

Final Report

Freeway Incident Management

**Organizational and
Technological
Improvements**

for

New Jersey Department of Transportation

and

New Jersey State Police

1998

By

Patrick Beaton Ph.D.

Center for Policy Studies
New Jersey Institute of Technology
Newark New Jersey 07102

The preparation of this report has been financed in part by the U.S. Department of Transportation, Federal Highway Administration. This document is disseminated under the sponsorship of the U.S. Department of Transportation in the interest of information exchange. The United States Government assumes no liability for its contents or use thereof.

Table of Contents	page
Executive Summary	1
Traffic and Incident Management: The Current Context	15
Ideal Highway Incident Management Practice	19
Observed Highway Incident Management	23
The Post Incident Response Evaluation	39
The Organizational Structure of Incident Management	57
Incident Command and Incident Management	59
Training Troopers for Highway Operations	75
Communications Centers and Incident Management	90
A Legal Basis for Incident Management	109
Intelligent Transportation Systems and Incident Management	122
Summary and Conclusions	145
Annotated Literature Review	175

Chapter 4

The Post Incident Response Evaluation

In addition to the real time phases of incident management, numerous elements of planning and training determine the degree to which successful incident mitigation occurs. In the current chapter two topics will be addressed: the Post Incident Response Evaluation and the Incident Command.

Post Incident Evaluations

Major traffic incidents create many thousands of hours of vehicular and personal delay in addition to the losses suffered by the accident victims. A major incident triggers a response by numerous first response professionals and incident management technologies. The consequences of major incidents can enter the political consciousness of a community. When this occurs, an examination of the entire incident management process is called for. This chapter examines the current status of post incident response evaluation protocols utilized by the National Transportation Safety Board and state police organizations.

Post incident evaluations are of two generic forms: incident cause and evaluation of response. The evaluation can be either be fact finding for the purpose of system redesign or actionable with the purpose being to assign responsibility and liability of the incident. The second form of incident evaluation is prospective in nature. For the purpose of remainder of this chapter, the term Post Incident Response Evaluation (PIRE) will be used to represent the process of institutional analysis in which improvements in agency response techniques and equipment are elicited.

The Post Incident Response Evaluation builds the incident response organization. It essentially initiates the first stage in a cycle of organizational learning. Under current thinking in organizational decision making, the complete learning process cycle encompasses four stages (Bazerman, 1990). The four stages involve problem definition, incubation, illumination and verification. Problem definition requires a diagnosis of problems in process technologies as well as personal and equipment used to perform the organization's activities. Incubation follows the initial problem definition stage by examining unusual alternatives, eliminating assumptions that may hide alternatives, elaborates the initial definition of the problem and presents the problem in unusual ways. The illumination stages combines problem definition and incubation to generate new potential solutions. The final stage in the process tests the proposed solution to determine its effectiveness and its ability to be implemented.

Post Incident Response Evaluation must be viewed as problem definition. Within organizational settings, problem definition involves the acceptance that a problem exists and that it is independent of the individuals involved. Recognition of a problem can easily engender conflict, posturing and deception. Borrowing from the concepts of integrative negotiation strategies, four principles are used to guide the construction of the protocol (Hellriegel, Slocum & Woodman, 1995). First, separate the people from the problem, 2) focus on interests not positions, 3) invent options for mutual gain, and 4) insist on using objective criteria.

Second the PIRE process builds lateral organizational structures. PIRE is a part of several strategies that are being employed nationwide to formally integrate the disparate agencies that manage highway incidents. PIRE is still in its infancy. The PIRE will take the statements, comments and opinions of individuals and explore the institutions and organizations for problems and solutions. The PIRE process takes the view that individuals are not the problem, rather the systems in which they are placed are the problem. To be successful, PIRE must be supported by the hierarchical organized agencies that operate the incident management process. That is, funds must be appropriated to support the lateral organization, and supervisors and personnel must be assigned to perform the lateral organization's tasks.

PIRE as Focus Group

PIRE operates through the mechanism of the focus group. The focus group is a tool for uncovering hidden properties of organizations. In this case, the Focus groups are designed to identify and correct systems failures within the parent agencies and promote the development of lateral structures among incident management agencies. The focus group is a small group process that exploits individuals' natural willingness to speak about things that interest them. In the case of the PIRE, the focus group uncovers institutional problems that reduce the efficiency of the incident management process.

The PIRE focus group will often be initiated within the context of conflict resolution. That is, events will have taken place at an incident scene where individual

emergency responders are in dispute with one another. The PIRE must be sensitive to this and to the voluntary nature of attendance at the PIRE. As a consequence, steps must be taken to ensure an open non-threatening environment for all attendees.

The PIRE process begins with the sponsoring group. A consortium of interested groups or agencies, a state Department of Transportation or a State Police agency can sponsor a PIRE. Sponsorship entails the preparation of guidelines for calling a PIRE session, selection of the incident for which to prepare a PIRE, establishing a general agenda, acquiring access to the basic factual elements of the incident: time line, responders names and incident commanders as well as the official reports describing the event. Next the sponsor should select a neutral and qualified facilitator and identify an appropriate meeting site. The location for the PIRE should be neutral to the disputing parties.

The heart of the PIRE process will be the facilitator or group discussion leader. The facilitator should be removed as far as possible from organizational ties with the parties to the dispute. The facilitator should have at least a week's notice in order to prepare for the PIRE. The PIRE should occur as soon as possible so as not to allow the passage of time to cloud the minds of the attendees.

The facilitator will prepare the specific agenda and make it available to attendees, prepare time lines, command lines, and maps of the relevant areas of discussion. Maps and time lines should be sketched on presentation boards and be of sufficient size to be easily seen by all of the attendees. It is also desirable to have the map and time line written on a medium that can be adjusted by either the attendees or the facilitator as the need arises during the meeting itself. Second, the facilitator will prepare a structured discussion plan. This plan will guide the facilitator in explaining the PIRE to attendees, ensuring that each attendee has an opportunity to address the assembled group and to present a goal to be attained by the end of the PIRE.

Goals of PIRE

There are numerous reasons to have a PIRE. However, four general categories suggest themselves. First, the PIRE may be designed to improve individual behavior at an incident scene. That is, the PIRE may determine that an improved training program with joint attendance of several emergency response agencies would produce the desired improvement in the incident response system. Second, the PIRE can be organized to change organizational behavior. In order to alter organizational behavior it is important to have both the emergency response crew members present at the PIRE but also members of the supervisory team. Again, the finding may be that improved training or the preparation of a mutually agreed memorandum of understanding can resolve the situation. Third, the PIRE goal may be broader and extend beyond the individuals present or actively involved in the incident scene. Here, the goal of the PIRE may be to change the agenda or policy of an agency. In such a case, the sponsor must be prepared to invite members of upper management from the various agencies to the PIRE. Special care must then be taken by the facilitator to prepare presentation documents that bring the issue into sharp relief quickly for

upper management officials.

The PIRE Process

A qualified facilitator will be prepared to manage any of the above three classes of PIRE focus groups. It is possible to mix goals within a single PIRE however, caution must be exercised such that the confidence and openness of the invitees is retained. The integrity of the process depends upon a clear link between stated goals and procedures and the voluntary cooperation of attendees. What follows is a broad outline of the steps they will follow.

For the PIRE goal seeking a change in individual behavior among responders, five steps will be taken. First, the facilitator will introduce the agenda and the problem to be examined. Here, the problem statement should be made in the context of the outcome of the behavior, not the behavior itself. That is, EMS workers may have perceived themselves to be at unnecessary risk of being hit by oncoming vehicles while carrying out their task at the incident scene, or a Trooper may perceive extraordinarily long delays in traffic flow due to blocked lanes. It is up to the facilitator to bring the issue to the PIRE and ensure that each attendee is able to describe their behavior in relation to the problematic outcome. The facilitator will then summarize the group's findings and seek an agreement among those present leading to improved outcomes in the future. Finally, the facilitator should prepare a report to the sponsor outlining the finding of the PIRE. Care must be taken in the report to avoid any indication of individual liability. The PIRE is a mechanism for organizational improvement not fault finding. Individuals must gain confidence in the process by seeing that in previous instances, the PIRE has been open to the observations of all invitees, has protected individual identities and reputations, has concentrated on incident management system improvements, and has reduced tension among emergency responders.

The second type of PIRE seeks to change agency behavior and or an agency's policies. Here, the sponsoring agency determines in advance that the problem initiating the call for a PIRE extends beyond the members of the emergency response teams present and into the guidelines and supervisory processes under which the responders work. This type of PIRE will require the facilitator to invite supervisory and occasionally upper management officials to the PIRE. The facilitator's agenda should also be modified to reflect the expanded scope. The unique contribution of supervisors and upper management officials can be incorporated into the PIRE process by bringing their points of view into the structured discussion process after each of the individual on-scene responders have briefed the attendees. The facilitator must carefully monitor the group throughout this period in order to retain order and ensure that each individual working at the incident scene presents their observations openly and completely. Supervisors will then be guided by the facilitator to address the agenda goal in light of the information presented by the on-incident-scene attendees. The facilitator will seek an agreement among those present balancing agency imperatives with the need for interdependency at the incident scene. As in the previous case, a general report should then be prepared for the sponsoring agency.

The final goal for a PIRE involves promoting a sponsoring agency's incident management policies. The PIRE becomes an educational tool for the sponsoring agency. The specific incident becomes the example through which a new policy can be proposed. Again, it is up to the facilitator to clearly distinguish between individual actions, incident clearance outcomes and agency goals. A clear statement of existing incident clearance outcomes and the reasons for the new policy should initiate the PIRE. The incident chosen for the PIRE should have a clear link between a questionable old policy and the benefits obtainable from the proposed new policy. Attendees invited to the PIRE will extend into upper management levels for the appropriate agencies.

The facilitator's role in such a PIRE will be to keep the sponsor's goals in the minds of the attendees as they present their observations for the specific incident scene. The policy solution should not dominate the discussion during the early phases of the PIRE. Rather, a clear and open discussion of the real incident and the behavior and outcomes caused by the old policy should be kept foremost in the minds of the attendees. Only at the end of the PIRE should the sponsor be given the opportunity to present their policy alternative to the attendees. Again the facilitator will seek to establish agreement among the invitees regarding the policy under consideration. Lastly, the facilitator should prepare a general report to the sponsor.

Tools for PIRE

The PIRE process relies upon not only the willingness of attendees to speak openly but upon their knowledge of the incident. Several tools have been prepared to both motivate invitees or their supervisors to attend the PIRE but also to fix their knowledge of the incident in their minds for quick recall. The four tools are:

1. A model invitation to attend a PIRE,
2. An explanation of the PIRE process,
3. A memory jogger for participants, and
4. Guidance for sponsors and facilitators.

The model invitation to attend a PIRE is designed to give a facilitator a quick start in preparing the PIRE process. It has been reviewed by members of the police, fire, EMS and HazMat professions and found to be acceptable. The second tool is an explanation of the PIRE process. It can accompany the invitation and be used by the invitee to support a request to superiors to attend the PIRE. Again, this tool has been reviewed by members of the emergency response professions and found to be an acceptable statement of the PIRE process and an encouragement to their attendance.

The third tool prepared for the facilitator is the Memory Jogger. The Memory Jogger is designed to be sent to each invitee. It is to be used to bring back salient facts of the incident into the mind of the invitee. It must not be used as an official data collection form. Invitees must use the form for their own preparation. They should not be required by supervisors to complete and submit it either to their own agency or to the PIRE sponsor. The memory jogger should bring back into the minds of the attendees facts related to incident detection, verification, descriptive elements of the incident scene, of the incident command structure, and techniques used in the clearance process. It is not a test to be filed out completely but an aid that will point out to the attendee those areas where there is knowledge as well as those areas where there is no knowledge.

The last tool prepared for the PIRE is a statement of guidance for the sponsor and facilitators. A qualified facilitator will be expert in the elements of focus group management. Consequently, the guidance is more designed for the supervisor assigned by the sponsoring agency to oversee the facilitator's work. It is upon these elements that the facilitator's performance can be evaluated and hired for additional PIRE exercises.

Tools for PIRE

- **Invitation to Attend Post Incident Response Evaluation**
- **The PIRE Process**
- **Memory Jogger to Guide in your Presentation at a Post Traffic-Incident Evaluation**
- **Guidance for Sponsor and Facilitators**

Invitation to Attend Post Incident Response Evaluation

for

Name of Incident _____

Date of Incident _____

The I95 Corridor Coalition is inviting you and your agency's on-site representative _____ to the Post Incident Response Evaluation. The PIRE will enhance the cooperation and coordination among emergency response agencies. The Evaluation will be held on _____ at _____. Your chief on-site representative will be asked to describe the facts of the incident and improvements needed in the response. Guidance for your on-site representative is provided as an enclosure in this packet.

Your presence is requested for the purpose of providing the broader underlying principles and practices that govern your agency's response and on-site operations. The following categories of information will support your on-site representative's observations:

- Geographical constraints on your authority, equipment or manpower.
- Financial constraints on your response to highway incidents,
- Level of interagency command your agency assumes at incident site.
- Recurrent training exercises related to highway incidents.
- Your agency's operating practices in the presence of hazardous substances at highway incidents, and
- Your agency's statutory authority to operate at the incident scene.

The evaluation process is designed solely to be sharing of impressions for improved incident management and clearance leading to improvements in incident response and management practices. A neutral facilitator will be guiding the meeting. Our goal is the identification of institutional barriers to efficient incident management; it will not accept or assign statements of individual blame or responsibility for perceived problems. All statements made by invitees are confidential.

The product of the meeting will consist of suggestions for improved training programs, improved Standard Operating Procedures, new Memorandums of Understanding, legislation, and budgetary authority. The press statement may be released specifying the agencies that cooperated together in this meeting as well as the positive elements of general agreement that result.

The PIRE Process

A Post Incident Response Evaluation (PIRE) is requested by a sponsor such as the I95 Corridor Coalition, a Department of Transportation or the State Police agency.

A PIRE process can be initiated to change individual responder behavior, to change agency training and behavior, to promote a sponsoring agency's policies or to initiate policy evaluation within an emergency response agency.

A pre-standing agreement should exist defining the threshold for incidents to be evaluated via the PIRE process.

The sponsor identifies the parties to be invited to the PIRE.

Once a PIRE is triggered, the sponsor's facilitator notifies all appropriate parties to the incident. Notice may be face-to-face, e-mail, telephone, or mail notification. All formal protocols of notification and invitation should be followed. Place and time of meeting, names of parties, and agenda should be distributed. Parties should be given at least 10 days to prepare materials for meeting. The parties to the evaluation can include: communications operators, state police incident commander or investigating officer, and other first responders as is appropriate, local fire and police, EMS, HazMat, wrecker operators etc.

Sponsor selects a convenient location for the PIRE. Care must be taken to select a convenient neutral location, one where open conversation will be enhanced.

Sponsor's facilitator distributes guidelines and agenda items.

Parties invited to the PIRE are expected to prepare a brief description of their and their agency's involvement at the incident scene.

The sponsor will supply broad guidance that will support the agency's representative in the preparation of materials. These supplementary guidelines or memory joggers are not designed to be completed and presented to the Incident Evaluation meeting, but rather help the agency prepare for the meeting.

PIRE is a prospective process seeking to improve interagency and interpersonal cooperation at emergency response scenes. The PIRE is not a fact finding proceeding nor does it have adverse parties, and should not be subject to the provision of the Administrative Procedure Act: (PubLaw 89-554 Stat. 384 (5 U.S.C. 554 et seq.)). The investigation should not be conducted for the purpose of determining the rights or liabilities of any person. It is purely a forum for interagency coordination and cooperation.

The Facilitator is recommended to be an ICS qualified individual from an agency and jurisdiction not participating in the evaluation. Slides or overheads containing scene geography and pictures where possible should be provided. Simple overhead or paper sketch maps and time lines should be made for quick reference by all responders to the PIRE. Facilitator will encourage participant use of these tools.

Memory Jogger to Guide in your Presentation at a Post Traffic-Incident Evaluation

Incident Designation and date: _____

Name of Invitee: _____

Invitee's Agency: _____

Name of Incident Commander: _____

Agency of Incident Commander: _____

Please fill out the parts of this form that will help you present the facts of the incident and improvements needed as you saw them.

Thank you for accepting our invitation to join the Post Incident Response Evaluation. This form can be used to help jog your memory regarding various aspects of the incident that may be important to discuss at the meeting. It is suggested that you or responders at the incident scene examine the form and where you find relevant questions, fill them out and save the form for reference at the meeting. Do not feel that you must fill out any or all of the form. It is purely voluntary.

A. Incident Detection and Verification

1. When did you receive notice of the incident? _____

2. How was notice received: _____

3. When did you arrive on scene: _____

4. Are improvements needed in the information supplied to you by your dispatcher or others?

B. Description of Incident Scene:

1. Location:

a) Highway designation _____

b) Direction _____

c) Mile marker _____

d) Type of Roadway (flat/hilly etc.)

e) Weather conditions _____

2. Traffic, Crowd/Bystander Conditions: _____

3. Vehicle Types involved:

4. Persons injured (fatalities): _____

5. Other property damage:

6. hazardous material release:

**If you were the Incident Commander continue with C;
if not, go to D.**

C. Incident Response:

1. List the other agencies which were requested to respond to a traffic incident in the approximate order of arrival in time, who requested their presence (you, another member of NJSP, a Communications Center Operator, etc.); and any Improvements needed with the initial response process:

a. Agency _____
Requested by _____
Personnel _____
Equipment _____
Improvements needed _____

b. Agency _____
Requested by _____
Personnel _____
Equipment _____
Improvements needed _____

c. Agency _____
Requested by _____
Personnel _____
Equipment _____
Improvements needed _____

d. Agency _____
Requested by _____
Personnel _____
Equipment _____
Improvements needed _____

e. Agency _____
Requested by _____
Personnel _____
Equipment _____
Improvements needed _____

2. Could all agencies deliver the personnel and equipment they committed to?

3. Was your role as Incident Commander superseded at any time by a higher ranking officer or agency?

4. Was your role as Incident Commander recognized at all times by other first responders? Were separate agency Command Posts set up without approval and coordination with the IC's Incident Command Post (ICP)?

5. What improvements in the Communications function are needed: with your Communications Center, with communications across agencies?

6. Were you responsible for or informed of off site traffic management needed on highways linked to incident site?

7. Were you able to identify the person in charge of each First Response agency that came on site?

Please go to Section E.

D. Response for first responders who were not the Incident Commander.

1. How was the Incident Commander (IC) identified by your personnel? Could improvements be made? Does it matter?

2. How was the IC command post identified? Did you set up a separate agency command post without approval and coordination with the IC? Could improvements be made?

3. How did you communicate with the IC: radio, face to face? Could improvement be made?

4. Could improvements be made in the functions performed by an incident Safety Officer, Liaison Officer, or Public Information Officer?

5. Were your agency's resources requested or initially committed to action without the approval or coordination with the Incident Commander?

Please Continue on next Page

Questions for all First Responders

E. Incident Mitigation/Clearance

1. What Improvements might be made with the coordination across all First Responders gathered at the Incident Scene?

2. Did you or your agency face any legal constraints during the performance of incident mitigation/clearance? (jurisdictional issues, use of equipment, use of personnel)

3. Do you have comments regarding the following list of incident management activities?

- i) Traffic control _____
- ii) Communications procedures _____
- iii) Acquisition of additional help _____
- iv) Crowd Control _____
- v) Handling Hazardous Materials: _____
- vi) Handling Fatalities: _____
- vii) Bystander control: _____

4. Did financial responsibility hinder your response to the incident? _____

Post Incident Response Evaluation

Guidance for Sponsor and Facilitators

- Facilitator should not be an employee of a supervisor who is present at the briefing
- Prepare a set of large paper maps of the incident area using colored felt tipped pens.
- Prepare a time line suitable for viewing by all parties to the meeting.
- time line of detection and arrival of all emergency response resources by agency/firm.
 - time line for incident command including all parties who were either the single or member of a unified command.
 - time line of major events at the scene.
- Facilitator must avoid wandering.
- Facilitator must avoid value judgments.
- Introduction of all members present at the meeting.
- Provide each participant the opportunity to describe themselves, their agency and their role at the scene.
- Facilitator should interact with time lines and maps to demonstrate what participants are saying.
- Facilitator should encourage participants to interact with time line display and maps.
- Explain full role of significant others not present: dispatch, press, governor's rep, PIO, liaison.
- Facilitator must guide discussion to the issues know what the link is between the conversation occurring and the specific goals of the meeting
- Facilitator should close the meeting clearly and promptly when progress toward meeting the goal for the PIRE as ended.
- Minutes probably should not be written due to problems with discovery, however, recapitulation of elements needing improvement should be appended to the agenda and preparatory notes. A press release identifying agencies present as well as the

prospective improvements in incident management accomplished.