS Medical Director position became **EMS Medical Director**.

➤ Standards for **EMS Enhanced First Responder Programs** developed.

➤ Request for Proposal process for emergency ambulance service. Contracts awarded to San Ramon Fire and American Medical Response. Moraga Fire exempt from competitive bid process.

➤ Bethel Island Fire's First Responder Paramedic program started.

➤ Emergency Medical Care Committee performed EMS System evaluation.

➤ Local hospitals and Health Services/EMS staff participated in "**Hospital Shelter-in-Place Project**" funded by local Emergency Planning Committee and State OES.

1997 ➤ **Bay Area Disaster Medical Assistance Team** (DMAT) formed and sponsored by County Health Services.

➤ Contra Costa Fire Protection District's First Responder Paramedic Program implemented. **"Partners"** course used to train EMT-Is to assist paramedics.

➤ **Multicasualty response** to victims of Concord Water World slide collapse. One death and 32 injured were triaged to area hospitals.

➤ Regional Disaster Medical Health Coordinator provided public health nurse mutual aid during 1996-97 **No. California winter storms**.

➤ **Computerized pen-based patient care reporting** implemented Countywide.

➤ Board of Supervisors appointed the EMCC as an advisory committee.

➤ **Statewide Poison Control Center** system implemented.

➤ John Muir Medical Center and Mt. Diablo Medical Center merged to form John Muir/Mt. Diablo Health System.

➤ Brookside Hospital acquired by Tenet Corp. and renamed Doctor's Hospital, San Pablo Campus. Doctor's, Pinole became Doctor's Hospital, Pinole Campus.

➤ Kaiser, Richmond and Kaiser, Martinez downgraded services provided. No longer designated ambulance-receiving facilities.

➤ Orinda Fire and Moraga Fire merged to form the Moraga-Orinda Fire Protection District.

➤ Laidlaw purchased American Medical Response and merged its ambulance services under the AMR name.

➤ **Interfacility Transfer Review** process revised.

1998 ➤ Board of Supervisors declared a local emergency due to shortage of hospital **emergency and critical care resources**.

➤ Contra Costa Regional Medical Center's new county hospital, opened.

➤ First load of **spent nuclear fuel rods** transported by train through county.

➤ Antioch Ambulance Service bought by Golden Empire Ambulance.

➤ American Medical Response accepts subsidy reduction to fund expansion of Contra Costa Fire First Responder Paramedic Program.

➤ West County Consolidated Communications Operations and Contra Costa Fire District Dispatch Center personnel trained in Emergency Medical Dispatch.

➤ **Multicasualty Incident (MCI) Plan** revised.

➤ **Resource Information Management System** (RIMS) installed to link OES Region II counties to Statewide disaster information management system.

➤ First **Hospital resource assessment** completed.

➤ Bay Area DMAT attained Level II designation.

➤ Department-wide Contra Costa Health Services **Emergency Plan** completed.

1999 ➤ Kaiser Richmond opened inpatient critical care services.

➤ Oakley Fire organized as a fire protection district.

➤ Contra Costa Fire expanded central county pilot First Responder Paramedic Program.

➤ **Multicasualty response** to a fire at Tosco's Avon Refinery.

➤ **Multicasualty response** to a fire at Chevron Refinery, North Richmond.

➤ **Multicasualty response** to Richmond Health Center for noxious odor assessment.

➤ Pilot **Bi-phasic AED project** implemented.

➤ Health Services Department Operations Center (DOC) activated for **Y2K transition**.

➤ Year 1 of a 2-year State grant for a Data Linkage and Outcome Project.

➤ Bay Area DMAT attained Level I designation.

➤ Moraga and Orinda Police Depts began 1st responder defibrillation programs.

➤ Antioch Ambulance Company ceased all operations 7/99.

➤ Contra Costa Fire took on fire/medical dispatch for Pinole, Rodeo, Hercules, and Crockett-Carquinez Fire.

2000 ➤ All Moraga-Orinda Fire EMS response vehicles staffed with paramedics.

➤ Impact Evaluation Study conducted including two public hearings prior to the March closing of Doctor's Medical Center, Pinole Campus emergency department.

➤ All fire/medical dispatch centers provide fire/ambulance dispatch using Medical Priority Dispatch System.

➤ Year 1 of a 2-year State grant to develop an **EMS for Children** program.

➤ Additional Contra Costa Fire Protection District ALS engines in Concord (1) and Baypoint (1).

➤ DMAT CA-6 incorporated as a nonprofit organization with 501(c)(3) status.

2001 ➤ EMS for Children Plan developed for Contra Costa through 2-year grant funding.

➤ Mt. Diablo Medical Center ceased providing EMS base hospital services in 2/01.

➤ Mt. Diablo Medical Center no longer providing obstetric and neonatal services.

➤ West County Communications Center accredited by Medical Priority and designated a "Center of Excellence" for their EMD program.

➤ El Cerrito paramedic engine program implemented to serve Kensington and areas in the El Cerrito hills with long ambulance response times.

➤ Contra Costa County Fire Dispatch Center implemented PRO-QA, a computerized emergency dispatch program.

➤ Kensington and Brentwood Police Departments implemented first responder defibrillation programs.

➤ Updated the County Trauma System Plan to reflect changes in California Trauma regulations requirements.

➤ Mt. Diablo Medical Center closed its in-patient obstetrics/neonatal services in July.

➤ DMAT CA-6 signs agreement with National Forest Service (NFS) to provide medical response on a pilot basis to NFS events when requested.

➤ Office of Justice Planning grant ($300,000) used to purchase mass decontamination, communications, and personal protective equipment for use by fire and other agencies responding to a major hazardous materials incident.

➤ Purchased computer equipment for Health Services Operations Center using funds provided through two State Health Department grants ($27,000).

➤ Bioterrorism Workgroup appointed by Health Services to plan and train for response to a terrorist event.

➤ Regional Disaster Medical Health Response staff funded full-time by State EMSA.

X. Glossary of EMS Terms

➤ **Abbreviated Injury Score (AIS):** A scale created to describe the anatomical injuries resulting from trauma. AIS scores obtain a value from each of 9 body areas: head, face, neck, thorax, spine, upper extremities, lower extremities, and external/other. For each body region, a severity code is assigned which describes the injuries as minor, moderate, serious severe, critical, maximum injury with little chance of survival, and unknown. The AIS is universally accepted and is the foundation for the Injury Severity Score.

➤ **Advanced Cardiac Life Support (ACLS):** An advanced level certification provided by the American Heart Association generally required for paramedics, emergency nurses and emergency physicians.

➤ **Advanced Life Support:** Special services designed to provide definitive prehospital emergency medical care, including, but not limited to, cardiopulmonary resuscitation, cardiac monitoring, cardiac defibrillation, advanced airway management, intravenous therapy, specified drug administration, and other specified techniques and procedures administered by paramedics under the direct supervision of a base hospital as part of a local EMS system at the scene of an emergency, during transport to an acute care hospital, during interfacility transfer, and while in the emergency department of an acute care hospital until responsibility is assumed by the emergency or other medical staff of that hospital.

➤ **Air Ambulance:** Any aircraft specifically constructed, modified or equipped, and used for the primary purpose of responding to emergency calls and transporting critically ill or injured patients whose medical flight crew has at a minimum two attendants certified or licensed in advanced life support.

➤ **Authorized Registered Nurse (ARN) or Mobile Intensive Care Nurse (MICN):** A registered nurse who has been authorized by the medical director of the local EMS agency as qualified to issue instructions to prehospital emergency medical care personnel within an EMS system according to standardized procedures developed by the local EMS agency.

➤ **Authorizing EMS Agency:** The local EMS Agency which approves utilization of specific EMS aircraft within its jurisdiction.

➤ **Base Hospital:** One of a limited number of hospitals which, upon designation by the local EMS agency and upon the completion of a written contractual agreement with the local EMS agency, is responsible for directing the advanced life support (ALS) system and prehospital care system assigned to it by the local EMS agency.

➤ **Base Hospital Physician:** A physician who is currently licensed in California, who is assigned to the emergency department of a base hospital, and who is knowledgeable in the medical protocols, radio procedure and general operating policies of the County EMS system, and a person from whom ambulance personnel may take medical direction by radio or telephone.

➤ **Basic Life Support:** Emergency first aid and cardiopulmonary resuscitation procedures, which as a minimum, include recognizing respiratory and cardiac arrest and starting the proper application of cardiopulmonary resuscitation (CPR) to maintain life without invasive techniques until the victim may be transported or until advanced life support is available.

➤ **Basic Trauma Life Support (BTLS):** A trauma care course developed by the American College of Emergency Physicians. This course is required for paramedics in Contra Costa County.

➤ **Blunt:** An injury that occurs without penetration of the body (e.g. motor vehicle injuries, falls, assaults with blunt instruments).

➤ **Cardiac Arrest:** A state when the heart stops beating or where it quivers (ventricular fibrillation) and does not pump blood to the rest of the body, which will result in death. Resuscitation, such as defibrillation, if provided soon enough may save the patient's life in some situations.

➤ **Cardiopulmonary Resuscitation (CPR):** The procedure of performing artificial respiration and artificial circulation to a non-breathing, pulseless patient.

➤ **Child Death Review Team (CDRT):** A confidential forum consisting of representatives of criminal justice, health & social service organizations brought together to discuss cases to improve the multi-agency response to child homicides. The ultimate goal is to reduce child abuse and child death.

➤ **Code 2:** Used by EMS systems to refer to immediate ambulance responses to potentially urgent but non-life threatening incidents without using red lights and sirens and adhering to all Vehicle Code requirements (speed limits and rights-of-ways).

➤ **Code 3:** Ambulance response with red lights and sirens to an emergency incident. When responding Code 3, the emergency unit may exceed the posted speed limit within certain constraints and may proceed through red lights without making a complete stop, although the ambulance driver is held responsible for assuring safety for his/her unit and other drivers while doing so.

➤ **Computer Aided Dispatch (CAD):** A computer system consisting of associated hardware and software to facilitate call taking, unit selection, resource dispatch and deployment, event time stamping, as well as creation and real time maintenance of incident database.

➤ **County Service Area (CSA) EM-1:** Special benefit assessment district established by the Board of Supervisors to fund EMS enhancements.

➤ **CRAMS**: A 10-point scale used to identify Critical Trauma Patients. The acronym CRAMS represents five weighted component measures: **C**irculation, **R**espiration, **A**bdomen/Thorax, **M**otor and **S**peech. It was designed as a prehospital triage tool. The scale ranges from 0 (most severe) to 10 (least severe).

➤ **Critical Trauma Patient (CTP):** Any patient who meets established field trauma triage criteria and is triaged to a trauma center or is triaged to a closer facility due to trauma center bypass or due to trauma full arrest or unmanageable airway.

➤ **Defibrillator:** A piece of equipment which can momentarily arrest all non-coordinated contractions of heart muscle fibers with the use of electric current in order that a spontaneous beat may resume. Hospitals and paramedics (ALS providers) use manually operated defibrillators that require judgment on the part of the rescuer. First responders use automatic or semi-automatic defibrillators which assess the patient's cardiac status and provide the shock (or instruct that the shock be provided) if necessary.

➤ **Dispatch Center:** Coordinating center for efficient management of all participating emergency resources within a designated area of responsibility. Centers dispatch rescue personnel and equipment, and coordinates these various resources to ensure maximum effectiveness.

➤ **Emergency:** A condition or situation in which an individual has a need for immediate medical attention, or where the potential for such need is perceived by emergency medical personnel or a public safety agency.

➤ **Emergency Ambulance Unit:** A vehicle specially constructed, equipped with appropriate medical equipment/supplies, and staffed with qualified personnel for transporting sick or injured patients.

➤ **Emergency Department:** The area of a licensed general acute care hospital that customarily receives patients in need of emergency medical evaluation and or care.

➤ **Emergency Medical Services Aircraft:** Any aircraft utilized for the purpose of prehospital emergency patient response and transport. EMS aircraft includes air ambulances and all categories of rescue aircraft.

➤ **Emergency Medical Services Authority (EMSA):** The State EMS organization that develops standards for local EMS systems and provides coordination and leadership.

➤ **Emergency Medical Services Commission:** A State multidisciplinary committee established by

State legislation to review and approve regulations, standards, and guidelines, as well as to advise the EMS authority on a variety of issues.

➤ **Emergency Medical Services Medical Director:** A licensed physician appointed as the medical director of the local EMS Agency to provide medical control and to assure medical accountability through the planning, implementation and evaluation of the EMS system.

➤ **Emergency Medical Services System:** A specially organized and coordinated arrangement that provides for the personnel, facilities, and equipment for the effective and coordinated delivery of medical care services under emergency conditions.

➤ **Emergency Medical Services System Plan:** A plan for the delivery of emergency medical services consistent with state guidelines addressing the components listed in Health and Safety Code Section 1797.103.

➤ **Emergency Medical Technician-I (EMT-I):** An individual trained in all facets of basic life support and certified by the EMS Agency in the county where training occurred. In the Contra Costa County EMS system, EMT-I staffed ambulances generally provide back-up to paramedic staffed ambulances, although they may be dispatched to respond to certain requests which have been determined to require only basic life support services.

➤ **Emergency Medical Technician-Paramedic, EMT-P or Paramedic:** An individual whose scope of practice includes skills and procedures to provide advanced life support as part of an EMS system and who is certified by the State of California and accredited by the local EMS agency has having met established criteria. In the Contra Costa County EMS system, paramedics are to be dispatched to all emergency medical requests unless it has been established by the fire/medical dispatch center that a basic life support ambulance is a sufficient level of response.

➤ **Emergency Nursing Pediatric Course (ENPC):** An educational program developed and sponsored by the Emergency Nurses Association to prepare Emergency Department nurses to care for pediatric patients.

➤ **Emergency Operating Center (EOC):** A facility designed and equipped for the use by city, county or other governmental agency leadership to manage the disaster response to the community.

➤ **Emergency Response Area (ERA):** An ambulance zone designated by the county for issuing ambulance permits and identifying exclusive operating areas for emergency ambulance service agreements. Contra Costa County is divided into five emergency response areas.

➤ **Fire/Medical Dispatch Center:** A public Safety Dispatch Center that receives requests to respond to medical emergencies, dispatches medical first responders and initiates ground and air ambulance response.

➤ **First Responder:** The first EMS rescuer to arrive on the scene of a medical emergency; generally a fire non-transport unit.

➤ **Health & Safety Code:** The division of State legislation that includes Division 2.5 EMS Statutes.

➤ **Health Services:** A department of county government responsible for health related issues. The local Board of Supervisors has designated Contra Costa Health Services, which includes the Emergency Medical Services Agency, as the "Local EMS Agency".

➤ **Hospital Emergency Incident Command System (HEICS):** A generic crisis management plan developed expressly for comprehensive medical facilities that is modeled closely after the Fire Service Incident Command System.

➤ **Incident Command System (ICS):** A flexible organizational structure that provides a basic expandable system developed by the Fire Services to mitigate any size emergency situation. In 1992 California law mandated that emergency responders and emergency planning officials within public service use this system.

➤ **Injury Severity Score (ISS):** The sum of the squares of the highest AIS codes in each of the three most severely injured body regions. The ISS is one component used in calculating the patient's

➤ **Local EMS Agency:** The local agency, usually a county health department, or office having primary responsibility for administration of emergency medical services in a county or multi-county area.

➤ **Major Trauma Patient (MTV):** A retrospective determination made by assessing and scoring a patient's injuries using the Abbreviated Injury Scale (AIS) and Injury Severity Score (ISS). In Contra Costa County, an ISS of greater than 15 or an ISS of 10 to 14 with a greater than 3 day length of hospitalization is classified as an MTV.

➤ **Measure H:** The Contra Costa County advisory ballot measure in the Fall of 1988, which, when it passed overwhelmingly in each city and in the unincorporated area of the County, advised a special assessment be collected to support EMS programs; specifically added paramedic ambulance units, EMS communications system enhancements, disaster supplies, and enhanced medical training and equipment for fire first-responders.

➤ **Medical Control:** The medical management of the emergency medical services system. This is done prospectively, e.g., policies and procedures; on-line, e.g., base hospital direction; and retrospectively, e.g., continuing education, case review, quality improvement activities.

➤ **Morbidity:** Disability or abnormality resulting from an illness or injury.

➤ **Mortality:** Any death resulting from injury or illness.

➤ **Multicasualty Incident (MCI):** An emergency incident involving any number of injured persons that over-taxes the rescue and medical resources of the responsible agencies within an area of the County.

➤ **Mutual Aid:** The furnishing of resources from one individual or agency to another, including but not limited to facilities, personnel, equipment and/or services, pursuant to an agreement between the individuals and/or agencies when requested during time of need.

➤ **Pediatric Critical Care Center (PCCC):** a licensed acute care hospital that provides specialized pediatric critical care services, and serves as a regional referral center for critically ill & injured children.

➤ **Pediatric Education for Prehospital Providers (PEPP)**: A course developed by the American Academy of Pediatrics to better prepare prehospital professionals in caring for children.

➤ **Penetrating:** Any injury that penetrates the skin (e.g. gunshot wounds or stabbings).

➤ **Predesignated Rendezvous Landing Site:** An emergency medical services landing site as authorized by the local EMS Agency with input of jurisdictional fire agency, predesignated to facilitate transport of patients when the scene does not allow for a landing site.

➤ **Probability of Survival:** Statistically defines the patient's chance of surviving sustained injuries. The range of possible values for this probability (referred to as Ps) is from 0.0 to 1.0. A Ps of 0.0 indicates no chance of survival and a 1.0 means that the patient is expected to live. The components of Ps are RTS, age ISS and the type of injury (blunt or penetrating).

➤ **Public Safety Agency:** A functional division of a public agency which provides fire fighting, police, medical or other emergency services.

➤ **Public Safety Answering Point (PSAP):** The location where 9-1-1 calls are answered and either appropriate resources are dispatched or the request is relayed to the responding agency.

➤ **RACES**: Radio Amateur Civil Emergencies Service

➤ **Regional Disaster Medical/Health Coordinator (RDMHC):** An individual within each OES Region whose principle function is to coordinate the acquisition of medical and health mutual aid in response to a request from the State EMS Authority, Department of Health services, or Governor's Office of Emergency Services in support of a state medical/health response to a major disaster.

➤ **Rescue Aircraft:** An aircraft whose usual function is not prehospital emergency medical transport but which may be utilized, in compliance with local EMS policy, for prehospital emergency patient transport when use of an air or ground ambulance is inappropriate or unavailable.

➤ **Response Time:** The actual elapsed time between receipt of a request for service and the arrival of the ambulance at the requested location.

➤ **Revised Trauma Score (RTS):** A score using three physiological parameters to measure injury severity: The Glasgow Coma Scale, systolic blood pressure, and respiratory rate.

➤ **Response Information Reporting System (RIMS):** A statewide, computerized disaster information reporting system.

➤ **Standardized Emergency Management System (SEMS):** A system required by Government Code for managing response to multi-agency and multi-jurisdictional emergencies in California. SEMS consists of five organizational levels that are activated as necessary: Field Response, Local Government, Operational Area, Region, and State.

➤ **START:** Acronym for Simple Triage and Rapid Treatment. This is the initial triage system developed by Hoag Hospital and Newport Beach Fire Department, Newport Beach CA that has been adopted by the California Fire Chief's Association.

➤ **Trauma Care System:** A formally organized arrangement of health care resources, defined by the local EMS Agency, by which severely injured patients are triaged, transported to and treated at designated trauma centers.

➤ **Trauma Center:** A licensed general acute care hospital that has been designated as a Level I, II or III Trauma Center by the local EMS Agency. The trauma center provides staffing and equipment to immediately provide evaluation and intervention for severely injured patients. John Muir Medical Center is the designated Level II Trauma Center for Contra Costa County.

➤ **Trauma System Plan:** A formal plan for the transport and care of critically injured patients. Trauma system plans must be submitted to and approved by the EMS Authority and must be updated annually. The Contra Costa County Trauma System Plan includes the utilization of one level II trauma center within the county.

➤ **Trauma Triage Criteria:** Method used by ambulance personnel to determine whether an injured patient needs the specialized services of a trauma center. The method considers the mechanism of injury, obvious injuries and other information obtained in a brief patient exam.

➤ **Triage:** Continuous process of sorting accident victims according to severity of their injuries. Necessary when the number of victims exceeds the number of rescuers or resources available.

➤ **Weapons of Mass Destruction:** include nuclear, biological or chemical weapons used in terrorist attacks.

XII. List of Documents Available at the EMS Agency

9-1-1 Brochures
County Service Area EM-1 Proposal and Service Plan
Contra Costa Health Services Emergency Plan
Disaster Medical Assistance Team, DMAT CA-6 information
Domestic Violence Assessment Information Sheet (2002)
EMCC By-laws
Emergency Medical Guidelines for Law Enforcement Agencies, 1992
EMS Agency Annual Program Reports
EMS System Plan, 1995
EMS System Plan, Annual Update - 1998
Expanded Medical Emergency Response Procedure
Facilities Assessment, 2001
Message Transmission Network Specifications
Multicasualty Cache Supplies and Locations
Multicasualty Incident (MCI) Plan, 1/98
Paramedic Interfacility Transfer Program application packet (2002)
Partners Course
Patient Transfer Guidelines, 1997
Prehospital Care Manual, (June, 2002)
Regional Disaster Medical/Health Coordinator Emergency Plan
Request for Proposal for Emergency Ambulance Services, 1996
Request for Proposal for First Responder Defibrillation Equipment, 1991
Request for Proposal for Trauma Center Designation, 1992
Trauma System Plan, 2001

EMS Policies:

Communicable Disease Exposure
Contra Costa County Emergency Medical Services Fee Structure
County Paramedic Evaluator
Determination of Death in the Prehospital Setting
Do Not Resuscitate (DNR) Orders in the Prehospital Setting
Emergency Department Diversion and Unusual Event Notification
EMT-1 Certification
End-Tidal CO_2 Detection Devices
First Responder Defibrillation
First Responder Paramedic Programs

Hospital Guidelines for Interfacility Transfers via Ambulance
Immediate Medical Control & Direction of Paramedics
Management of Intravenous Lines and Other Pre-existing Patient Equipment
Managing Assaultive Behavior/Patient Restraint
MICN Authorization and Re-authorization
Paramedic Accreditation
Paramedic Base Hospital Communications on ALS calls
Paramedic Student Preceptor Program
Patient Destination Determination
Patient Refusal of Emergency Medical Care and/or Ambulance Transport
Physician on Scene
Prehospital Continuing Education Provider
Prehospital Credential Review Process Guidelines
Prehospital Patient Care Record (PCR)
Procedures for Controlled Substances
Pulse Oximetry
Abuse/assault Reporting
Reporting of Unusual Prehospital Occurrences
Transfer of Care in the Field
Transfer of Critical or Possibly Critical Trauma Patients to Trauma Center
Trauma Patients
Paramedic Interfacility Transfer (CCT-P) Program Standards (2002)
EMS Aircraft Policies and Procedures (2002)