

POLICE PERSPECTIVE ON TRAFFIC MANAGEMENT OF FREEWAY EMERGENCIES

J. M. Barnett, California Highway Patrol

I am pleased to have this occasion to discuss with you the police perspective on traffic management of freeway emergencies. Today, I will primarily address what we have done in California. As many of you know, the California Highway Patrol is the State's primary traffic law enforcement agency. We consist of over 5,700 uniformed members and have responsibility for 26 million residents on over 96,000 miles of highways.

Factors For Effective Scene Management

Experience has shown that it is vital that planning for freeway emergencies be comprehensive and effective. Our planning efforts focus on (1) timely response, (2) scene management, (3) traffic coordination, (4) multi-agency communication and coordination, and (5) training. I would now like to touch briefly on each of these factors.

First and foremost in the successful management of any emergency incident is timely and appropriate response. The need for establishing control immediately cannot be over-emphasized. Not only because each incident has the potential of escalating into a major disaster, but also because of the necessity to determine resource needs and to coordinate resource requests with responding agencies. This responsibility can be handled by designating a scene manager to assess the incident and adjust resources as needed.

The scene management by the designated scene manager should be geared toward safeguarding both the public and emergency personnel at the scene and assessing potential danger to surrounding areas. In order to alleviate confusion and increase effectiveness, other responding agencies should be consulted at the scene.

Another factor contributing to prompt control of an incident is traffic coordination. This includes evaluation of road conditions and determination of what traffic control measures are needed. Proper traffic control measures will help to decrease unauthorized entry into the incident scene and reduce the possibility of additional injuries.

Successful management of an emergency incident also depends on communication and coordination between the responding agencies. I would like emphasize the necessity for establishing, in advance, each agency's responsibilities. This can be accomplished through written statements of understanding which clearly identify each agency's organizational authority, area of responsibility, as well as response and equipment capabilities.

Because we realize that effective scene management often requires the resources of other agencies, we have actively encouraged cooperation and coordination with allied agencies in the planning process.

In California, we have increased cooperative efforts in the field of emergency planning between the Highway Patrol and the California Department of Transportation. We routinely hold meetings with Caltrans at all organizational levels where, in an informal atmosphere, emergency response functions and responsibilities are often addressed. These meetings expedite the dissemination of information pertaining to mutual cooperation procedures within our department as well as Caltrans.

A command post should be used as a central location at an incident scene for responding agencies to meet and coordinate activities. A command post reduces confusion and delay and it also provides a central information center for the media and interagency communications. The first responding officer should set up a command post at the best location for observation of the operation. A command post may be established by simply placing a distinctive flag on an enforcement vehicle antenna. In California, the Highway Patrol has enhanced its scene management capabilities by using emergency incident management vehicles. These self-contained motorhome-type vehicles serve as command posts at major traffic accidents, disasters, or other emergency situations. These vehicles are equipped with wall mounted desks, chairs, bookcases with assorted manuals and reference materials, and sophisticated communications equipment. The Department currently has three of these vehicles located at strategic points throughout the State.

Training is also one of the key elements of emergency incident response. Proper training will bring everything together and provide smooth scene management. The California Highway Patrol trains its officers, supervisors, and managers in emergency incident response, scene management and after incident follow-up. Statewide training is also conducted by the California Highway Patrol for other California police and fire agencies as well as other first responders.

Emergency Incident Examples

There are a variety of freeway emergencies handled by the Highway Patrol and some require more extensive planning and coordination than others.

An example of an unplanned event which required extensive deployment of resources and placed extreme demands on many agencies, including the Highway Patrol, is the 1981 California Med-fly infestation. During the first week of July, California was suddenly faced with the Mediterranean fruit fly crisis which threatened the State's number one industry, the ten billion dollar a year agriculture industry. The Highway Patrol was directed by the Governor to establish quarantine check points to enforce agricultural regulations.

In less than 24 hours, three major fixed-post inspection sites were established on major freeways leaving the Santa Clara (also known as Silicone) Valley. During the 83 days of roadblock activity, nine other quarantine facilities became operational. Over 5.3 million vehicles were directed through these check points without an injury to the public or check point personnel.

It was at one of the check points that one of the two major incidents that I will discuss occurred. Hopefully, these incidents will illustrate for you how effective scene management can be accomplished when the principles I have addressed are employed.

On September 8, 1981, a hazardous materials spill occurred which required the combined resources of many public agencies. The spill occurred at a Med-fly agricultural check point on Interstate 680 in Contra Costa County. The area has several residential communities adjacent to the freeway including San Ramon with a population of over 20 thousand. The average daily traffic volume on the highway was 91,000 vehicles.

A vacuum tank truck pulled through the inspection lane and two agricultural officers observed a liquid substance leaking from the rear of its trailer which was emitting an orange-colored cloud. Highway Patrol officers stopped the truck

to examine the shipping manifest. The truck was carrying large quantities of toxic and hazardous corrosive acids, acetic acid and heavy metals. As a result of the leak, a potentially lethal cloud began to spread toward a residential area, four-tenths of a mile east of the spill. A command post was established by the Highway Patrol on the freeway. Traffic control was established at major intersections and traffic in the immediate area was stopped or diverted. The scene manager, a Highway Patrol Supervisor, determined that the immediate area should be evacuated. The Contra Costa County Sheriff's Department evacuated residences and schools within one mile of the spill.

In addition to the Highway Patrol and the Sheriff's Department, 32 other agencies responded and were involved in the incident. Response to the scene occurred within minutes. The initial observation of the orange cloud and leak from the tank truck occurred at 12:05 p.m. and the command post was established by the scene manager at 12:32 p.m. Within that 27 minutes Interstate 680 was closed; traffic control was established; air traffic control over the scene was established; the Sheriff's Department, Caltrans, fire personnel, the County Office of Emergency Services, a hazardous materials cleanup company, and additional Highway Patrol officers all responded to the scene.

Some media helicopters ignored the Federal Aviation Administration's instructions which restricted air traffic in the surrounding area and continuously flew above the spill scene. One helicopter, which was circling the toxic cloud, flew directly over the leaking tank truck. The helicopter caused downdrafts which blew the orange gas into the spill and command post area. This endangered the lives of the on-site personnel and consequently the command post had to be moved to another area. The helicopter crew was also overcome by the fumes and had to make an emergency landing on the freeway. - It too, then became a part of the emergency.

The incident was caused by transporting an acid solution in a vehicle not suited for acid transportation. The acids interacted, eating through the metal tank and valve at the rear of the tank. The entire San Ramon incident lasted five and one-half hours. Thirty-one persons were treated for eye irritation, inhalation of fumes, or headaches. The cost for containment and cleanup of the spill was in excess of nine thousand dollars. This did not include the costs of personnel and equipment by responding agencies.

Valuable experience was gained by all the participants involved in the incident. The experience has been used extensively as a training device for the Highway Patrol and local allied agencies. The San Ramon incident aptly illustrates the necessity of effective communication and coordination among responding agencies.

Another example of an incident requiring the combined resources of public safety agencies is the 1982 Caldecott Tunnel Accident. On April 7, 1982 a collision, fire, loss of life, and extensive property damage occurred on State Route 24 in the Caldecott Tunnel complex. The Caldecott Tunnel serves as a transition between Contra Costa and Alameda Counties through the Berkeley Hills east of San Francisco. The accident, which claimed seven lives, occurred shortly after midnight in the Number 3 westbound bore which is approximately 3,400 feet long. A car became disabled over 1,000 feet into the bore. A subsequent collision between a transit bus and a car caused a secondary collision between the bus and a tank truck and trailer loaded with 8,800 gallons of gasoline. The trailer overturned, ruptured, and caught fire as it ground to a halt within the bore. As the involved vehicles came to rest, other traffic continued to enter the tunnel. Flames raced eastward through the tunnel

and engulfed all the vehicles and persons within the tunnel. However, the tanker driver escaped certain death by running out the west end of the bore.

Two Highway Patrol officers were on an enforcement stop on an State Route 24 just west of the tunnel when, at 12:15 a.m., they overheard a radio broadcast of an "accident with no details in the tunnel". Shortly thereafter, they heard two explosions coming from the vicinity of the tunnel. They arrived at the west end of the tunnel at 12:19 a.m. Fire Department assistance was requested. The Orinda Fire Protection District arrived at the east portal at 12:20 a.m. and the Oakland Fire Department arrived at the west portal one minute later. A command post was established at the west end of the tunnel and our multi-disciplinary accident investigation team was requested to respond.

Because of the extensive damage to the bore, the complexity of the investigation, and the difficult nature of the cleanup, the bore was closed for five and one-half days. The closure necessitated rerouting traffic, which had an average daily volume for each direction of 110,000 vehicles. Caltrans crews set up long-term traffic diversion devices and provided flagmen to assist with traffic control. Damage to the bore was extensive. The peak temperatures within the bore reached approximately 1900 degrees Fahrenheit. All combustible materials within the fire area were incinerated. Tile was stripped from the walls. Overhead lights fell due to the deterioration of the concrete ceiling. The high temperatures caused total burn damage to all vehicles. For example, cargo tanks of the tanker were 75 percent burned away. Part of the truck's transmission case melted away. The fiberglass cab was reduced to glass fibers. The molten materials bonded to the pavement causing extensive damage to the roadway which hampered the investigation and cleanup activities.

Caltrans provided crews of eight to ten persons to assist our investigative team in the collection of evidence.

Numerous media representatives started to arrive at the scene along with the arrival of the first ambulance. After the establishment of the command post, a Highway Patrol public affairs officer was assigned to coordinate press releases and conduct regular media conferences.

The California Highway Patrol coordinated with Caltrans during all phases of the operation. Daily on-the-scene meetings were conducted by our scene manager and the Caltrans Maintenance Supervisor. Every activity within the bore was coordinated through the command post. The bore was reopened for daytime use five days after the incident. However, repair work continued for eleven months during nighttime noncommute hours. The total cost of cleanup and repair to the bore was three million dollars.

Conclusion

The successful management of emergency freeway incidents in California, as well as other states, depends on effective planning. In summary, an effective plan should include five major elements.

- o First, timely response is necessary in order to establish immediate control of the emergency situation and to prevent the incident from becoming a major disaster;

- o Second, effective scene management, handled by one designated scene manager, will eliminate confusion and safeguard the public and the responding emergency personnel;
- o Third, a comprehensive plan should also include a traffic coordination element involving the evaluation of road conditions and traffic control measures to be taken;
- o Fourth, multi-agency communication and coordination establishing the responsibilities, authority, and equipment capabilities of each agency will enhance coordination of activities at the scene;
- o Finally, statewide, multi-agency training in emergency incident response will bring all of these elements together to provide smooth scene management.

In a final analysis, not one of these elements can stand alone to ensure effective emergency incident response. However, all of the elements combined can lead to the successful conclusion of emergency incident responses.

STARTING INCIDENT MANAGEMENT ON LONG ISLAND

Michael J. Cuddy, New York State Department of Transportation

How does a transportation agency begin to address the issue of incident management on roads that have many agencies responsible for different aspects of traffic operations on that road? I will describe what we have done on Long Island and share our experience in what has been a successful effort to improve incident management in a multi-jurisdictional area.

On Long Island, one of the most densely populated areas in the country that is highly dependent upon personal vehicles for work and pleasure, public concern and awareness of traffic congestion has grown in the last ten years as Long Island's economy has boomed and expanded. During this same period road capacity improvements have all but ceased due to funding limitations and a serious concern for the fragile environment of Long Island. Presently, 55 percent of Long Island's roads are capacity deficient and any disruption to traffic flow causes widespread congestion.

Incident response and incident management on Long Island, even with these circumstances present, is difficult to organize primarily because of the multi-jurisdictional responsibilities for traffic and roads that is typical of densely populated suburban areas. On our most heavily travelled road, the Long Island Expressway, with an average annual daily traffic approaching 160,000, there are two County Highway Patrols responsible for law enforcement (Nassau and Suffolk Counties), the State Department of Transportation responsible for roadway maintenance and traffic operations, the State Department of Environmental Conservation responsible for the cleanup necessary resulting from accidents involving hazardous or toxic materials including spilled gasoline and diesel fuel, numerous volunteer fire and ambulance companies responsible for responding to accidents, private towing companies that respond on a rotational basis to accidents, as well as State Police and other elements of the County Police Forces that are called upon when necessary.