

NATIONAL CONFERENCE
ON
TRAFFIC
INCIDENT
MANAGEMENT

A Road Map to the Future

MARCH 11 - 13, 2002

PROCEEDINGS - JUNE 2002



This page intentionally left blank.

Table of Contents

List of Acronyms	ii
I. Executive Summary	1
III. Conference Program	4
IV. Conference Outcomes	7
Appendix A: List of Conference Participants	A-1
Appendix B: Plenary Session Presentations	B-1
Appendix C: Conference Discussion Papers.....	C-1
Operational Issues Discussion Papers.....	C-1
Technological Issues Discussion Paper	C-18
Institutional Issues Discussion Paper	C-27
Appendix D: Priority Issues and Actions/Initiatives	D-1
Appendix E: Issues and Actions/Initiatives Generated in the Breakout Sessions	E-1
Appendix F: Post-Conference Survey Summary	F-1

List of Acronyms

AASHTO	American Association of State Highway and Transportation Officials
Caltrans	California Department of Transportation
CCTV	Closed Captioned Television
DOT	Department of Transportation
FBI	Federal Bureau of Investigation
FEMA	Federal Emergency Management Administration
FHWA	Federal Highway Administration
IACP	International Association of Chiefs of Police
IIMS	Integrated Incident Management System
IM	Incident Management
ITS	Intelligent Transportation System
ITSA	Intelligent Transportation Society of America
MOU	Memorandum of Understanding
MUTCD	Manual on Uniform Traffic Control Devices
NCHRP 20-6	National Cooperative Highway Research Program "Legal Programs Arising Out of Highway Programs"
NCUTLO	National Committee on Uniform Traffic Laws and Ordinances
NFPA	National Fire Protection Association
NHTSA	National Highway Transportation Safety Administration
STIP	State Transportation Improvement Program
TIM	Traffic Incident Management
TMC	Traffic Management Center
TRB	Transportation Research Board
USDOT	U.S. Department of Transportation
USDOJ	U.S. Department of Justice
VMS	Variable Message Sign

I. Executive Summary

Traffic incidents have a great effect on the safety of responders and on the mobility of the traveling public using our nation's roadways. They can contribute to responder deaths and injuries, response equipment damage, motorist injuries through secondary crashes, and the cost and time of traffic delay in urban and rural areas. Integrated traffic incident management (TIM) is emerging as a proven solution to address these safety and mobility concerns. Traffic incident management is a planned and coordinated process to detect, respond to, and remove traffic incidents and restore traffic capacity as safely and quickly as possible. It involves the coordinated interactions of multiple public agencies and private sector partners.

To develop and advance a national agenda for improved traffic incident management, the National Conference on Traffic Incident Management was held on March 11-13, 2002, at The Beckman Center in Irvine, California. The American Association of State Highway and Transportation Officials (AASHTO), the Federal Highway Administration (FHWA), the Intelligent Transportation Society of America (ITSA), and the Transportation Research Board (TRB) sponsored the conference. A steering committee, composed of representatives from the fire and emergency response, law enforcement, towing and recovery, technology, transportation, and user communities, assisted in refining conference goals, developing the program, and soliciting participation within and across their disciplines. The steering committee was led by AASHTO, who along with FHWA, appointed steering committee members, contracted for conference planning and support, and reviewed and approved the content of the proceedings.

The conference sponsors invited practitioners and policy level experts from these disciplines to participate. Participants were selected to achieve a balance between urban and rural perspectives; to identify possible "champions" for moving the national agenda forward after the conference; and to involve individuals who could draw upon experience, success stories, and lessons learned in crafting a national agenda. One hundred and sixty-seven professionals participated in the conference to discuss barriers to improving traffic incident management and to identify and prioritize actions that can be taken to address the barriers and opportunities.

The National Conference on Traffic Incident Management was organized in three phases. On March 11th, experts presented, in a plenary session, the history, safety, societal impact, and issues associated with traffic incident management from the perspective of police, fire, transportation, and other public and private sector partners. The speakers provided a foundation for attendee participation throughout the rest of the conference. On March 12th, participants discussed, in small groups work sessions, their priority issues for advancing the state of the practice in traffic incident management and recommended actions/initiatives to address these issues. These breakout sessions were divided into three focus areas: Operational Issues, Technological Issues, and Institutional Issues. On March 13th, participants further refined the priority actions and initiatives and began to identify potential next steps to advance the traffic incident management agenda at the national level.

Conference participants identified seven overall action items as most important for guiding a national agenda for traffic incident management. More than half of the actions came from the institutional area, while two technological actions/initiatives were cited for better regional and cross-agency coordination. Important action items were also identified for each of the breakout session focus areas. **Operational Action Items** focused on improved *responder training, funding* (e.g., for incident management plan templates and state-wide program development), and better *traffic control* (quick clearance, keeping lanes open, and detour/diversion plans). **Technological Action Items** highlighted the need for a *regional/cross-agency focus* (e.g., funding, development of systems architectures, and sharing information and technology). **Institutional Action Items** centered on *standards and metrics* (e.g., national program models and guidelines, performance benchmarks, benefit/cost approaches), *a common voice for public safety*, and *communicating benefits in the context of broader community issues*.

The conference recommendations suggest five key components for implementing a national traffic incident management strategy: (1) a national TIM framework/coalition, (2) TIM program development, (3) professionalizing traffic incident management, (4) TIM technology, and (5) communication, public outreach, and education. While not shown as a separate key element, research is also necessary throughout for an effective strategy.

The conference sponsors are committed to moving forward with a national traffic incident management strategy. During Summer 2002, efforts will be underway to explore the formation of a new national coalition to provide national leadership in addressing the conference recommendations. One of the main goals of this coalition will be begin an outreach/education process on the results of this conference and the need for action in implementing the key components of a national traffic incident management strategy.

Most Important Action Items For Guiding a National Agenda for Traffic Incident Management

- professionalize incident management (Institutional)
- develop a national program models and guidelines (Institutional)
- create standards and guidelines for performance data (Institutional)
- recognize regional focus in developing/operating/funding TIM technologies (Technological)
- develop regional/cross-agency systems architectures, based on standards (Technological)
- establish a clearinghouse for incident management data (Operational)
- integrate TIM needs into highway planning and design (Institutional)

II. Introduction

Traffic incidents have a great effect on the safety of responders and on the mobility of the traveling public using our nation's roadways. In 1999, over half of the police officers killed in the line of duty died in traffic crashes. Nearly 10,000 police cars, 2,000 fire trucks, and 3,000 other service vehicles were struck while going to or at traffic incidents. Crashes that result from other incidents make up 14-18% of all crashes. These secondary crashes are estimated to cause 18% of deaths on freeways. Traveler mobility and productivity are also adversely affected by incidents and incident management. Well over half of non-recurring traffic delay in urban areas, and a large majority in rural areas, is a result of traffic incidents.¹ Estimates of what users spend on highways (i.e., out of pocket costs for freight, shipping over highways, auto owners' use and operation of vehicles) total about \$1 trillion per year. Estimates of total delay in rural and urban areas contribute an additional \$1 trillion per year. In addition to the delay costs, there is close to \$200 billion per year in direct economic loss due to accidents and fatalities.

Integrated traffic incident management (TIM) is emerging as a proven solution to address these safety and mobility concerns. Traffic incident management is a planned and coordinated process to detect, respond to, and remove traffic incidents and restore traffic capacity as safely and quickly as possible. It involves the coordinated interactions of multiple public agencies and private sector partners.

To develop and advance a national agenda for improved traffic incident management, the National Conference on Traffic Incident Management was held on March 11-13, 2002, at The Beckman Center in Irvine, California. The American Association of State Highway and Transportation Officials (AASHTO), the Federal Highway Administration (FHWA), the Intelligent Transportation Society of America (ITSA), and the Transportation Research Board (TRB) sponsored the conference. A steering committee, composed of representatives from the fire and emergency response, law enforcement, towing and recovery, technology, transportation, and user communities, assisted in refining the conference goals, developing the program, and soliciting support and participation within and across their disciplines. The steering committee was led by AASHTO, who along with FHWA, appointed steering committee members, contracted for conference planning and support, and reviewed and approved the content of the proceedings.

This conference was designed to build upon decades of work in the incident management area. Over the past ten years, organizations have sponsored initiatives to determine the state of the practice, develop guidance in creating traffic incident management programs, document successful practices, assess needs, and provide training and education. Some examples of these efforts include:

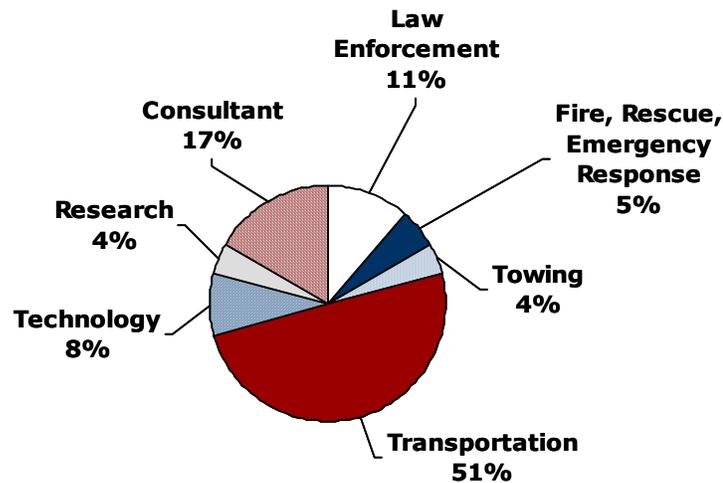
- The National Incident Management Coalition, established in the early 1990s to support, heighten awareness of, and provide education on incident management.
- Traffic Incident Management Handbook, published by FHWA in 1991 and updated in November 2000 to assist transportation and public safety agencies in improving their programs and operations.
- Managing Traffic Incidents and Roadway Emergencies, a National Highway Institute course taught continuously since 1998, designed for mid- and upper-level managers for all agencies involved in incident management. Focuses on practices to obtain good inter-agency and inter-disciplinary understanding and cooperation.
- Incident Management Successful Practices: A Cross-Cutting Study, published by FHWA in April 2000 to document successful partnerships, benefits of TIM programs, and lessons learned from TIM programs around the United States.
- An Assessment of Select Metropolitan Washington Public Safety and Transportation Agencies User Needs, a February 2001 report from the International Association of Chiefs of Police and the University of Virginia for the Capital Wireless Integration Network (CapWIN) Project. The report evaluates the current status of information sharing and major issues, concerns, and elements of CapWIN participants' needs.
- Regional Traffic Incident Management Programs: An Implementation Guide, a May 2001 FHWA publication describing a program formation process to provide institutional cohesion to help assure the continuity and success of traffic incident management programs.

¹ In rural areas, work zones can also be a significant cause of congestion.

- Traffic Incident Management Expert Focus Groups, an initiative of the National Incident Management Coalition, documented in a September 2001 report, to examine current practices, common challenges, the future of traffic incident management, measuring success, and determining the federal role.

The goal of the National Conference on Traffic Incident Management was to integrate all of these efforts and determine what actions need to be taken at the national level to reinforce and advance the traffic incident management agenda.

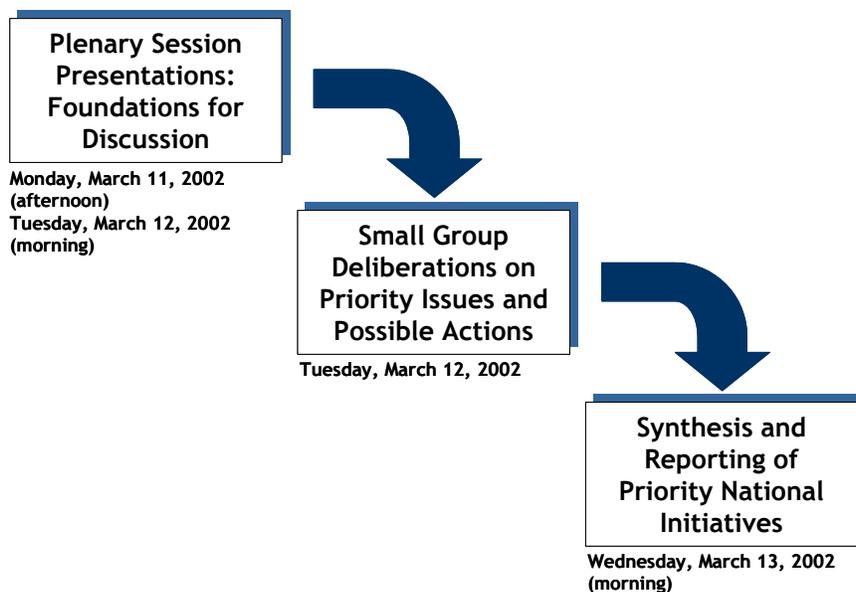
The conference sponsors and steering committee invited practitioners and policy level experts from the fire and emergency response, law enforcement, towing and recovery, technology, transportation, and user communities to participate. Criteria for selecting participants included: a balance between urban and rural perspectives; possible "champions" for moving the national agenda forward after the conference; and individuals who could draw upon experience, success stories, and lessons learned in crafting a national agenda. One hundred and sixty-seven professionals participated in the conference to discuss barriers to improving traffic incident management and to identify and prioritize actions that can be taken to address barrier issues. A complete list of conference attendees can be found in Appendix A.



The 2002 National Conference on Traffic Incident Management Attracted a Diverse Mix of Participants

III. Conference Program

The National Conference on Traffic Incident Management was organized in three phases, as shown in the figure below. On March 11th, experts, in the plenary session, presented the history, safety, societal impact, and issues associated with traffic incident management from the perspective of police, fire, transportation, and other public and private sector partners. They provided a foundation for attendee participation throughout the rest of the conference. On March 12th, participants attended small group discussion sessions designed to solicit their input on priority issues for advancing the state of the practice in traffic incident management and on recommended actions/initiatives to address these issues. On March 13th, participants further refined the priority actions and initiatives to address TIM issues. In addition, the conference sponsoring organizations began to identify potential next steps to advance the traffic incident management agenda at the national level.



Opening Remarks

Mr. Tony Kane, Director of Engineering and Technical Services, AASHTO, opened the conference by welcoming participants and citing some of the urgent reasons for addressing traffic incident management as a high priority. Incidents cause well over half of non-recurring traffic delay in urban areas, and 100% in rural areas. Estimates of what users spend on highways (i.e., out of pocket costs for freight, shipping over highways, auto owners' use and operation of vehicles) total about \$1 trillion per year. Estimates of total delay in rural and urban areas add up to another \$1 trillion per year. In addition, there is close to \$200 billion per year in economic loss due to accidents and fatalities. These are very large numbers to address and reduce. A strong focus on safety and mobility is needed to have as few incidents as possible, to clear incidents as quickly as possible, to preserve the safety of police, fire, rescue, and emergency responders, and to restore mobility.

Citing the reference materials provided to participants, Mr. Kane noted that while this is not the first conference for traffic incident management, it will be a defining one for the future agenda. He reiterated the goal of the conference to develop priority recommendations to guide the emerging national agenda for traffic incident management. Through this conference, participants will have the opportunity to discuss and develop recommendations in areas including research and development, technology deployment, institutional arrangements, legislative and regulatory actions, and training.

Welcome Address

In his welcoming remarks, Mr. Randell Iwasaki, Deputy Director for Maintenance and Operations, California Department of Transportation (Caltrans), noted that California's experience with many natural disasters (e.g., earthquakes, fires, and floods) has shown that information is key for both large and small incidents. Without accurate and up-to-date information, poor decisions are made. Mr. Iwasaki outlined a number of challenges related to large-scale incident management, including receiving information in many forms; the challenge of obtaining complete information in the first 48 hours of any disaster; and the difficulties partners have in

communicating with each other. He noted that numerous small incidents are dealt with daily around the nation. For example, thousands of lane closures are requested weekly in the Los Angeles area. Responders have learned to be more proactive and clear incidents quicker.

Mr. Iwasaki stated that the events of September 11 were a turning point for incident management. As a result, California is applying some of its lessons learned to make response better. Among the initiatives he cited were:

- Improving the advanced transportation management system for earlier detection and verification of major and minor incidents so that the appropriate resources can be utilized.
- Refining the existing Incident and Disaster Management Plan with the California Highway Patrol.
- Integrating emergency management centers with local transportation management centers to provide alternative route options on the local system.
- Using State Transportation Improvement Program (STIP) funds to provide better connectivity between modes.
- Expanding the fully interoperable radio system in San Diego to Los Angeles and Sacramento.

Mr. Iwasaki indicated one of the most critical pieces to successful incident management is developing and growing the necessary partnerships. He emphasized that this conference is designed to help participants learn from collective experiences, find ways to become more proactive, and refine the national agenda for traffic incident management. On behalf of Jeff Morales, Director of Caltrans, Mr. Iwasaki welcomed conference participants to California and thanked John Horsley, Executive Director of AASHTO for his organization's leadership in this area.

Plenary Session Presentations

The conference opened with a plenary session in which participants heard a multi-disciplinary panel discussion and presentations on rural and urban incident management perspectives and lessons learned. Three discussion papers focusing on operational, technological, and institutional TIM issues were also presented in the plenary session on Day Two of the conference. Together, these sessions formed the basis for participant discussion on the issues and actions necessary for improving traffic incident management. A more detailed summary of the plenary session presentations and the full text of the discussion papers can be found in Appendix B and Appendix C of this report.

The Importance of Traffic Incident Management: A Multi-Disciplinary View

Members of the law enforcement, fire, towing, transportation, and technology communities provided their perspectives on what needs to be done to improve traffic incident management.

- Mike Brown, Chief, California Highway Patrol, Los Angeles District
- Mitchell Villalpando, Deputy Chief, Sycuan Fire Department and Vice President, San Diego Fire Chiefs Association
- Evelyn Harden, State President, California Tow Truck Association
- John Horsley, Executive Director, AASHTO
- Neil Schuster, President and CEO, ITSA

Traffic Incident Management Practices: Operational, Technological, and Institutional Perspectives

Speakers discussed how effective traffic incident management practices are implemented in urban and rural environments.

- Ellis Stanley, General Manager, Los Angeles City Emergency Preparedness Department
- David Ekern, Assistant Commissioner, Minnesota Department of Transportation and Associate Director, AASHTO

" ... Agencies and disciplines need to work cooperatively as well as maximize technology and the use of innovative thinking in their approaches to incident management."

***- Captain Mike Brown,
Chief, California
Highway Patrol,
Los Angeles District***

" ... Trust among responders cannot be developed during a crisis; it must be created through interim activities. Whatever is not working, will get worse during a crisis."

***- Captain Ed Flynn,
Police Chief,
Arlington County, VA***

Traffic Incident Management Lessons Learned

Presenters shared with the audience their traffic management experiences during the September 11 terrorist attack on the Pentagon, at the 2002 Olympic Winter Games, and at the every day events that indicate a need for greater multi-jurisdiction and multi-discipline coordination.

- Ed Plaugher, Fire Chief, Arlington County, VA
- Ed Flynn, Police Chief, Arlington County, VA
- Tom Ranson, Incident Management Coordinator, Utah Department of Transportation
- George Black, Member, National Transportation Safety Board

Discussion Papers: Operational, Technological, and Institutional Issues

Three discussion papers were commissioned to help frame the breakout session activities. The papers were organized around a specific set of traffic incident management topics - operational, technological, and institutional - and highlighted key issues in each topic area. At registration, participants received a set of papers to review. The authors also presented overviews of the papers immediately preceding the breakout sessions. These presentations were given by:

- Operational Issues - John O'Laughlin and Arland (Ted) Smith, PB Farradyne
- Technological Issues - Pam Scanlon, San Diego Automated Regional Justice Information System, and Bruce Churchill, NET Corporation
- Institutional Issues - John Corbin, Wisconsin Department of Transportation, and Steve Lockwood, PB Farradyne

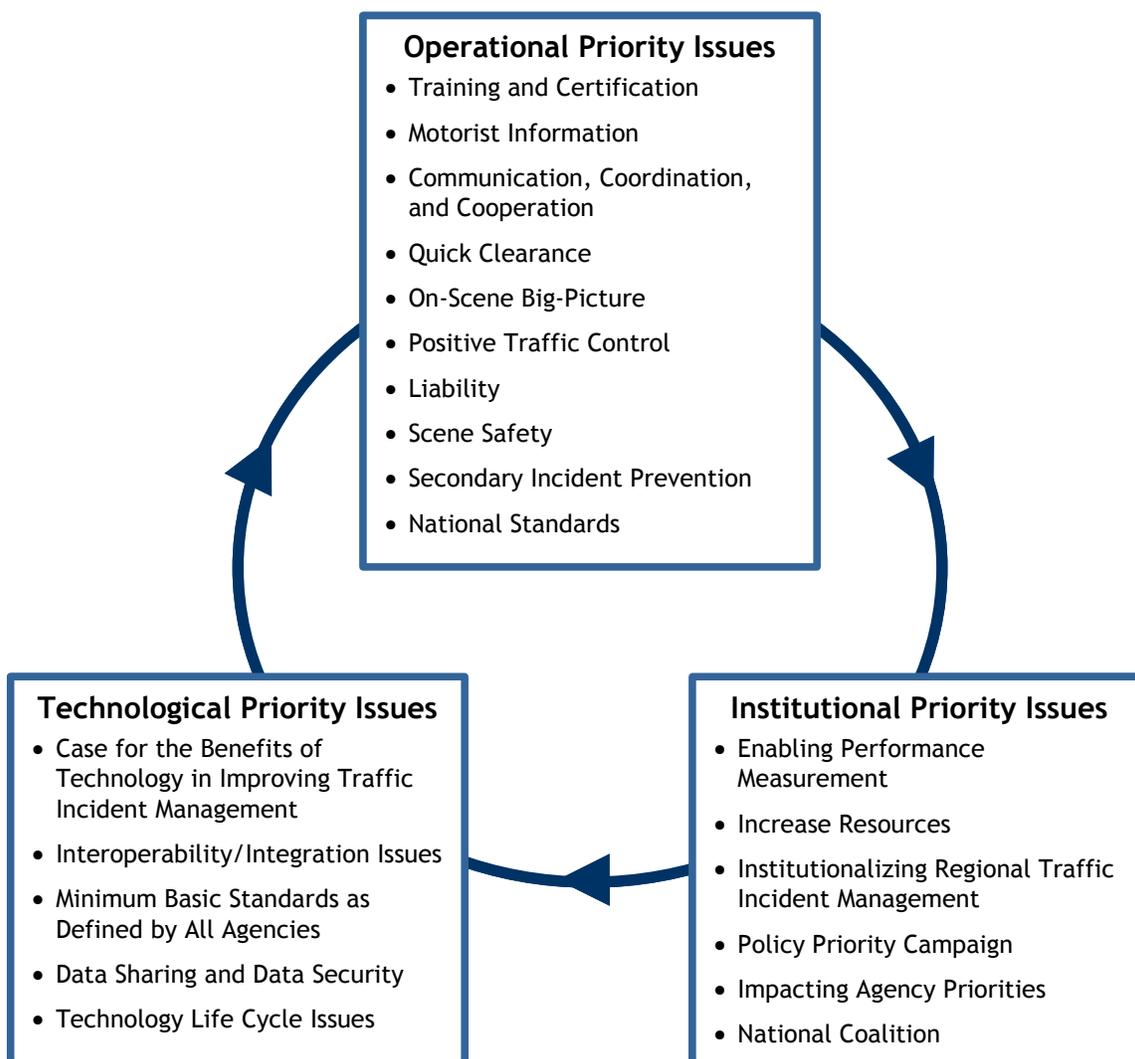
IV. Conference Outcomes

Breakout Session Results

During breakout sessions, participants identified and prioritized issues for advancing the state of the practice in traffic incident management. They defined candidate actions/initiatives to be taken to address the priority issues. Breakout sessions were organized around the Operational, Technological, and Institutional discussion paper topics. Participants rotated through the session topics, so that each attendee had the opportunity to comment on all three areas.

A set of common priority issues and actions/initiatives emerged from the breakout sessions. These were presented in a plenary session by topic area and included:

Priority Issues To Be Addressed



The priority issues and actions/initiatives presented in the plenary session can be found in Appendix D.

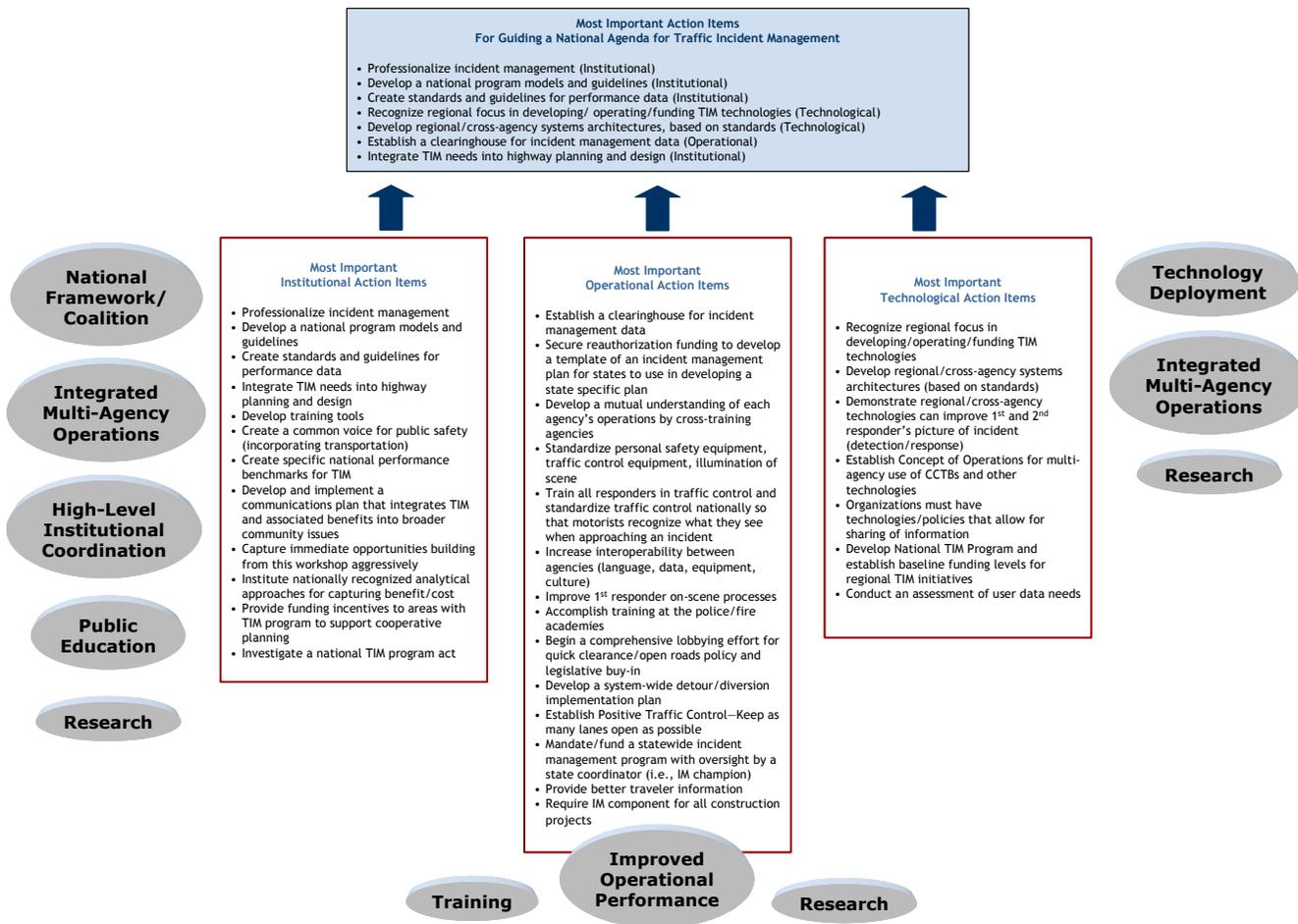
A full reporting of all of the issues and actions/initiatives generated in the breakout sessions can be found in Appendix E.

Prioritization of Actions/Initiatives

After hearing the breakout session output, participants provided further insights for guiding a national agenda by prioritizing their proposed actions/initiatives to improve traffic incident management. Participants were asked to choose those as “most important” in each area of operations, institution, and technology from among the full set of 435 actions/initiatives. The results of this prioritization are shown below. **Operational Action Items** focused on *responder training, funding* (e.g., for incident management plan templates and state-wide program development), and *traffic control* (quick clearance, keeping lanes open, and detour/diversion plans). **Technological Action Items** highlighted the need for a *regional/cross-agency focus* (e.g., funding, development of systems architectures, and sharing information and technology). **Institutional Action Items** centered on *standards and metrics* (e.g., national program models and guidelines, performance benchmarks, benefit/cost approaches), *a common voice for public safety*, and *communicating benefits in the context of broader community issues*.

The results of participants’ prioritization across all actions/initiatives suggest the need to focus on institutional issues. Within the list of the most important overall action items, more than half of the actions come from the institutional area. The two technological actions/initiatives cite the need to improve regional and cross-agency coordination. Key phrases that summarize major actions/initiatives by each category are shown in ovals in the graphic below.

Key Actions/Initiatives For Guiding A National Agenda For Traffic Incident Management



Panel Discussion: What Did We Hear From The Group Discussions?

On the final day of the conference, **Jeff Lindley**, Director, Office of Travel Management, FHWA led a panel to solicit reactions to the discussions and priority items developed during the conference. He noted the issues he expected to hear at this conference were brought forward - communication on the institutional and technical sides, information sharing, the need for more resources, and the need for more training. Mr. Lindley was surprised by a few of the emerging themes, including the amount of dialogue on performance measures, standards, and how the Manual on Uniform Traffic Control Devices (MUTCD) relates to positive traffic control. He commented that the depth of the recommendations coming forward from this conference was outstanding.

John Conrad, Chairman, Future Strategic Highway Research Program (F-SHRP), Assistant Secretary for Engineering and Regional Operations, Washington Department of Transportation, noted that he was extremely impressed how such a diverse group of people came together with a common purpose at this conference. Mr. Conrad reviewed the F-SHRP agenda, which is being developed around making a significant improvement to highway safety, providing highway capacity in support of national economic and environmental goals, providing a highway system with reliable travel times, and accelerating the renewal of America's highways. He noted several important recommendations emerged from this conference. Performance measures will be necessary to advance the traffic incident management program. A national coalition with a common voice and vision is needed to nurture relationships with various federal agencies. Communication is key for institutional issues, interoperability and integration challenges, and in letting the traveling public know what is happening on the roadways. In terms of next steps, Mr. Conrad commented that even though the purpose of conference was to put together a national agenda, many of the results can be taken back to local areas and put into effect right away. He also stressed the need to help support the national coalition as it forms.

Rebecca Brewster, Deputy Director, American Trucking Association Foundation, presented her feedback from the perspective of a user of the system. She thanked participants on behalf of the trucking industry for keeping highways safe. The costs for heavy vehicles to sit in traffic are very high and have a large impact nationally. Ms. Brewster noted the operational issues are very important to the user and particularly to the trucking industry. With regard to certification, the towing community has the most contact with truckers during incidents. Anything that can be done to further educate towers on proper scene operations will help in getting incidents cleared and in handling equipment properly.

Motorist information is also critical to the trucking industry. There is an obligation to get real-time, accurate information to drivers. In terms of positive traffic control, establishing queue protection, providing incident information, and setting up the scene give truckers the opportunity to slow down. In addition, Ms. Brewster cited the importance of quick clearance, scene safety, secondary incident information, and technology improvements to provide better incident information. She stated the trucking industry supports increased resources to meet institutional challenges and has made this part of their transportation reauthorization recommendations. Ms. Brewster referenced the National Incident Management Coalition established in the 1990s to support, heighten awareness of, and provide education on incident management. She commented that a new organization would be a great addition to this effort.

Barbara Hauser, Incident Management Coordinator, Maricopa County, Arizona Department of Transportation, provided a county-level perspective. She noted the Phoenix area is in a unique situation; the police and fire departments are leaders in getting along and promoting successful interagency cooperation. Ms. Hauser stated that this conference has brought out the need to consider the regional nature of incident management in planning. It has been recognized that incidents do not just happen on the freeways; they happen on and affect arterials. Ms. Hauser commented that the transportation community will not be a player until it has representatives with the same expertise as police and fire. Transportation needs to have people out on the road who will respond to incidents at 2:00 or 3:00 AM. There is also a need for a shift in thinking in the traffic community. For example, the first thing done when responding to the scene is protect it. This is backwards from what is trained in traffic control. Unless experience is developed, the need for change will not be realized. In addition, certification needs to be implemented. In closing, Ms. Hauser noted this conference is a very good start and was pleased to see the level of fire and police representation.

Don Grabowski, Deputy Commissioner, Chicago Department of Transportation, discussed four areas that need attention as traffic incident management initiatives move forward. He commented that getting money from the federal government can be a large task and that lobbying should be undertaken to ease procedures for receiving funds. He also emphasized the importance of funds being allocated in a way that is best suited for the situation. Mr. Grabowski provided the example that for the towing industry, equipment to overturn a large vehicle is very expensive. In rural area this equipment may not be readily available. He suggested that it may be possible to find ways for state and local governments to secure funding to pay for equipment and turn it over to an operator. Mr.

Grabowski also highlighted the need for a national society/association for traffic incident management. This organization could provide forums, like an annual meeting, to exchange ideas and to share best practices. Mr. Grabowski stated that in terms of technology, everyone agrees it needs to be used. However, sometimes there is so much technology available, that it becomes hard to discern what to use. Finally, Mr. Grabowski expressed concern about the lack of representation from the transit community. He noted that dense urban areas with sizable mass transit systems need to be prepared to deal with transit incidents. Transit organizations need to have a stake in incident management planning.

Ann Lorscheider, ITS Program Engineer, North Carolina Department of Transportation, focused her comments on communications and standards. She stated that if people cannot talk to each other to begin with, there is no technology in the world that will make them talk. She stressed the need not only for a shared language between safety and transportation, but also the ability to communicate with executive decision makers and technology implementers. Ms. Lorscheider also noted the need for open networks and shared information. With regard to standards, Ms. Lorscheider commented that transportation-driven technology standards on how to exchange messages between public safety and transportation would be beneficial. She stated that outreach and building liaisons with other organizations is critical to this, and all, incident management efforts.

Ed Plaughter, Chief, Arlington County, VA Fire Department, stated the fire service has paid some severe prices over years for doing things in narrow minded way. They have found these approaches do not work and are making corrective strides. The biggest stride is that they are now doing things with a fire fighter safety focus in mind. Chief Plaughter also noted that highway operation and management priorities need to be revisited. The highway incident situation is overwhelmingly complex. There is much to be done to make improvements, but the end result will make the highways safer for all.

Chief Plaughter commented that the number one thing firefighters do operationally, more than fighting fires or stopping a chemical leak, is pull someone out of an automobile. Firefighters are actually on the highway more than any other place. Chief Plaughter commended the attitude of the partnership that has been started at this conference and noted that it must be carried on; no one entity can achieve the goals of integrated traffic incident management by itself. Chief Plaughter highlighted the need for training and education. He stated that firefighters are better at what they do if they have clear objectives to achieve and are rewarded for achieving them. Cooperation from the public is necessary to being successful in the firefighting business. The fire service has cut deaths in fires in the United States by over 50%, mainly through educating the public. Chief Plaughter stated that these same techniques need to be used in traffic incident management. Teaching the American motoring public to move better and react in a proper way will cut loss of life on highways in half. Chief Plaughter noted two areas in which the fire community may need assistance and education - quick clearance and secondary incidents. Quick clearance may not be a term to which firefighters will easily relate, and it may not occur to firefighters that highway incidents can cause secondary, and potentially more lethal, incidents. He suggested that working directly with the fire community on these issues will raise awareness about their importance. The fire industry is very focused on best practices for scene safety.

“ The highway incident situation is overwhelmingly complex. There is much to be done to make improvements, but the end result will make the highways safer for all.”

***- Ed Plaughter, Chief,
Arlington County, VA
Fire Department***

In closing, Chief Plaughter noted that standards are a large part of the firefighting world. A great deal of time and money has been spent writing standards. He stated the fire community has experience in writing codes and standards and will be glad to share what they have learned and participate in standards development.

John Pohlman, Captain, Blue Ash, OH Police Department, commented that while there are good interagency working relationships in the Cincinnati area, the extent of institutional concerns indicate that everyone needs to get together and talk more. Captain Pohlman noted that not everyone is aware of the state of the art in incident management. Police departments have come a long way since 1970. Police are usually the last ones to come on board, but they have been rapidly progressing. Those who are getting promoted in police departments are also anxious to get involved in issues like incident management.

Captain Pohlman cautioned about the need to consider the audience for incident management initiatives. There are 40,000 police departments in the United States. Most agencies have less than 10 officers and do not have

interstate highways going through their jurisdictions. Officers in general have little interest in traffic because there are practically no traffic problems in most communities. However, traffic does affect metropolitan areas and rural areas in the country. In addition, while there is great deal of focus on crime today, many do not realize that more people are killed and injured in traffic crashes than by crime. Captain Pohlman advocated proactive training and certification, starting the initiative immediately and educating first responders about the importance of accurate information. He suggested those who make policy decisions should ride with the police for a shift to see exactly what happens at a scene. Captain Pohlman pointed to homeland security as an important area for resources, as well as an opportunity to collaboratively build responses to many different incidents. In closing, Chief Pohlman noted that the technical and institutional areas must support the operations. He also stressed that improvements for traffic incident management should be looked at locally, instead of waiting for someone else to provide assistance.

Questions and Comments For The Panel

Washington State has changed focus on building freeways to handle congestion to focusing on incident management to handle congestion. What made this happen?

Operating the system is just as important as building additions to system. The organizational structure has changed to put more emphasis on operations. New leadership was the driving factor behind this.

Public safety will see a great deal of financing relating to homeland security. Unless we as a community can prove our value in the homeland security environment, we won't receive any funding. Right now, the only thing in the U.S. Department of Transportation getting emphasis is air and port security. We as a community have not done a good job of explaining that what we do is important in supporting homeland security. Everyone needs to think about and communicate what we have to offer in terms of homeland security.

Incident management can dovetail nicely with homeland security in the area of evacuation - how to evacuate and move people and still run the country, how to move traffic in major cities and on interstate highways during an emergency.

Existing or new technology could help in this area. For example, cameras on every bridge in an area could be tied into the information flow at traffic management centers or dispatch centers.

Homeland security funds have been received in areas because law enforcement leadership has worked together. A group representing all communities needs to work together to share information and get funding. This collaboration may be a paradigm shift, but is necessary for future success.

Closing Remarks

Representatives from the sponsoring organizations - Bill Baker, ITS America, Jeff Lindley, FHWA, and Tony Kane, AASHTO - provided final comments and an indication of next steps.

Bill Baker stated that ITS America's interdisciplinary Public Safety Advisory Group serves as a spokesgroup for and advises the U.S. Department of Transportation on public safety issues. Its first national public safety conference was held 18 months ago. This current effort can be considered the second national conference, and the third conference will be sponsored with AASHTO and held in 2003. Mr. Baker commented that the issues raised during this conference will be the focus for next steps for AASHTO, FHWA's public safety program, and ITSA's public safety advisory group. He suggested that more joint sponsorship of activities such as this will be seen in the future.

Jeff Lindley remarked the goal of this conference, developing national program recommendations, was achieved. In terms of future directions, he stated that many of the recommendations will be integrated into FHWA's incident management and public safety programs. In addition, the ideas and comments from this conference will be used to shape FHWA's congestion goal area, will be considered in the F-SHRP program, and will assist with the transportation reauthorization efforts.

Tony Kane stated that the transportation community will need to continually make an effort to view incident management from the perspective of the emergency responders. He noted that the transportation community can be instrumental in leadership and funding roles for incident management. Like the other closing speakers, he emphasized the impact this conference will have on reauthorization, F-SHRP, and standards activities. Mr. Kane also expressed a commitment to exploring the formation of a national coalition to take recommendations from this conference and provide national leadership. He underscored the point that success in incident management can lead to benefits for traffic flow.

Post-Conference Survey

After the conference, a survey was sent to all attendees thanking them for their participation and requesting additional input. The survey questions were designed to make sure conference sponsors heard all of the traffic incident management issues and actions that were most important to the participants. Fifty-seven individuals, 34% of conference attendees, responded to the survey. Below is a breakdown of responses by discipline represented at the conference. A summarized version of the survey responses can be found in Appendix F.

Post-Conference Survey Respondents

Discipline	Percent of Survey Respondents
Transportation	48.1%
Law Enforcement	13.0%
Research	13.0%
Consultant	9.3%
Other	7.4%
Towing and Recovery	5.6%
Fire, Rescue, and Emergency Response Services	1.8%
Technology	1.8%
Total Respondents	100.0%

Survey respondents were asked if they felt that the breakout session format allowed for the capture of their most important issues and ideas. Over four-fifths (83.9%) felt that the breakout session format captured their ideas; 16.1% did not.

Those who did not feel their issues and ideas were captured during the breakout sessions were provided the opportunity to submit them in their survey response in an open-ended format. Highlights of these additional issues and action items are shown below. The most frequently mentioned comments focused on the need to work across disciplines and agencies to develop regional approaches and the need to continue expanding the participation in traffic incident management discussions into the towing industry and public safety arena. These findings are consistent with the main conference results.

Additional Issues And Action Items Captured Through The Post-Conference Survey

Issues in Traffic Incident Management	Action Items to Address Traffic Incident Management Issues
<ul style="list-style-type: none"> • Need for understanding, participation, and collaboration among agencies and disciplines at a regional level • Lack of public safety participation • Need for procedures and best practices • Need for national public awareness and publicity as a key approach to move the incident management agenda • Need to address total system impact of incidents • Quick clearance • Need for a plan to get tow and recovery vehicles on the scene as rapidly as possible • Secondary incident and traffic flow focus for public safety and transportation • Technology integration and interoperability • Education/training for transportation and public safety 	<ul style="list-style-type: none"> • Develop Federal requirements/mandates for jurisdictional coordination • Set up a federal-level champion for incident management and funding mechanisms to implement initiatives • Increase representation for towing industry and public safety - include PSAP, emergency medical, wireless communication, and telematics representatives • Limit overall proportion of transportation representation (for future meetings/conferences) • Prepare "best practices" for on-scene activities as well as planning, coordination, and training from a regional point of view • Work within existing standards development organizations • Improve public education and awareness to reduce rubber necking

Appendix A: List of Conference Participants

George Ake
Univ MD - Center for Advanced
Transportation Technology
5000 College Avenue
Suite 3103E
College Park, MD 20742

William Albaugh
Highway Operations Director
FL DOT
605 Suwannee St.
Tallahassee, FL 32399

Bill Allen
Transportation Planner
Chattanooga MPO
1250 Market Street
Suite 2000
Chattanooga, TN 37402

Jim Allen
ITS/Transportation Engineer
FHWA
400 Seventh Street, SW
Room 3416
Washington, DC 20590

William Almany III
District Deputy Director of
Maintenance
Calif DOT
120 S. Spring Street
Los Angeles, CA 90012

Jerry Althausen
Incident Response Team
Supervisor
Washington State DOT
811 East Roanoke Street
Seattle, WA 98102-

Nayan Amin
Senior Technical Manager
BUCHER, WILLIS & RATLIFF
CORPORATION
5980 Stoneridge Drive
Suite 103
Pleasanton, CA 94588

Adrienne Archer
Project Assistant
TRB
2001 Wisconsin Avenue, NW
Washington, DC 20007

April Armstrong
SAIC
7990 Science Applications Ct.
M/S CV-48
Vienna, VA 22182

Sam Assaad
Senior Transportation Engineer
CALTRANS
120 S. Spring Street
Los Angeles, CA 90012

Stephen P. Austin
Project Manager
CVVF Emergency Responders
Safety Institute
3540 Old Capital Trail
Box 5070
Wilmington, DE 19808

James Austrich
Engineering Tech.
D.C. Dept. of Public Works
2000 14th St, NW
Washington, D. C., DC 20009

Malcolm Baird
Director
Vanderbilt Center for
Transportation Research
VU Station B 351831
Nashville, TN 37235

William Baker
Consultant
ITS America
400 Virginia Ave, SW
Suite 800
Washington, DC 20024

James Ballard, Jr.
Major - Cmdr., Central Region
Maryland State Police
Maryland State Police
7777 Washington Boulevard
Jessup, MD 20794

Alfonso Benet
Emergency Coordinator
FHWA
Federal Highway Administration
400 7th Street, SW, Room 3408
Washington, DC 20590

Mahesh R. Bhatt
Senior Transportation Engineer
Caltrans
District 12, Transportation
Management
Center
Irvine, CA 92868

George Black
Board
NTSB
490 L'Enfant Plaza East, S.W.
Washington, DC 20594

Caroline Brabrook
Manager, ITS
Jacobs Sverdrup
600 108th Ave NE
Suite 700
Bellevue, WA 98004

Rebecca Brewster
Deputy Director
ATA Foundation
1280 West Peachtree Street
Suite 300
Atlanta, GA 30309-

Valerie Briggs Kalhammer
Booz Allen Hamilton
8283 Greensboro Drive
McLean, VA 22102

Ken Brooke
Principal
MITRETEK
Suite 755
600 Maryland Ave, SW
Washington, DC 20024

Mike Brown
Chief
California Highway Patrol, Los
Angeles District
Los Angeles, CA

Jimmy Carter
President
Virginia Fire Chiefs Association
2133 Tall Pines Bend
Virginia Beach, VA 23456

Edmond Chang
ITS Program Manager
Oak Ridge National Laboratory
8720, Snowhill Ct
Potomac, MD 20854

Judy Chen
Office Chief
Caltrans-District 4
111 Grand Ave
P.O. Box 23660
Oakland, CA 94623-0660

Bruce Churchill
Senior Project Manager
National Engineering Technology Corp
14320 Firestone Blvd
Suite 100
La Mirada, CA 90638

John F. Conrad
Washington State DOT

Harriet Cooley
Executive Director
Towing and Recovery
2121 Eisenhower Ave
Ste. 200
Alexandria, VA 22314

Robert Copp
Chief, Office of System
Management Operations
California Department of
Transportation
Traffic Operations, MS 36
P.O. Box 942874
Sacramento, CA 94274

John Corbin
Freeway Operations Engineer
Wisconsin D.O.T.
633 W. Wisconsin Ave.
Suite 1200
Milwaukee, WI 53203

Bob Crockett
Executive Director
California Tow Truck Association
20705 Western Avenue
Suite 213
Torrance, CA 90501-1845

Richard Cunard
Senior Program Officer
TRB
2001 Wisconsin Avenue, NW
Washington, DC 20007

Steve Cyra
Program Management
Consultant
HNTB

Vinh Dang
Freeway Ops Mngr
WSDOT
P.O. Box 330310
15700 Dayton Avenue N.
Seattle, WA 98133-9710

Jude Depko
Principal Engineer
New Jersey Highway Authority
P.O. Box 5050
Woodbridge, NJ 07095

Ray Derr
Project Manager
Transportation Research Board
2001 Wisconsin Ave., NW
Washington, DC 20007

Caleb Dobbins
Assistant state Maintenance
Engineer
New Hampshire Department of
Transportation
1 Hazen Drive
P. O. Box 483
Concord, NH 03302-0483

Jim Dodd
TeleTran Tek Services
9475 Chesapeake Drive
Suite D
San Diego, CA 92177

Greg Dominguez
Sergeant
City Glendale AZ Police
Department
6835 N 57 Drive
Glendale, AZ 85301

Kevin Dopart
Manager
Mitretek Systems
600 Maryland Ave, SW
Suite 755
Washington, DC 20024

Rebecca Doyle
Research Analyst
SAIC
7990 Science Applications Ct.
M/S CV-48
Vienna, VA 22182

James Draper
Marketing Manager
3M
3M Center
Building 225-55-08
Saint Paul, MN 55144-1000

Chris Drews
Assistant Chief
Elwood Fire Protection District
309 W. Mississippi St.
Elwood, IL 60421-9211

David Ekern
Associate Director
AASHTO
444 N. Capitol St. NW
Suite 249
Washington, DC 20001

Mort Fahrtash
Senior Transportation Engineer
Caltrans
6681 Marine Way
Irvine, CA 92618

Tom Flaherty
Industry Manager
Reflexite Americas
108 Springbrooke Dr.
Venetia, PA 15367

Edward Flynn
Chief of Police
Arlington County Police
Department
1425 N. Courthouse Road
Arlington, VA 22201

Robert Frankin
Manager, Business Development
Lockheed Martin
12999 Deer Creek Canyon Rd.
MS: DC4350
Littleton, CO 80127

Bill Giorgis
Vice President
Towing and Recovery
Association of America
2809 Maplewood Street
Saginaw, MI 48601-3958

Jay Gould
District Engineer
WyDOT
3411 So. 3rd Suite 1
Laramie, WY 82070-8315

Donald Grabowski
Deputy Commissioner
Chicago Department of
Transportation, Bureau of
Traffic
30 N. LaSalle St.
Suite 400
Chicago, IL 60602-

Arti Gupta
Regional Manager
Siemens GTS
250 W. Colorado Blvd.
#110
Arcadia, CA 91007

Gloria Gwynne
Senior Transportation Electrical
Engineer
Caltrans
New Technology & Research
3347 Michelson Drive
Irvine, CA 92612-8894

Evelyn Harden
President
California Tow Truck
Association.
300 Terrace Way
Bakersfield, CA 93304

Mike Hartman
CE 3
NYSDOT
NYSDOT ITS Group
Bldg 5 Rm 319
Albany, NY 12232

George Hatstrup
Senior Transportation Engineer
CALTRANS
New Technology & Research
3337 Michelson Drive
Irvine, CA 92612-8894

Barbara Hauser
ITS Incident Management
Coordinator
Maricopa County DOT
2901 W. Durango St.
Phoenix, AZ 85009-

Harvey Heaton
Staff Services Manager
California Highway Patrol
444 North 3rd Street, Suite 310
Sacramento, CA 95814

Joseph Hecker
Chief, Division of Traffic
Operations
CALTRANS
1120 N Street, MS 36
P.O. Box 942873
Sacramento, CA 94273-0001

Markus Heiman
Branch Chief, Operations RTMC-
D3
Caltrans
3165 Gold Valley Drive
Rancho Cordova, CA 95742-
6588

David Helman
Office of Travel Management,
FHWA
400 7th Street, S.W.
Nassif Bldg., Room 3401
Washington, DC 20590-

David Hensing
Director, Transportation Policy
and Analysis Center
SAIC
7990 Science Applications Ct.
Vienna, VA 22182

Ronald Hergert
Lieutenant
Phoenix Police Dept.
302 E. Union Hills
Phoenix, AZ 85024

Brandy Hicks
Transportation Specialist
FHWA
400 7th Street, SW
HOTO-1
Washington, DC 20590

Susan Hicks
Captain
City of Los Angeles Department
of Transportation
Special Events Unit
411 North Vermont Avenue
Los Angeles, CA 90004

Eric Hillyer
Incident Management
Maricopa County
2901 W Durango
Phoenix, AZ 85009

Jeff Holm
Design/Traffic Operations
Engineer
FHWA CA Division
980 9th Street, Suite 400
Sacramento, CA 95814-

John Horsley
Executive Director
AASHTO
444 North Capitol Street, NW
Suite 249
Washington, DC 20001

John Hourdakis
Research Fellow
U of Minnesota
500 Pillsbury Dr. SE
Minneapolis, MN 55455

Patrick Hughes
Director, Design Build
MN Department of
Transportation
395 John Ireland Boulevard
Mail Stop 450
St. Paul, MN 55155

Robert Hungler
Lieutenant
Cincinnati Police Department
800 Evans Street
Cincinnati, OH 45204

Randell Iwasaki
Deputy Director, Maintenance
and Operations
California Department of
Transportation
111 Grand Avenue
Oakland, CA 94612

Carol Jacoby
Principal
Jacoby Consulting
PO Box 155
Lakewood, CA 90808

Tom Jennings
Transportation Management
Engineer
FHWA VA Division
400 North 8th Street, Room 750
P.O. Box 10249
Richmond, VA 23240-

Christine Johnson
Operations CBU Program
Manager
Federal Highway Administration
400 7th Street, S.W.
Washington, DC 20590

Gregory Jones
Operations Team Leader
Federal Highway
Administration- Southern
Resource Center
61 Forsyth St.
Suite 17T26
Atlanta, GA 30303

Tony Kane
Director, Engineering and
Technical Services
AASHTO
444 N. Capitol Street, N.W.
Suite 249
Washington, DC 20001-

Mark Karczewski
Sergeant
Illinois State Police
16648 S. Broadway St.
Lockport, IL 60441

David Kever
SAIC
7990 Science Applications Ct.
Vienna, VA 22182

David Kelley
ITS Programs Manger
SubCarrier Systems Corp
101 N. Citrus
Covina, CA 91723

Mark Keough
City of Mesa Fire
40 N. Center Street, Breakout
#115
Mesa, AZ 85201

Jim Kerr
President
National Engineering Technology
Corporation
14320 Firestone Blvd
Suite 100
La Mirada, CA 90638

Lawrence Klein
Consultant
314 Purdy Avenue
Placentia, CA 92870

Ray Klucens
Transportation Engineer
Michigan Dept of Transportation
P.O. Box 1433
Warren, MI 48090

Bill Knost
Master Police Officer
Fairfax County Police
3911 Woodburn Rd.
Annandale, VA 22003

Ken Kobetsky
Program Director for
Engineering
AASHTO
444 N. Capitol Street, N.W.
Suite 249
Washington, DC 20001-

Tom Kurihara
ITS Consultant
TKstds Management
3800 N. Fairfax Dr #207
Arlington, VA 222031759

Hoang Lap
Deputy State Traffic Engineer
Florida DOT
Office of Traffic Operations
605 Suwannee St.
Tallahassee, FL 32399-

Gary Larsen
Director, Office of Operations
R&D
Federal Highway Administration
Turner-Fairbank Hwy Research
Ctr.
6300 Georgetown Pike
McLean, VA 22101

Steven Latoski
Senior Engineer
Dunn Engineering Associates
66 Main Street
Westhampton Beach, NY 11978

Byron Lee
Director
MTA
One Gateway Plaza
Los Angeles, CA 90012

Linda Lee
Transportation Engineer
Metropolitan Transportation
Commission
101 Eighth Street, 3rd Floor
Oakland, CA 94607

Tom Lentz
ARA Maint. & Traffic
WSDOT
WSDOT MS 119
P.O. Box 330310
Washington, WA 98133-9710

Steve Levine
Associate Vice-President
TransCore
253 West 35th Street
New York, NY 10001

James W. Lewis
System Engineer
J and J Project Consultant
17202 Vickie Ave.
Cerritos, CA 90703

Jeffrey Lindley
Director
Office of Travel Management,
FHWA
400 7th Street, S.W.
Nassif Bldg., Room 3401
Washington, DC 20590-

Steve Lockwood
VP
Parsons Brinckerhoff
3200 Tower Oaks Blvd
Rockville, MD 20852

Ann Lorscheider
ITS Programs Engineer
NCDOT
Traffic Management
MSC 1561
Raleigh, NC 27699

Cynthia Mahlstedt
Public Relations
Reflexite Americas
315 South Street
New Britain, CT 06051

Lt. Marty Maples
Border Communications Center
Commander
California Highway Patrol
Caltrans/CHP TMC
7183 Opportunity Road
San Diego, CA 92121

Rich Margiotta
Senior Associate
Cambridge Systematics
1265 Kensington Drive
Knoxville, TN 37922

Edward Mark
Project Director, Integrated
Incident Management
NYS DOT
47-40 21st Street
9th Floor
Long Island City, NY 11101-

Alvin Marquess
Operations Manager
MD State Highway Admin
7491 Connelley Drive
Hanover, MD 21076

Robert Marsili
Chief of Street and Bridge
Maintenance Division
District Division of
Transportation
1403 W Street NE
Washington, DC 20020

Ralph Martin
Captain
Colorado State Patrol
700 Kipling St.
Denver, CO 80215

Tarbell Martin
Chief, Transportation
Management Center
Caltrans
7183 Opportunity Road
San Diego, CA 92111

Al Martinez
Program Manager
LACMTA
One Gateway Plaza
MS 99-13-12
Los Angeles, CA 90012-2932

Mike Maurer
California Highway Patrol
Office of Research & Planning
2555 First Avenue
Sacramento, CA 95818

Jim McGee
ITS Program Developer
Nebraska DOT
NDOT
Trans Tech Group
Lincoln, NE 68502

Stephen McMahan
Assistant Chief Engineer
Mississippi Department of
Transportation
P. O. Box 1850
Jackson, MS 39212-1850

Tom Micone
California Highway Patrol
Office of Research and Planning
2555 First Avenue
Sacramento, CA 95818

Ronald Miner
Manager, Business Development
TRW Public Safety &
Transportation
12011 Sunset Hills Road
6C74
Reston, VA 20190

Gary Mitchell
Transportation Emergency
Manager
KY DOT
Room 702
501 High Street
Frankfort, KY 40622

John Mitchell
ETP Manager
Illinois Dept. of Transportation
3501 S. Normal Ave.
Chicago, IL 60609

Pamela Mitchell
Project Manager
New Hampshire Department of
Transportation
1 Hazen Drive
P. O. Box 483
Concord, NH 03302-0483

James Mock
Operations Engineer
Virginia Dpt. of Transportation
970 Reon Drive
Virginia Beach, VA 23464

Jeff Morales
Director
CALTRANS
P.O. Box 942873
Sacramento, CA 94273-0001

James Newman
Maricopa County DOT
2901 w Durangoi
Phoenix, AZ 85009

Thom Niesen
Deputy Director, Maintenance
and Operations
California Department of
Transportation
1120 N Street
PO Box 942873
Sacramento, CA 95814

Pat Noyes
Principal
Pat Noyes & Associates
1566 County Road 83
Boulder, CO 80302

John O'Donnell
Office Director
US DOT - Volpe
55 Broadway
Cambridge, MA 02142
John O'Laughlin
PB Farradyne
999 Third Ave suite 2200
Seattle, WA 98032

Masoud Omar
Caltrans
District 12, Transportation
Management
Irvine, CA 92868

Lawrence Orcutt
CA Department of
Transportation
CA DOT
Division of Maintenance
Sacramento, CA 95814

Rivy Oseni
NTSB
14315 Mansel Avenue
Lawndale, CA 90260

William Parks
Transport Towing, Inc
2615 Brandon
Joliet, IL 60436

Tim Pelzek
Battalion Chief
Milwaukee Fire Department
Milwaukee Fire Academy
6680 N. Teutonia Ave.
Milwaukee, WI 53209-

Edward Plaughner
Chief
Arlington Co. (VA) Fire
Department
2100 Clarendon Blvd
Suite 400
Arlington, VA 22201-

John Pohlman
Captain
Blue Ash Police Dept
4343 Cooper Rd
Cincinnati, OH 45242

Paul Powell
National Sales Manager
3M Company
2310 Heatherwoods Way
Carrollton, TX 75007

Cesar Pujol
Senior Engineer
Caltrans-District 4
111 Grand Ave
P.O. Box 23660
Oakland, CA 94623-0660
Tom Ranson
IMT Coordinator
UDOT Region 2
2010 S. 2760 W.
Salt Lake City, UT 84104

Richard Raub
Sr. Research Scientist
Northwestern University Center
for Public Safety
405 Church Str
Evanston, IL 60048

Augustin Rosales
Maintenance District Liaison
Calif DOT
1120 N Street, Room 3100
Sacramento, CA 95814

Jerry Rounds
Chief
California Highway Patrol
Planning and Analysis Division
2555 First Avenue
Sacramento, CA 95818

Joseph Rutnik
Civil Engineer 2
N.Y.S. Dept. of Trans.
N.Y.S.D.O.T.
84 Holland Ave.
Albany, NY 12208

Sharon Rutzebeck
Administrator
Maryland State Police
Technology Management
Division
Baltimore, MD 21208

Aram Sahakian
Transportation Engineer
Los Angeles Department of
Transportation
1016 N. Mission Road,
Bldg. B, Suite 105
Los Angeles, CA 90033

Alan Sanderson
Traffic Engineer
City of Mesa Transportation
P.O. Box 1466
Mesa, AZ 85213

Pam Scanlon
Executive Director
ARJIS
401 B Street
Suite 800
San Diego, CA 92101

Timothy Schoch
Deputy Program Manager
TRW
508 W. 3rd Street
Cincinnati, OH 45202

Neil Schuster
President & CEO
ITS America
400 Virginia Ave., S.W.
Suite 800
Washington, DC 20024-2730

Sal Segura
Captain
California Highway Patrol
444 N. Third Street Breakout
#310
Sacramento, CA 95814

Jennifer Seplow
Research Analyst
SAIC
7990 Science Applications Ct.
M/S CV-48
Vienna, VA 22182

Carla Simone
Senior Transportation Systems
Engineer
National Engineering Technology
Corporation
14320 Firestone Blvd
Suite 100
La Mirada, CA 90638

Arland (Ted) Smith
PB Farradyne
PB Farradyne
3201 NW Commercial Blvd.
Fort Lauderdale, FL 33309

Michael Smith
Sr. Scientist/AVP
SAIC
7990 Science Applications Ct.
M/S CV-48
Vienna, VA 22182

Michael Sobolewski
ITS Planner
Minnesota Dept. of
Transportation
395 John Ireland Blvd.
St. Paul, MN 55155

Ellis Stanley
General Manager
LA City Emergency Preparedness
200 N. Main St., Ste. 1500
Los Angeles, CA 90012

Rob Stone
State Incident Management
Engineer
NCDOT
Transportation Management
Center
1533 Mail Service Center
Raleigh, NC 27699-1533

Steve Takigawa
Deputy District Director of
Maintenance
Calif DOT
1120 N Street, Room 3100
Sacramento, CA 95814

John Taylor
Senior Research Engineer
Western Transportation
Institute
416 Cobleigh Hall
Bozeman, MT 59717-3910

Carol Thielman
IIMS Program Manager
Veridian Engineering
4455 Genesee Street
Buffalo, NY 14225

Robert VanHorn
HELP Supervisor
Tennessee Department of
Transportation
4005 Cromwell rd.
Chattanooga, TN 37421

Richard Vecera
MSP-Sgt
MD SHA
MD SHA
Office of CHART
Hanover, MD 20613

Rick Verlinda
Battalion Chief/Safety Officer
Seattle Fire Department
301 2nd Avenue South
Seattle, WA 98104

Mitchell Villalpando
Deputy Chief
Sycuan Fire Dept.
Sycuan Fire Dept.
5449 Dehesa Road
El Cajon, CA 92019

Kenneth Voigt
Fellow
HNTB Corporation
11414 West Park Place
Suite 300
Milwaukee, WI 53224

Zhongren Wang
Transportation Engineer (Civil)
Caltrans
New Technology & Research
1227 "O" Street
Sacramento, CA 95814

Robert Watson
CEO
American Towing Alliance
P.O. Box 3865
Ontario, CA 91761

Karen Weiss
SAIC
7990 Science Applications Ct.
M/S CV-48
Vienna, VA 22182

Russ Wenham
District Deputy Director of
Maintenance
Calif. DOT
1120 N Street, Room 3100
Sacramento, CA 95814

Jerry Werner
Editorial Director
ICDN
759 East Overlook Mountain
Buda, TX 78610

Ida Williams
Director
Maryland State Police
Central Records Division
Baltimore, MD 21244

Douglas Wilson
President
TMW Towing, Inc
P.O. Box 193
25250 S. State St.
Crete, IL 60417-0193

Randy Woolley
Senior Electronics Engineer
CALTRANS
3337 Michelson Drive
Irvine, CA 92612-8894

Fred Yazdan
Senior Transportation Engineer
CALTRANS
New Technology & Research
3337 Michelson Drive
Irvine, CA 92612-8894

Mark Zapatka
V.O.C. Team
Reflexite
315 South St.
New Britain, CT 06051

Bruce Zvaniga
Manager, Urban Traffic Control
Systems
City of Toronto Transportation
Services
703 Don Mills Road
5th Floor
Toronto, ON M3C 3N3

[Note: Fiscal constraints prevented some state agencies from sending participants]

This page intentionally left blank.

Appendix B: Plenary Session Presentations

The conference opened with a plenary session in which participants heard a multi-disciplinary panel discussion and presentations on rural and urban incident management perspectives and lessons learned. Three discussion papers focusing on operational, technological, and institutional TIM issues were also presented in the plenary session on Day Two of the conference. Together, these sessions formed the basis for participant discussion on the issues and actions necessary for improving traffic incident management.

The Importance of Traffic Incident Management - A Multi-Disciplinary View

Members of the law enforcement, fire, towing, transportation, and technology communities provided their perspectives on what needs to be done to improve traffic incident management. Members of the panel included:

- Mike Brown, Chief, California Highway Patrol, Los Angeles District
- Mitchell Villalpando, Deputy Chief, Sycuan Fire Dept, and Vice-President, San Diego Fire Chiefs Association
- Evelyn Harden, State President, California Tow Truck Association
- John Horsley, Executive Director, AASHTO
- Neil Schuster, President and CEO, ITSA

Mike Brown, Chief, California Highway Patrol, Los Angeles District, stated that the concerns of the law enforcement community are straightforward and deal with public safety, loss of life and property, investigating crime scenes, and on-scene management. One of the chief law enforcement concerns is getting to the incident with appropriate equipment and personnel. This includes response time, managing the incident, and education of the responders. Chief Brown noted that law enforcement strategies of the past have been incident driven and not focused on the surrounding or secondary issues that occur as a result of the incident. Today, it is very critical for law enforcement to manage the incidents effectively to prevent or minimize the secondary issues. In order to move forward, new approaches are needed. These include:

- Looking at the bigger picture (i.e., the spill-over effects of incidents on surrounding communities).
- Investing in long-term driver education (i.e., through community outreach programs and special initiatives like those in grammar schools).
- Increasing the use of technology to detect and manage incidents.
- Involving law enforcement officers in traffic management centers to help manage events.
- Integrating communication systems across disciplines and jurisdictions to coordinate resources.
- Improving media access and public information (e.g. distribution via websites, media access to computer-aided dispatch system).
- Encouraging voluntary compliance with traffic laws, addressing the large number of incidents caused by driver behavior and/or driver-controlled issues.
- Shifting toward prevention of incidents and protection of infrastructure and interchanges instead of just response to incidents (i.e., consideration of the impacts to public safety, the transportation system, and the economy).

Chief Brown stressed that no one agency can move forward alone; agencies and disciplines need to work cooperatively as well as maximize technology and the use of innovative thinking in their approaches to incident management. In closing, Chief Brown mentioned a recently released report by a task force of the International Association of Chiefs of Police (IACP) and the National Highway Transportation Safety Administration (NHTSA), *Traffic Safety in the New Millennium - Strategies for Law Enforcement*, in which over 56 strategies, 34 of which are technology based, are presented for consideration.

Mitchell Villalpando, Deputy Chief, Sycuan Fire Dept, and Vice-President, San Diego Fire Chiefs Association began his remarks by noting this conference is great step toward collaboration. He stated that for the fire service, the definition of the incident command system is the "combination of facilities, equipment, personnel, procedures,

and communications operating within a common organization structure with responsibility for the management of assigned resources to effectively accomplish assigned objectives relating to an incident". The incident command system is an integral component for all responders - it gives structure to a chaotic scene, makes people accountable, cuts down on radio traffic, and most importantly, saves lives. While all of the organizations involved in clearing a traffic incident - highway patrol, law enforcement, fire department, ambulance, tow truck, traffic control - are trying to achieve the same goal, they all have different tasks, operating procedures, and communications systems. Deputy Chief Villalpando shared the following as an illustrative example:

During a multiple vehicle accident in San Diego County, an air ambulance was about to land and a California Highway Patrol cruiser was right underneath it. Since the fire department (which is the ground contact for the air ambulance) and highway patrol did not share the same radio communication systems, there was no way to radio this cruiser and the helicopter pilot was blind to what was underneath him. Luckily, the cruiser driver happened to look up at the last minute and moved. This situation happened so fast that it could have easily gone awry.

Deputy Chief Villalpando noted this conference is an ideal venue to exchange ideas and thoughts and get familiar with all of the players. He stressed that information from this conference needs to be shared and applied at the local level and expressed the commitment to taking back to the San Diego County Fire Chiefs Association recommended actions to implement a traffic incident management agenda.

Evelyn Harden, State President, California Tow Truck Association noted that towing is an integral part to incident management. Currently in California, tow truck drivers are receiving training and certification classes in order to better respond to incidents. This training focuses on safety and responding to the commander at the incident scene. Ms. Harden also noted the effects of incidents on California roadways. In the Los Angeles area, a traffic stop of 30 minutes will result in 4-5 lanes of halted traffic spanning 30 miles. Incidents on bridges can also severely affect traffic. Ms. Harden stated that these stoppages cost money, not just in terms of the cost of one incident, but the on-going costs assumed with the incident. Ms. Harden reaffirmed the towing industry's commitment to get to the scene as quickly as possible and do the best job they can. She offered thanks on behalf of the California Tow Truck Association and the towing industry for being part of this effort.

John Horsley, Executive Director, AASHTO, thanked FHWA and other organizers of this event for their leadership and noted the diverse mix of people brought together for this conference. He reviewed several statistics that emphasize the importance of integrated traffic incident management:

- In 1999, over one-half of police officers killed in line of duty died in traffic crashes.
- In 1999, more than 15,000 emergency response vehicles that were damaged were damaged at or on their way to crash scene.
- Eighteen percent of deaths on freeways were secondary to the initial incident because response to the initial incident wasn't fast enough.
- Congestion in major metropolitan areas is getting worse - 50% of all traffic delay is attributed to non-recurring incidents on major freeways.

Mr. Horsley noted that state Departments of Transportation are under pressure to make their highways perform better. In addition, law enforcement officials need protection, the threat to emergency vehicles needs to be lessened, and drivers need to be protected. Mr. Horsley suggested that these issues provide many reasons to work together during this conference. He noted the command scene requires better communications, including better interoperable radio communications. He also stressed that it is just as important to have a clear understanding of who is in charge of what at an incident and to establish protocols so objectives of all agencies are met and the public is served. Mr. Horsley concluded his remarks by commenting that there needs to be a commitment to work together on an ongoing basis and to develop a systematic program of sharing lessons learned.

Neil Schuster, President and CEO, ITSA, noted that while technology can be a topic of discussion, the real question is language - everyone needs to learn to speak each other's language. Technology itself is useless unless everyone can communicate. Mr. Schuster also stressed that the technology focus should move past standards to interoperability. For example, there is a world standard telephone system but if you call a foreign country and you don't speak their language and they don't speak yours it is useless because they are not interoperable. Mr. Schuster also highlighted a major information challenge: How do we collect data and information, combine it, turn it into something of value, and provide it to a decision maker in a timely manner in order to make the right decision? He cited the use of onboard navigation systems to help consumers make choices and the ability of

emergency responders to pinpoint cell phone calls as areas where this challenge could be met. Mr. Schuster expressed the desire to raise awareness in Congress and continue moving this process forward. He noted that travel incidents take place every day and there need to be ways to respond. Progress will only occur with on-going effort and daily, recurring communication.

At the end of the presentations, panel members were asked to provide their final thoughts to help guide conference discussions. All panel members stressed that communication and collaboration among all disciplines is necessary for advancing traffic incident management.

Traffic Incident Management Practices: Operational, Technological, and Institutional Perspectives

- Ellis Stanley, General Manager, Los Angeles City Emergency Preparedness Department
- David Ekern, Assistant Commissioner, Minnesota Department of Transportation and Associate Director, AASHTO

Urban Traffic Incident Management

Ellis Stanley, General Manager, Los Angeles City Emergency Preparedness Department presented an urban perspective on traffic incident management. He noted large metropolitan areas need to be prepared for anything. One of the commonalities in jurisdictions of all sizes is that everyone has a role and responsibility before, during, and after a disaster. While this may not always be clear or written in a plan, it is essential to understand the responsibilities of being prepared to deal with the consequences of a disaster. Mr. Stanley noted that special events on a routine basis present issues for any city. However, regardless of size of the jurisdiction, if infrastructure and plans aren't in place, the event can become onerous.

Mr. Stanley stated two 21st century challenges for urban incident management: (1) the unknown itself, and (2) the fear of the unknown. While incidents cannot be predicted, these challenges can partly be addressed by planning for the impacts of a worst-case scenario. He also noted the private sector plays a big part in the process of protecting critical infrastructure. However, the private sector usually does not have a seat at the table on a day-to-day basis. It is normally only included in the planning process for special events. This has the potential to cause difficulties. For example, on September 11th, there was a great deal of spontaneous evacuation, which could have been better coordinated (e.g., staggered evacuations, turning streets in one direction). Mr. Stanley advocated a holistic approach to planning - bringing all elements of the community to the table for planning and communicating in a way that creates common understanding.

Mr. Stanley also addressed the area of technology. He noted that technology itself or hardware communication are not typically problems. The biggest challenge is people-to-people communication (e.g., collaborative planning, internal communication within a department, external communication with partners). An associated concern is the ability to integrate technologies among those involved in incident management. In many cases, separate communications centers rarely talk to each other; expectations differ on how technology could, should, and will be used; and there may be no centralized function to integrate and synthesize information. Los Angeles is working to address this challenge through a bond referendum to build a new emergency operations center. This center will be the most linked facility in the city and include the private sector. Mr. Stanley proposed that the emergence of the "intelligent city" will radically transform emergency and incident management as we know it today. Computing and telecommunications technologies allow cities to provide information necessary to keep the public informed, to allow organizations to request resources, and to ensure that all departments are involved.

Mr. Stanley cited two other areas for increased awareness. Emergency managers can be valuable assets. They may be able to pull in a broader set of partners and be a link to resources. The private sector can also be a tremendous asset, since often the government acts in response to private sector initiatives.

In closing, Mr. Stanley offered the following comments regarding making better incident management a reality:

- Make better use of current technology tools (e.g., intelligent decision support software, closed-captioned television, automated information exchange, database sharing).
- Recognize the community perspective (i.e., incidents do not care who you are; everyone needs to be in the process and share information).

- Utilize training to clarify roles, responsibilities, and rules of engagement.
- Consider all players in before, during, and after-incident planning and activities. Be sensitive to, and include, all levels of government (e.g., “local” federal government).

Questions and Answers

How does your department coordinate with city, county, and state transportation agencies?

Ongoing relationships exist with each transportation agency for before, during, and after-incident collaboration. At the county level, there is a direct line to sharing information. If the city activates its Emergency Operation Center, the county is immediately activated and the state stays in the information loop. The Caltrans link will be strengthened by new offices being built in downtown Los Angeles.

When you talk about “local” federal government, do you mean FEMA?

“Local” federal government consists of the entire federal family (e.g., FBI, Secret Service, DOT, FEMA). It is important these agencies be involved planning process to develop an understanding of their processes and what resources they can bring.

Rural/Special Event Incident Management

David Ekern, Assistant Commissioner, Minnesota Department of Transportation and Associate Director, AASHTO, provided a rural/special event perspective on traffic incident management. Mr. Ekern noted that 54% of all crashes, 56% of all injuries reported, and 87% of all fatalities occur outside of metropolitan areas. Seasons bring different types of events/incidents in rural environments (e.g., snow and ice in winter, floods in spring, work zones and fog in summer). All of these events and incidents have an impact on how the system operates and reinforce why incident management is critical in a non-urban environment. Quick response is needed to restore transportation system performance.

Mr. Ekern reviewed several of Minnesota’s applications of incident management principles in the non-urban environment.

- Winter incidents. Freeways can be legally closed during bad weather to decrease recovery time from snow incidents and the number of abandoned vehicles. Road weather information systems, on-site detection systems, and automated de-icing systems are used to prevent ice/snow formation and accumulation in areas where full-time coverage is not available.
- Spring incidents. During major floods, the statewide Emergency Management Center disseminates traveler information to help people respond to and reroute around flooded areas.
- Summer incidents. Work zones utilize portable smart work zone signage and proper management within construction zones. Variable message signs and variable speed limit signs help inform drivers as they approach fog. Cameras help management center staff understand conditions of roadways.

Mr. Ekern noted that because the statewide Emergency Management Center is operated only when there is a significant statewide emergency event and only staffed on an as-needed basis, Minnesota developed a regional operations management coordination system. This system came about from the recognition of multiple agencies that they could not afford technology or staffing to serve customers in non-metropolitan environment. In 1995-96, these agencies came together as a group to discuss what they learned from urban areas around the country that would be applicable in a rural environment. As a result, nine Transportation Operations Communications Centers were built around the state to coordinate traffic operation, enforcement services, emergency response, maintenance operation, traveler information, and transit operation functions. One of the goals in developing the Centers was to be able to quickly and consistently adopt new technology and tools as they come on the market on a statewide basis. An example of this is CARS (Condition Acquisition Reporting System), which manages and integrates information gathered from road weather condition systems. CARS data is used to deliver information to travelers, providing customer service on top of serving transportation and emergency response.

Mr. Ekern noted many of the challenges that have been heard in previous sessions are also issues emerging from Minnesota’s experiences in rural incident management. These include tools and technology, human and financial resources, outreach, education, political support, interagency buy-in, and need for planning. For Minnesota, the toughest “sell” for the integrated and co-located Centers was with the officer on the street, the dispatchers servicing those officers, and DOT maintenance staff. Mr. Ekern described that one of the most difficult challenges in moving incident management forward is not only finding a leader/champion, but also maintaining the

momentum after a leader departs. He expressed that this conference provides a structured setting to work together on these challenges. In closing, Mr. Ekern suggested a key theme emerging from this conference may be the need for a non-traditional response - to use new tools to accomplish our shared mission in new ways.

Questions and Answers

How advanced are other states in rural incident management? How much is Minnesota sharing its practices with others? What is the future direction of rural technology and rural incident management?

On the whole, we may be further along than we think we are. Minnesota found that the technology, tools, and co-location are very inexpensive to implement. Centers that incorporate all technology needed in a rural environment have been built for under \$1.5 million. Minnesota has been trying to share its practices, but there is not much information on how much Minnesota's practices have spread. In a rural environment there is a great desire to find ways to make it happen inexpensively.

How do you involve counties and cities?

In the architecture established in rural environments, the district engineers are the "conveners". They are responsible for bringing counties to the table. In addition, a supplementary technique was used that started as "How can we share sand and salt sites to reduce overall cost?" In several districts, long-range plans were developed to address a migration from equipment sharing to facility, communication, and human resource sharing.

Traffic Incident Management Lessons Learned

- Ed Plaughter, Fire Chief, Arlington County, VA
- Ed Flynn, Police Chief, Arlington County, VA
- Tom Ranson, Incident Management Coordinator, Utah Department of Transportation
- George Black, Member, National Transportation Safety Board

The Pentagon

Ed Plaughter, Fire Chief, and **Ed Flynn**, Police Chief, Arlington County, VA spoke about the events on September 11th at the Pentagon and the challenges faced and lessons learned from such a major incident. Chief Plaughter reviewed the history and physical structure of the Pentagon, including the initiative to renovate the building wedge by wedge. The plane hit the building where a renovated wedge and an old wedge met. Chief Plaughter noted that while some of the renovations may have reduced damage, reinforcements may have caused increased loss of life because occupants may have been unable to open doors to escape. As a result, Pentagon officials are evaluating and, as necessary, re-thinking their "hardening" strategies.

Chief Plaughter explained that some fire support was at the Pentagon when the plane crashed; the first Arlington fire responders were on the scene within two minutes. All Arlington fire units, including off duty personnel responded. Fire containment was begun immediately in inner and outer corridors and search/rescue teams went in with regional resources. The Incident Command Center and the Emergency Operation Center were activated in the county. A Joint Operations Command Center was also established at Fort Myer to organize the 60 partners involved in response operations. Neighboring counties, the National Medical Response Team, the FBI, FEMA, and State personnel all responded to the scene with fire, emergency, search and rescue, law enforcement, and logistics support. Assistance was also provided by fire departments from around the country, as well through private sector donations and resources.

Chief Flynn gave an overview of the law enforcement response. Incident command quickly set up an action plan to screen pedestrian and vehicular traffic at the scene, monitor the rest of the county, assign representatives to command posts, and designate a lieutenant to forecast issues and needs 6 to 12 hours ahead. Sectors were also assigned to deal with specific aspects of the incident, including traffic management, staging, logistics, public information, staffing, evidence recovery, safety, and morgue security. Post staffing was reevaluated every few hours. One of the most immediate needs was clearing routes to and around the Pentagon. Motorcycle units were proactive in securing areas around the Pentagon prior to incident command establishment. A lieutenant on the scene requested road closings like an "Army 10-miler." This immediately communicated to cooperating agencies the roads, ramps, and access points necessary to effectively seal off the entire Pentagon area.

Chief Plaughter and Chief Flynn both highlighted challenges that were faced in response to the Pentagon incident:

- Another fire at a different location in Arlington County caused some initial misinformation and confusion.
- Fire responders faced a complex set of three incidents rolled into one - a building fire, a building collapse, and a plane crash. In addition, dangerous hot spots carried the risk of re-igniting jet fuel. Debris removal was complicated because it was needed for evidence.
- Chaotic miscommunications and additional threats of impending hijacked planes slowed evacuation efforts.
- Determining site entry authorization was difficult at times. Some responded in unmarked vehicles and in personal vehicles. Fire and EMS units from outside of mutual aid area also responded. Ten police checkpoints were established to limit points of entry and colored wristbands were used the first day for identification and security control. Eventually a badging system was set up with assistance from federal authorities.
- The number of responding units caused problems. There was uncertainty about the number of units responding as mutual aid. Confusion over the location of the staging area created response difficulties for those that did not possess the ability to communicate directly with fire dispatch. Also, arriving units did not use a single arrival route. Some units abandoned their vehicles and continued responding on foot.
- The closing of the federal government and much of the Washington area clogged the roadways as morning rush hour was ending. Continued traffic flow was of paramount importance. Roads had to be opened quickly to get people out of area. In addition, access to and from the Pentagon metro/bus station, one of the largest in the area, needed to be controlled.
- Road closures and security caused confusion for resource and equipment deliveries. Standardized directions to the Pentagon were developed and distributed, making delivery locations more predictable.
- Onlookers parked their cars on major arterials to watch. Many came to the scene to look for friends and loved ones. The intent of the onlookers was not always clear and access control needed to be established. For those that were family members, a place was set up where their questions could be answered.
- Media trucks that rushed to the scene parked along roadways, which hampered the arrival of emergency units. A central media encampment was established to maintain access control and facilitate the dissemination of information.
- Visiting dignitaries needed to be accommodated and additional coordination with their personal security staff was needed.

Chief Flynn noted that several factors facilitated the response on September 11: fewer organizations to collaborate/coordinate due to jurisdictional boundaries at the county level; existing working relationship between the police and fire departments; established relationships and plans for major events; and having separate commands allowing traffic command to focus exclusively on traffic management. Chief Flynn stated that trust among responders cannot be developed during a crisis; it must be created through interim activities. Whatever is not working, will get worse during a crisis.

Chief Flynn stressed that in an environment where government delegates responsibilities, local responders are the key to any incident. A major challenge for any incident will be adjusting incident command to fit the circumstance. He suggested that in a large-scale incident such as the Pentagon, responders cannot focus on the enormity of the situation, but need to think tactically, break down tasks to a manageable level, and begin to respond.

The 2002 Olympic Winter Games

Tom Ranson, Incident Management Coordinator, Utah Department of Transportation, provided an overview of and insights gained from the Salt Lake City Olympic Games. The Utah Department of Transportation led the efforts and received assistance from Illinois, Tennessee, and Washington transportation agencies plus Nevada state troopers. In order to be prepared for incidents, much of the response procedure was pre-planned. For example, heavy-duty tow trucks were pre-staged throughout Olympic venue routes. Aggressive snow removal procedures were implemented. Photogrammetry aided police investigations at incident scenes. Variable message signs were used to prevent crashes in slow traffic flow. Heavy police and DOT coverage reduced the numbers of abandoned vehicles and lessened security concerns.

As a result of this collaboration and planning, the system worked and there were relatively few major incidents. In addition, 2,306 motorists were assisted during the 17 days of the Games. A serious injury crash was cleared in

23 minutes due to excellent teamwork. Photogrammetry allowed police to shoot an incident scene with evidence markers within 30 minutes, allowing the roadway to be cleared quickly. Twenty-nine vehicles were removed from incident scenes on the athlete routes to facilitate traffic flow.

Mr. Ranson stated that two years of multi-agency coordination paid off. Good planning and performance, combined with the tireless dedication of thousands of paid and volunteer staff made the event a success. He noted that the response to all incidents was exceptionally well coordinated due to multi-party preparation, a collaborative multi-state DOT effort, and heightened planning for security reasons.

Co-Incident Damage

George Black, member of the National Transportation Safety Board, began his presentation by noting that "traffic" has been a feature in the news over the past year. A recent FHWA poll of drivers indicates that respondents are most concerned with congestion, work zones, and aggressive driving. These issues can be linked to incidents, since incidents can waste around 60% of peak hour roadway capacity. Mr. Black stated that while many improvements can be made at little or no cost, most urban areas do not have effective incident management programs because they require multi-jurisdiction and multi-disciplinary coordination that is difficult to accomplish. He pointed to the implementation of good incident management programs on the West Coast, mainly because of the region's need to deal with fires, floods, and earthquakes.

As a means to illustrate the need for multi-jurisdiction and multi-disciplinary coordination, Mr. Black reviewed several case studies and issue areas. These included:

- The crash of a gas tanker with 9,000 gallons of gas had not yet resulted in a fire, but gas was flowing to the storm water system. Sometimes there is not much anyone can do to clear the scene quickly.
- High voltage wiring was exposed when fire broke out at the scene of a minor injury crash. Firefighters declared the scene an electrical shock zone and sealed off the wreckage for three hours. As a result, evening rush hour traffic backed up and caused secondary accidents. In addition, a circuit breaker was tripped just as nightfall came.
- Scheduled nighttime construction activities for one project were not completed so another project could not progress. This resulted in clogging the roadway during the day. Events like this lead to long-term variable traffic incidents and need to be addressed by more than just a traffic control plan.
- Hazmat is the most challenging element because it is so variable and responders do not always know what is in the containers. Traditional fire procedures can make an incident worse. Particularly in these instances, state DOTs must maintain equal partnerships with police, fire, rescue and other agencies having responsibilities for elements of traffic "incidents."
- In terms of fatal crashes, law enforcement responsibilities change when death is involved and potential homicides are given more attention. Pre-crash liaisons between DOTs and law enforcement can expedite investigations. DOTs often have total station survey and aerial photographic capabilities that can minimize on-scene activity and reduce the need to shut a road down for hours.

In summary, Mr. Black made the following observations. Each agency must understand and appreciate the impacts of their actions on other functions. An incident command system can help in this regard. Some well-trained individual must be in charge of overall response, and communication with the person-in-charge and other agencies is key. In addition, an incident scene is no place for turf battles. While all of this sounds reasonable, Mr. Black added that it is generally not happening. He stressed that traffic incident management is an economic, quality of life, and safety issue. The bottom line is that the costs are too high to not make immediate improvements.

This page intentionally left blank.

Appendix C: Conference Discussion Papers

Operational Issues Discussion Papers

Prepared by:

John O’Laughlin and Arland Smith

PB Farradyne

Containing:

Incident Management Operations: Top Five Issues

Advanced Incident Management Practices

Changing the Language of Incident Management Operations

(Ted Smith, retired manager of the Illinois DOT IM program and John O’Laughlin, retired State Patrol Command officer from Seattle, have teamed to provide IM training workshops and seminars in over 40 states and several other countries.)

Incident Management Operations: Top Five Issues

Introduction

Welcome to Irvine. Thank you for taking the time from your busy schedules to participate in this opportunity to set a national direction for traffic incident management programs.

There are three areas of effort at this conference. Institutional, Operational, and Technology. This paper is focused on Operational issues in the field at and around traffic incidents of all kinds, but, all three will overlap. Based on our experiences, there are lots of opportunities to improve in all three areas.

There are two papers attached that we developed as a result of our four years of providing facilitation at IM workshops around the United States and in other countries. Please take time when it is convenient to look them over. We would appreciate your input or opinions on the content and we will update them as needed to maintain a current reflection of the incident management issues.

Traffic Incident Management Operations Priority Issues

Prior to this conference, we were asked to develop a short paper on the most important issues. After looking through all the notes, papers, reports, and publications we have gathered in the workshops, we offer these as the most critical issues at the scene or around incident scenes.

Responder Safety

With the exception of the attack of September 11, 2002, traffic incidents are one of the most dangerous tasks responders handle. In 1999, over half of officers killed in the line of duty died in traffic crashes. According to USDOT, nearly 10,000 police cars, 2,000 fire trucks and three thousand others (ambulances, service patrols, tow trucks, etc.) were struck going to or at traffic incidents. This year started with the first firefighter death at a crash scene on January second when he was hit by a truck while putting flares out to warn traffic.

In 2001, 21 state troopers died in the line of duty. One was shot, three died in aircraft crashes and the remaining 17 died in traffic related incidents.

We can and should focus significant effort to improve these numbers. Training, equipment, research, policy development, updated statutes, and performance standards are all outputs that could improve responder safety.

Secondary Crash Prevention

Studies have indicated crashes secondary to other incidents range from 14 to 30 percent of all crashes. USDOT estimated that 18% of deaths on freeways were secondary crashes. The authors are personally aware of secondary crashes in the recent past that have killed 13, 7 and 4 respectively. The four were killed two weeks ago when they slammed into the back of a parked semi in the middle of the roadway. The road had been closed for over 6 hours for a previous car accident and traffic was stopped with lights off conserving fuel when this crash occurred miles from the original incident. Was there traffic control? Why was the road closed so long? Were the responders taking into consideration secondary crashes in managing the original crash scene? These are just a few of the questions that professional response managers should be asking when these tragedies.

This is another area where significant improvements can be made to eliminate secondary crashes. Research, studies, training, and policy development can have a positive impact on reducing the number and severity of secondary crashes.

Traffic Control

Traffic control for all incidents that close or severely impact traffic movement on one or more lanes is vitally important. Proper use of traffic control devices such as signs, cones, Variable message signs, Highway advisory radio, and other devices can improve traffic flow through or around scenes. Proper use of detour routes, better on scene traffic control, and continuous monitoring of the impact of the incident can decrease secondary crashes, improve responder safety, and decrease motorist delays.

Improper traffic control can be a major liability. The new Manual of Uniform Traffic Control Devices (MUTCD) outlines requirements for traffic control as it always has, but now defines incidents as requiring temporary traffic control consistent with temporary work zones.

Manual traffic control at incidents can move up to 50% more traffic smoothly past the incident while increasing responder safety. Think to crash scenes you have passed by. Was traffic control in place, was someone in the right place making sure traffic was under "Positive Control" as it passed the actual incident location?

Traffic control can and should be a consistent part of even short-term incidents. A multi-agency approach is required here to make sure all responders understand and use the basic procedures required for the safe movement of traffic.

Incident Site Management

Good site management procedures can dramatically improve safety, traffic flow, clearance times, and even agency image. Proper positioning of response vehicles, early deployment of tow trucks, setting proper priorities, practicing good emergency light discipline, and working together is necessary for good site management.

Even though agencies may respond to similar traffic incidents on a frequent basis, multi-agency efforts to streamline the process are unusual. Responders can individually improve certain aspects of site management but a consolidated effort is necessary to make comprehensive improvements.

Liability can be an issue here also. If vehicles remain blocking roadways after they could have been moved, secondary crashes can result in claims or law suits against the response agencies and individuals.

Quick Clearance

Early efforts in incident management by the Federal Highway Administration resulted in the finding that quick clearance is the most effect method to decrease responder injuries, decrease secondary crashes, improve mobility, and improve public image of response agencies. Quick clearance should be a policy and can be supported by laws that reduce liability for responders taking aggressive actions to open roadways.

There are a large number of actions that can be undertaken by individual and multi-agency groups to improve the process. They include law and policy changes, training, interagency agreements, changing the priorities of on scene responders, streamlining investigative procedures, updating towing regulations and procedures for their use, and setting challenging performance standards for clearance times.

Conclusion

These issues are only the "Tip of the Iceberg". During this conference we will need your input to identify additional issues, develop recommendations and set priorities. Thank you for taking the time to attend and participate in this process.

Advanced Incident Management Practices

Incident Management (IM) programs have been developed in nearly every urban area and in most states. Due to a variety of impacts such as political pressure, budget restraints, institutional resistance, and lack of a clear mandate, programs have a wide range of styles and success rates.

We have found that there are some states with very good parts of an overall program, but not one state with all the parts. We found good equipment, motivated personnel, good procedures, appropriate laws, and good leadership, but not all in the same state at the same time. We have also found a number of challenges yet to be overcome in most programs.

To help senior managers get a better feel for what is occurring in the IM field, we have gathered information on the programs and taken an objective look at several of them to see how they really work. We have been totally honest in our comments in the hopes it will help start an open dialog for future improvements.

This briefing paper is a summary of the Executive Overview that was developed for Legislators, Directors of transportation agencies, Chiefs of Police, Chiefs of Fire Departments, and owners of towing businesses who are key to the success of IM programs. Without their understanding and support, programs will not reach their full potential.

Service Patrols

Service patrols are universally accepted as the most effective tools for IM. From our experience, the most successful are operated with DOT employees, have multi-purpose vehicles with a variety of safety equipment including arrow boards or variable message boards. They double as incident response vehicles for collisions, spills and crash investigations. They have direct police radio contact and operate out of the Traffic Operations Center, (TOC), if there is one. There is coverage in major cities 24 hours a day or 12 to 13 hours, M-F, and they have an on call program for nights and weekends. They are successful in becoming a true part of the incident management decision-making process at incident sites.

Private providers of service patrol programs also do a good job. They are, however, restricted in their activities by the public agencies that manage them. They are seldom allowed to do the same activities as IM personnel working for a department of transportation, and they don't represent the DOT at large incident scenes. Often, they are not allowed to communicate directly with the police officers handling the freeway and that restricts timely and accurate communications.

24-Hour Incident Response

Coverage and response during peak traffic periods is normally very good. During off peak hours and weekends, response may be very slow by DOT personnel. In highly congested cities, this may be when the most severe incidents occur and they may impact peak traffic if not handled properly. Inconsistent response can contribute to secondary crashes, decreased trust from other response agencies, increased liability, and generate negative media coverage.

Inconsistent response also pertains to the use of Intelligent Transportation Systems (ITS) applications. If ITS systems such as Variable Message signs, (VMS) are operated effectively only during peak periods, the public will soon become disenchanted with poor service during non-peak hours. If systems are continuously used for non-emergency information such as upcoming construction closures or safety messages, they will lose their effectiveness.

The urban areas are not the only places needing response services from DOT. The best programs have select rural maintenance personnel on call with take home vehicles equipped for most contingencies. During the workday, they are part of the maintenance program but may respond quickly to any blocking incidents the police cannot handle alone. They should have pagers, cell phones, and be well trained. They should participate in multi-agency training whenever possible. Incident response must be their priority when they are needed.

Given that response times will increase on weekends due to call-outs, transportation agencies should still provide the same level of service on Sunday morning as they do on Thursday afternoon. Several highly embarrassing incidents have been well publicized when DOT failed to respond adequately on their day off. Freeways operate 24 hours per day as do the police and fire. DOT should be funded, staffed, equipped, trained, and prepared to do the same.

Communications Interoperability

In every workshop, communications between agencies and between responders is a big issue. Responders who routinely work with each other at incident scenes, cannot communicate by radio. Traffic Operations Center, (TOC) personnel cannot talk to the police directly. They also do not have access to the Computer Aided Dispatch (CAD) information from the emergency 911 centers. The emergency dispatch centers do not have access or control of cameras that could help them manage response to emergencies on the transportation systems.

These Communications challenges are even more important since the events of September 11, 2001. Transportation systems and national security have suddenly become linked in a manner we didn't expect. The ability to link the systems police and transportation agencies have for management of their particular disciplines is a significant opportunity to increase security against terrorism. If additional attacks do occur, massive response or evacuation of cities will require a complete system for use by emergency operations personnel and transportation officials to be effective.

Agencies should strive to link these systems as soon as possible. They should then establish an interagency training program to ensure they work well together and understand each other's priorities.

Interagency Agreements

Probably the most important agreement is an open roads policy developed and signed by police and transportation agencies. New agreements should include input and support from the fire departments. Response protocols should also be covered between different agencies. For example, some service patrol programs are not allowed to clear accident vehicles from roadways until a police officer arrives while others are. Mutual aid agreements are also important to share resources and save time. Equipment in a construction zone should be available to help clear roadways and this agreement should be set up at the start of construction.

Media partnerships and agreements are also very important. Some areas have radio contact with media pilots, get help with managing queues, and share cameras. Generally, the closer you work with them, the better the relationship, and the stronger your program will be.

None of these solutions are any good unless the agreements are known by all employees and in some cases, the public. What good is a quick clearance law if the public is not aware of it? The authors recently read an open roads agreement that had been signed by agency directors six months earlier. Several state police officers in attendance had never heard of it. In one state, which has a "Steer it Clear it" law, officers we talked to weren't aware of the law. Still others disagreed with the law and openly resisted having lanes cleared of minor crashes until they arrived, and some kept lanes closed until they completed their paperwork.

Some officers will not call a tow truck until they are close to completion of their accident reports. In one city, the officers did not request tow trucks until they had been on scene for over 40 minutes. By the time they responded and cleared the vehicles, it was well over an hour per incident.

If you want to see a very good interagency agreement between State Transportation and Patrol agencies, get a copy of the "Joint Operations Policy Statement" from Washington State.

Reduced Liability For Incident Management

Most responders are reluctant to be aggressive about clearing roadways. Responders that have adapted aggressive clearance procedures, save millions in lost time for the public and face the same or even less litigation than the others.

Some of the biggest cases pending have to do with secondary crashes where deaths occurred in the queue behind previous incidents. Make sure you are getting the traffic control to these scenes quickly and it is focused on protecting the queue. In some of our workshops, responders have indicated there is nothing you can do about secondary crashes so they do nothing to protect the queue. That can be a liability problem for your agency when serious secondary crashes occur. This approach also indicates training is lacking in a large number of agencies.

Proper traffic control is also required for long-term incidents and that requirement is becoming more of a liability issue. A recent change in Chapter 6 of the Manual of Uniform Traffic Control Devices (MUTCD) has placed incident management in the same category as temporary work zones. That change could mean increased liability if emergency traffic control is not improved to meet work zone standards quickly. A good rule that is consistent with

the MUTCD is initiate additional traffic control measures if the first responders estimate the scene will take more than one hour.

Rarely has a state ever paid even small amounts for quick clearance. By the way, the American Trucking Association, American Automobile Association, and the North American Insurance Institute either support or are neutral on aggressive clearance. We have found that doing the job aggressively while using good common sense is better, liability wise, than being indecisive and worrying about liability. Push, pull, or drag it off. Take pictures before and after removal. All police, IM or service patrol trucks should have cameras and should also take pictures of any potential liability issues, (roadway edges, signing, roadway damage, etc.) Some carry the disposable cameras and do not develop the film unless it is needed. When it is, they let the requestor pay for development.

Quick Clearance Policies

Whether based on policy or law, quick clearance is a very good program to implement. By making it mandatory that you must get out of the road when in a minor collision, you prevent further delays and collisions. This also sends a message to the responders that clearance is a priority. Responders are also reducing their exposure to potential injuries when they clear roads quickly.

Is it important? California Legislators passed the quick clearance law in 1999 with unanimous support. The message is clear. Open roads are a very high priority.

Clearing congested freeways doesn't mean moving everything to the shoulder and then sitting there for extended periods to finish accident reports etc. Move the whole mess to an exit, crash investigation site, or parking lot. Traffic will recover quicker and responders will be in a safer environment to complete their tasks. A recent truck crash in another state was removed quickly and expertly to the shoulder, but sat there and continued to back up traffic for over two additional hours while a brake inspection was completed. That inspection could have been done off of the freeway at a safe location not effecting traffic flow.

Truck Crashes Require Unified Actions "Between The White Lines"

The QUICK CLEARANCE policy should give clear guidance on how to handle truck wrecks. Cargo removal can take hours if not handled properly. It is the public's road and operated by the transportation authority. If possible, the truck owner and towing company should take part in the process, but it is a DOT responsibility to focus on quick clearance by any reasonable means.

"Unified Actions" means exactly that. When a truck with a placarded load (HazMat) overturns, a wide range of responder decisions impact the proper handling of the recovery. In one city, good coordinated incident management leads to a 90-minute total incident including recovery and removal of the truck and cargo.

In another city, the almost identical incident takes 17 hours with an entire freeway closed. In the first city, the responders work together and evaluate alternatives. The towing company and truck owner recommend recovery of the truck while it is loaded and outline how they will accomplish that for the police and fire incident commanders. Their approach is approved and the recovery is accomplished quickly as well as safely. They already had the trust of the fire departments and police due to their working relationships and previous multiple agency participation in exercises.

In the second city, the truck owner is not allowed to be at the command center, the police call for a tow truck off the rotation list and the tow driver has never recovered a vehicle and load like this. The fire incident commander and police decide to "Error on the side of safety" and thousands of motorists are left stranded for hours. The truck owner has the ultimate liability for the recovery and, with the approval of the incident commander, should have input into the recovery process.

If the load material is not hazardous, use whatever means necessary to clear the traveled portion quickly. Push, pull, or drag, with tow trucks, front-end loaders, or response trucks.

Just to be clear, and to follow the law in most states, it is DOT not the police who should have the final say so on clearance when the debris or load materials is "Between the White Lines". The police enforce and investigate; the DOT operates, maintains and repairs the roadways. Good working agreements and prior coordination are required to make this work properly.

Once the lanes are cleared, the trucking company and towing company can assume responsibility for remaining clearance needs as long as it won't cause significant traffic impact. By having DOT be a more active player, police are able to focus on their more important tasks; investigations and enforcement.

Use your equipment, towing equipment or contracted equipment, but don't wait. Delays increase the potential for responder injury, secondary crashes and are too costly to the motoring public. DOT should be part of the decision-making process at major crashes and is often the only agency that has the interests of the motorist caught in the queue as a priority.

Clean Up Of Fuel Spills

Another area of significant performance variance is clean up of small amounts of petroleum products such as diesel and motor oil. Spills on road surfaces should be handled as quickly as possible. Fuel can be cleaned up from the road surface with any absorbent material by anyone at the scene. Contrary to some opinions, a contractor should not be required for spills on the road surface and there is more danger in keeping the roads closed. Secondary crashes and more exposure to responders from errant traffic are a significant safety issue when closures are extended. Clean it up, package it, leave it for the contractor, or put it in the wrecked vehicle if it is fuel or motor oil.

If the spill gets into drains, waterways, or causes other environmental hazards, follow the rules you have established but still clean the lanes quickly. Fire, towing or DOT responders in several states arrive at the incident fully prepared to plug leaks and clean up roadway spills to open roads quickly. Good for them. Other states close roadways, increase exposure of responders to injuries and leave thousands stranded to wait for a contractor to be called out to do the same thing. These delays can result in more responder exposure to being injured, increase liability, secondary crashes, and embarrassment to the response agencies when programs from one state or city are compared to those from others.

A recent new documentary in one Eastern city compared how crashes were handled there to how they are handled in Chicago. They criticized the Police, DOT, and elected officials when they found Chicago cleared them all hours quicker than in their city. They interviewed senior leaders who blamed the problem on lack of funding. That is partially true, but lots can be done to fix the problems with existing funds.

Multiple Agency Training

The NHI Incident Management workshops are a good opportunity to gauge the amount of training that is conducted with other agencies. In one we recently conducted, police and fire responders were openly amazed at what DOT had to offer. They had no idea what a TOC was or what it did. They had never considered having DOT participate in the exercises they regularly have with other response agencies.

To be truly effective in IM, these training sessions are necessary. DOT should talk to police and fire agencies and make sure they know DOT wants to participate. Get involved in the emergency management program in your county that is responsible for disaster preparedness. They are a great source of multiple agency training opportunities. They also foster team building, and will include DOT as an emergency response agency and a community resource.

Another common response is that agencies have never trained for highway emergencies with each other. Routine accidents block our roadways everyday, yet, they are not handled with a systematic approach. Truthfully, and most responders have given it little thought. It is a come as you are, park where you want, and do what we do. A little work in this area with, a commitment to follow up in their agencies can vastly improve clearance times and reduce congestion. When major events occur, such as overturned tanker trucks, you really find out who is well prepared, and who isn't.

Think back at crash scenes you have driven past and see if you recall being partially blinded by excessive emergency lights, seeing responders standing around, no traffic control, emergency vehicles blocking lanes that could be open, and an appearance of a general lack of organization. If so, you are, unfortunately, not alone.

Agency Program Evaluation

If you are told it is working well, have someone evaluate the records and make sure. Sometimes certain individuals get it done quickly and we think everyone is doing the same. Not true. I know of areas where serious incidents may be cleared through the efforts of one key responder in 60 to 90 minutes while others will take 5 to 7 hours. Some questions to ask;

- Do you have a published goal for clearance times?
- Do you regularly evaluate closures looking for ways to reduce the time they take?
- Have you looked at how ITS and other tools have shortened (or maybe lengthened) clearance times?
- Do you give positive recognition and reinforcement to employees who excel in effective incident management?

Just as an example, "Total Station" surveying systems have been credited with reducing the time it takes to investigate fatal or criminal crashes. Not always true. It takes time to get them to the site and 20 minutes to set them up. Then, they often measure 5 to 10 times the points they used to. It is our personal observation and that of several officials, that total station does not reduce clearance time in most cases. It does allow them to produce better diagrams that are seldom used in a criminal case.

One study indicted less than 20% of criminal investigations for accidents are ever used in court. Another study compared fatality investigation closures before and after acquiring "Total Stations". Fatality investigation closures averaged one hour longer with the "Total Station".

Some police go through the entire investigative process even if they know it won't be a criminal case because they are concerned about civil liability. Having police use a "Triage" technique can help them eliminate some delays when it becomes clear there will not be felony charges.

Some of the more responsive police agencies are doing several things to reduce the impact on traffic and improve the safety of their responders. If crashes are on major freeways, they send more personnel, prioritize tasks, use new technology such as laser, GPS or Photogrammetry, or mark roads for measuring later. Good police agencies figure out how to avoid long closures and how to prevent secondary crashes. As a result, they expose their own personnel to much less risk of injury in secondary crashes.

A past FHWA study indicated quick clearance is the most effective means of reducing congestion. We totally agree. Hopefully, you won't get to the point that some states have where the media is chastising them for poor management of incidents.

Evaluation can take many forms, but for our purposes, it is focused on a few key issues. Are you conducting training for personnel that must respond to emergencies on a regular basis? Are training objectives clearly stated? Are your resources and those of other key agencies deployed properly? On two occasions state police had printouts of response times that showed in one area they took twice as long to respond as other areas. As far as we could determine, they had not looked into changing zone lines or moving personnel to correct this disparity. The staffing adjustments have been made and response times are nearly 50% improved.

From a DOT perspective, is your response times on weekends acceptable? Police often say it's easy to get help from DOT on weekdays but when needed at night or on weekends, as one east coast police officer stated, "Forget about it". Take a look at this and it may save you future embarrassment.

Good equipment must be readily available to responders. Does a supervisor have to go unlock a shop for employees to have access to needed resources? Have you set response standards? As part of one states efforts, they got the state police to agree to a goal of two hours maximum lane closures for criminal traffic investigations. In return, the DOT promised faster and better response to help with traffic control. Hopefully you have or are working toward an agreement like this.

Always include a major incident review in this process. If there is a school shooting that wounds one, everyone evaluates it for prevention and response in the future. We usually don't do a good job of this on major transportation emergencies on our highways.

Legislative Or Administrative Actions

We have discussed quick clearance issues already. Establishing liability exemptions to facilitate quick clearance of load materials and trucks reduces the reluctance many responders have to act decisively. This can be accomplished through policy, but some agencies want this placed into law. Some states have passed this legislation as a companion to 'Move It' quick clearance laws.

Additional effort is needed in nearly every state for updating towing regulations. Although this is primarily a regulatory issue, DOT can play a significant role. Regulations for large tow trucks were developed over 40 years ago. At that time, legal truck weights were much lighter than today. The best tow trucks available were rated for 25 tons. Now rotator and fixed boom hydraulic tow trucks have 35 to 70 ton capacity, yet they are on rotation lists with older 25-ton units. There is little incentive for a towing company to spend \$400,000 on a new rotator when he has alternate calls with other companies with old trucks.

One state has resolved the problem by having DOT call for a rotator for all overturned, blocking trucks. They also allow the towing company to charge a higher price (\$500.00 per hour) for this equipment. As a result, there are now five rotators in that area available to clear roads quickly.

Tow bills using older trucks that take longer and require more personnel are often several thousand dollars. Consequently, the trucking company pays more and the road stays closed longer. The best way to resolve this is to try and get the state police to develop a new recovery class of tow with a minimum of 35 tons. Old tows would still tow disabled trucks, but they would not be used to relocate or upright overturned trucks blocking roadways.

One state DOT refused to grant a minor weight waiver to allow a 60-ton rotator tow truck to clear truck wrecks. This equipment can often do this task in minutes where regular big tow trucks often take hours. Use your authority to make it work instead of preventing it from happening.

Several other barriers to progress are blamed on laws or policies. Police in one city indicated it was against the law to allow the service patrols on their radio channel. One city said the law required all deceased persons be removed by the Medical Examiner only, even if the road was blocked and long delays could be expected before they arrived. Another state said they are required to leave all emergency lights on when along side a freeway even though it can be a safety hazard. If you know of or have laws or policies that restrict good incident management, work to change them.

Incident Command For Roadway Emergencies

Incident command of roadway emergencies is a challenge in several areas of the nation. Incident Command Systems (ICS) or more recently Incident Management Systems (IMS) are established methods to manage emergencies. Based on old military principals of command and control, and formalized by fire departments, this flexible structure is put in place to incorporate all response agencies into the process.

A newer version that is in place in some cities is called "Unified Incident Command." In this approach, there is still a single incident commander, but the representatives of the other response agencies are involved in the decision making process. It is not who is in charge as much as it is who is in charge of what.

Unfortunately, in some areas it appears more time has been spent on WHO is in charge than on HOW to be in charge. A good incident commander is a facilitator of the process and genuinely considers the input of others in making decisions. A good traffic incident commander talks directly to the representatives of other agencies and is able to understand and incorporate the priorities of others into the decision making process.

Most importantly, the incident commander has the experience and training to deliver professional leadership that leads to effective management of all types of transportation incidents. All too often, the incident commanders do not have a good understanding of the total picture and often have never attended multiple agency training for transportation incidents. They may not understand the differences between operating on city streets compared to operating on major freeways.

Anyone who is going to be put into the traffic incident command position in their particular agency should attend a good multi-agency traffic incident management course before they assume those responsibilities. They should also have a good working knowledge of the incident command process so they can fit into that process immediately upon arrival at a traffic incident scene.

Planning For Incident Management In Construction Projects

During many of the workshops, members of response agencies comment on the difficulty of accessing scenes in construction zones. They also comment on the higher than average number of incidents that occur in those zones.

Planning for construction should contain input from the fire, police and towing industries. Sometimes, relatively inexpensive actions can be taken early to reduce incident impact during construction. This input from response agencies needs to take place early in the construction staging and maintenance of traffic planning.

It is common for service patrols to be used in construction zones to reduce response times. Does the agreement allow them to remove accident vehicles before the police arrive? Are they equipped to handle minor diesel spills and other debris cleanup? Have police and fire been consulted and informed about the duties of the service personnel?

It is also common to employ police officers to maintain a high visibility to keep traffic slowed to a reasonable rate. Does that agreement require them to clear lanes rapidly by use of their push bars? Do they take enforcement action or merely sit with emergency lights on? Have you considered having them sit with emergency lights on may not be a proper use of emergency lights and may actually de-sensitize motorists to the meaning of emergency lights? Are they protected by attenuator trucks or parked in coned off areas where they are vulnerable to out of control motor vehicles?

Numerous areas use portable Dynamic Message signs, Highway Advisory Radio, and regular media releases to keep motorists informed. Can the signs and HAR be changed quickly when incidents occur? Who has control of them during non-construction hours? Some areas now use temporary closed circuit video cameras that the service patrol can monitor to speed up detection and response. Can they tape incidents at police, fire or DOT request?

What about the other response agencies that are affected by the project? Has someone met with the fire departments to plan response routes when ramps are closed or restricted? Have temporary landing sites been identified to allow for patient air evacuation? Has the construction been scheduled to allow for at least one open emergency lane or shoulder on at least one side of the median barrier? Has the entire construction zone been made an impound zone or immediate tow zone, to remove abandoned vehicles? Have temporary turning points or median openings been included in the plan to allow towing and emergency vehicle access? Is there an agreement with the contractor that his equipment and personnel can be diverted to clear an incident on a time and materials basis? Is it have temporary accident investigation sites been identified and the locations made known to all response agencies?

Is there an agreement in place that specifies who is on call for issues in the work zone on weekends or holidays? Are the emergency agencies provided with updated callout lists for resident engineers or key contractor contacts when DOT doesn't have a 24-hour operations center? Are they equipped and trained to provide effective IM support? Are they within a reasonable distance to have a good response time?

Other Issues

Clearance times can be dramatically reduced for major collisions. A plan, training, multiple agency commitment, and resources are required. Police can prioritize tasks, use new technology, and demonstrate an urgency to get it cleared up. DOT help is needed quickly when major roads are closed or severely restricted for crash investigation and clean up. They can have equipment and supplies readily available, prioritize tasks, and provide proper traffic control for the other agencies. All responders should operate with a sense of urgency to complete tasks and get roadways restored to normal use as soon as possible.

Investigative times can also be reduced. A new program called photogrammetry is being used in at least 8 states that allow measurements and diagramming to be done strictly from photographs. In one state, the technical investigator using this along with the right priorities was able to complete a criminal crash investigation in 40 minutes. One group of 32 investigators worked on priorities on scene and determined there were only 5 tasks that had to be completed with the lanes blocked. We also ask that the lanes not be closed until police are totally prepared to do the investigation in a timely manner. That means traffic control is in place, the tools and personnel needed are on scene, poised to work quickly, and everyone is focused on priority tasks.

Intermittent closures can also be used effectively. Instead of closing lanes traffic was traveling in when the first officers arrived, only close then for the short period needed to complete measurements or other tasks. Having the right personnel in place to accomplish these tasks can reduce closures of those lanes to as little as 20 minutes.

One possible solution; ask the police to send only their very best to investigations blocking major roadways. During the years the Chicago Bulls were winning championships, they wouldn't sit Michael Jordan on the bench in a critical game. The police should use the same approach. It is really frustrating and embarrassing to have

investigators reading the directions to the “Total Station” in the middle of a blocked freeway because they haven’t had enough training or experience to use it effectively.

Agency Leadership

In every NHI class, employees want to know what their leaders want, will they be supported, and what actions are they allowed to take. They are reluctant to do what is necessary due to a lack of guidance. Provide it to them in writing and be supportive when they are trying to make improvements. Hype the successes and innovation and give them positive feedback. This was the organizational climate that cultivated many of the nations most successful incident management programs.

Changing the Language of Incident Management Operations

Introduction

Arland "Ted" Smith, and John O'Laughlin, each have over 30 years of Incident Management (IM) experience. They have worked with several states on IM issues, written portions of the latest version of the FHWA IM handbook, and taught NHI IM courses throughout the nation. They have presented over 100 workshops including "Executive Incident Management" Briefings in 10 states.

Ted and John have determined that producing long-term major improvements in incident management operations on roadways requires a different approach, and most importantly, a different language. This paper was developed to highlight the phrases we have collected from others, developed personally, and gathered from previous documents on incident management. We recommend selecting a few to use when discussing these issues, especially when trying to improve IM operations

The different approach is simply emphasizing the responder's safety instead of traffic congestion or pollution as the reason for clearing all incidents quickly. We have used this approach in seminars with police, fire, transportation and towing responders and have gotten a far better reception than before. All responders who have experienced close calls at incident scenes do understand they are safer when not out there and want to learn techniques that improves their ability to clear incidents effectively and quickly.

All of these terms are valuable for liability purposes. If agencies adapt policies based on these approaches and responders use them as the basis for their actions, they will experience less liability than if they delay taking appropriate action.

We have also found that catch phrases supported with factual information are easier to remember and even become part of the normal conversations about IM. We offer the following terms for your consideration and hope there are some you will use on a regular basis as we strive to improve the delivery of incident management services.

"In The Interest Of Safety"

We strongly advocate the use of this phrase over the other similar one "Error on the side of safety". We see this as being more applicable to managing incidents and means always taking all safety issues into consideration when making decisions at incidents.

It means opening lanes quickly adds to everyone's safety. It also means always maintaining an awareness of the entire incident impact, not just at the incident itself.

Long road closures are bad for everyone. Responders are exposed to danger for longer periods of time. Motorists are exposed to the dangers of secondary crashes. A 1998 USDOT report indicated approximately 18% of fatalities on freeways are secondary to other incidents. A large number could be prevented if decisions were made to protect the queue, divert traffic and clear incidents quickly.

The first fire fighter killed in the nation this year was struck by a tractor-trailer approaching a previous crash on an icy interstate. Better responder training may have prevented that tragic death.

In 2001, there were 21 state police officers killed in the United States. One died of gunshot wounds, 3 died in aircraft crashes, and 17 died in traffic related incidents. In the interest of all responder's safety, we should concentrate more training on multi-agency incident response and the benefits of quick effective procedures. By emphasizing safety over mobility, we will gain more respect and support from all the personnel who put themselves in jeopardy when they respond to roadway emergencies.

"Between The White Lines"

This phrase is used to emphasize the need to handle the traveled portion of the roadway differently than the shoulder or areas next to the roadway. It is also used to highlight the need to have strong working relationships between the enforcement and transportation agencies.

Police enforce and investigate. Transportation agencies operate and maintain. Sometimes these distinctions are blurred and sometimes transportation agencies have little control over what happens on the roadways. They

should have a strong say in what occurs on the traveled portion and should work closely with police, fire, towing and others to make sure the proper balance is taking place between the needs of all agencies at incidents.

Clean up should also be handled with the priority going to the traveled portion of the road first. If there is a diesel or other fuel spill, clean up the road surface quickly with available resources and save the clean up companies for the recovery of product from drains or soil.

"Between the White Lines" also means expediting the removal of all incidents from the lanes by the most expeditious means. Patrol cars or service patrols with push bumpers or tow straps should remove wrecked vehicles to the shoulder instead of waiting in the road for tow trucks.

"Positive Traffic Control"

Probably anyone who reads this has been delayed due to crashes. You creep along and finally reach the incident. As you pass, you see several responders standing around and no one directing traffic. What impression does it leave with you?

The cover of this document illustrates traffic control at an incident scene by a DOT employee. He is keeping a constant presence and continuously directing traffic past the scene. His efforts are appreciated by passing motorists and they leave the scene knowing someone was focused on getting them safely through the incident. There were serious injuries in this crash and the driver had to be extricated from the wreck. The entire scene was cleared completely in 21 minutes from first report.

Having someone, and it can be any responder, continuously directing traffic at the right location can increase traffic flow by up to 50 percent. If motorists are ignored, they go through the scene at the rate of the slowest "Rubbernecker". By putting one responder in their line of sight when they try and look at the wreck, they are directed to move smoothly past the scene.

This technique is also an added safety device for the responders on scene. They can work without concern from traffic when they know someone is constantly watching the traffic for erratic behavior or someone getting too close to the responders. If traffic must be stopped to allow repositioning of emergency vehicles or personnel, the traffic controller is close to the incident core and can easily get directions from the incident commander.

Cones are also used to help identify the route for the motorists. They are an early warning device, especially at night, and can wake up drowsy motorists and allow responders reaction time when they hear the cones get hit.

"Responder Mobility"

This is a phrase that really catches the attention of Firefighters.

Urban areas all experience varying degrees of congestion related to incidents. Responders are impacted by that congestion as much and sometimes more than normal motorists. To maintain consistent response times requires a transportation system that doesn't let any types of incidents close major roadways. Events such as suicidal jumpers on bridges, bomb threats, hazardous materials spills, or barricaded subjects can result in large and long closures. When they occur, fire departments and other response agencies cannot reach emergency calls in acceptable time frames.

We strongly recommend to all response senior personnel that closures do have a negative effect on response to other emergencies and should be kept to a minimum whenever possible.

Responder mobility also has to do with getting to incidents on congested roadways in an acceptable time. When first responders block additional lanes, they are creating a longer and more difficult trip for other responders coming to assist at the same incident. First responders in congested environments should not take additional lanes but should do everything possible to minimize the impact on traffic at least until all the needed resources reach the scene.

We all have the responsibility to continually inform other response agencies of the need for keeping ingress routes open for others. We can improve response times and clearance times through emphasizing "Responder Mobility".

“50 mph Rule”

On a recent long closure for a truck crash, a freeway had traffic backed up for several miles. After the lanes were finally cleared, the traffic started to move again. Several trucks were parked in the lanes and the drivers were asleep in the truck sleeper compartments. Officers had to go truck to truck to wake them up.

Had these truckers known of the closure far enough in advance, they could have taken alternate routes or stopped in safe locations for their prescribed rest breaks. They would not have been stuck in the back up and a number of other motorists would not have been stuck there either. The 50 MPH rule means giving wide dissemination of closure information, even to other states. For every hour the closure is estimated to last, provide notice to drivers far enough away that they can avoid the closures.

This process can also prevent secondary crashes by keeping motorists aware of pending congestion. It will reduce the size of the queues and make them easier to manage. This process also improves the image of the agencies involved by demonstrating that providing motorist information is important.

“15 Minute Rule”

This rule is taken from the procedures used in command posts for large emergencies. Frequent updates and briefings are used to keep everyone properly informed. By applying this process to traffic incidents and having it done every 15 minutes, we improve the overall on scene communications and coordination significantly.

The 15-minute rule also provides the leader of each response agency the opportunity to update others on their progress. It eliminates confusion and allows for better use of resources and prioritization of tasks. By participating in these frequent exchanges, responders get to know others and learn their priorities.

One step in this process is assessing the scene at the 15-minute point to see what can be done to improve scene safety, improve traffic movement, and determine an estimate of length of event. This information is shared with each response agency at the scene, traffic control personnel near the scene and with dispatch centers.

The Phoenix Fire Department uses a version of this and has the dispatcher put out a 15- minute notification to the personnel on scene. They then respond with the status of the event and the estimate of time left on scene. This process also keeps everyone aware of how long they have been at the incident.

Space Safety Or I=TWZ

I=TWZ means incidents are now considered to be temporary work zones in the Manual of Uniform Traffic Control Devices (MUTCD) and meet those traffic control standards over a period of time. In the definitions, it appears that requirements for more than minimal traffic control is required if the incident will be there more than one hour. This change should be reviewed by all transportation agencies and response agencies to see how it impacts their operations at incident scenes.

Space safety has several meanings all related to giving responders enough opportunity to escape injury should something go wrong. Large police agencies that deal with traffic enforcement have changed the violator approach to the non-traffic side of the vehicle. That will reduce the number of officers struck by cars. Some police agencies have also instructed officers to park further back from vehicles on the shoulders of freeways. That will allow more time to escape should the vehicle be struck from behind.

Higher speeds means traffic control devices need to be started further from the incident. The speed of traffic, not the speed limit should be considered in determining how long the taper is for lane closures. High speeds can allow vehicles with the “D” Drivers (drowsy, drunk, drugged, distracted) to hit traffic control devices and then responders or their vehicles if the devices aren’t placed far enough away. All responders should carry a number of cones in their vehicles to serve as traffic control and early warning devices.

Traffic control must be improved to reduce the number of secondary crashes, injuries to responders and response vehicles being struck.

Traditionally, local transportation agencies haven’t been heavily involved in incident management programs. With the change in the MUTCD, local agencies will have added responsibility to support emergency agencies during lengthy closures. This will be especially important on major arterials when traffic volumes are high. A new

program in Maricopa County, Arizona, is an example of being prepared to provide proper after-hours traffic control on arterials.

Fatigued commercial drivers are also a hazard to responders. A large truck traveling 75 miles per hour can take nearly 1000 feet to stop when the driver is not fully alert. Commercial vehicles are involved in an average of 14 fatalities per day nation wide. Better traffic control at incident scenes can reduce that number by alerting the drivers early enough to slow or stop safely.

“It Takes Iron To Move Iron”

Towing regulations have lagged behind the rapid changes in truck types and weights. Most tow regulations were written over 40 years ago and have not had significant changes to the heavy-duty class since then. When the rules were written, trucks and trailers had steel frames, weighed a maximum of 37 tons, and traveled at lower speeds.

Today’s trucks often weigh over 50 tons, travel faster, and are mostly made of aluminum to maximize cargo weight. When they are involved in collisions, there is often more damage and they are difficult to remove to restore traffic.

Tow truck regulations in nearly every state should be updated from a 25-ton class tow to a minimum of 35 tons. New tows in the 50 to 70 ton class are far better and will clear roads much faster in the right hands. They do cost up to \$400,000, and operators are reluctant to buy them if they have to compete with old outdated equipment for the same calls. In the right hands also means the operators need training and experience before they can be truly effective in opening roadways.

States should give strong consideration to establishing a recovery class of tows. Utah has upgraded to a recovery class and required that the company have at least two large hydraulic or rotator tow trucks, with additional equipment to expedite clearance of trucks and their loads. This has allowed them to vastly decrease the time required to clear roadways.

Training and certification is also needed to ensure the towing company is sending qualified and experienced operators. Utah again is a leader having just begun a certification program that will require all tow drivers to take a training and certification course within the next three years. Other states do have voluntary certification programs and they are often supported by the tow industry.

One significant operational issue must be overcome to keep recoveries to a minimum time length. That is the tendency of the tow company and truck owner to want to minimize damage in the removal process. When a truck crashes at a high enough speed to overturn, and the responders want to slide it off the roadway before unloading or uprighting, they are doing the right thing. The damage is already done. Roads should rarely remain blocked to unload or upright a truck unless the cargo is hazardous.

“Target Acquisition”

The every year, approximately 10,000 police cars, 2,000 fire trucks, and 3,000 other response vehicles are struck at or going to incidents. 59% of the officers that died in the United States in 2000 were killed related to traffic. Target Acquisition means several things. Drunks and others who are impaired may drift toward and collide with vehicles displaying bright lights. There are frequent cases that responders have been struck on purpose by enraged or mentally unstable motorists. The bright lights also blind motorists passing emergencies and they try and pay more attention to the incident than to their driving.

All responders, regardless of their jobs, should wear proper reflective garments when working at incidents scenes, especially after the hours of darkness. Reduce the ability of becoming a target by being seen when necessary and by controlling the environment and taking away driver’s opportunities to inadvertently or intentionally strike a responder.

Target Acquisition also has meaning related to terrorism attacks. Their approach is generally to inflict as many casualties as possible while striking at something symbolic. We sometimes create great opportunities for them by closing roadways and backing solid traffic onto bridges, into tunnels, or onto urban elevated structures. Maintaining mobility as a top priority is a means of defense against potential terrorist activities.

“Dignity In Death”

Another area needing updating are the rules and laws that govern medical examiners and coroners. Delays in removal of deceased victims or traffic collisions can keep roadways closed for additional minutes or even hours. The rules are based on the duties to investigate all deaths. If you have “Organ Donor” on your driver’s license your wishes to try and make something positive out of a tragedy may go unheeded due to these old rules.

There are some organs that can be transplanted successfully after death if the victim is properly taken care of and transported rapidly to a proper facility. Even if the success rate is low, I would certainly choose to have my family have the opportunity to tell the medical professionals to go ahead and try than to find out my remains were left along side a roadway for hours.

“Dignity in Death” also means that the deceased, their family and on lookers should be treated with compassion and respect. Bodies should not be covered and left in the roadway or in the sight of others any longer than necessary. Police will often argue that they are part of a crime scene and have to be left there. If there is any sign of life they aren’t left there, why should that change when they are deceased? There are certainly exceptions for circumstances such as hit and run fatalities, but generally they can be moved within a short period of time.

Oklahoma City has one of the best medical examiners policies we have seen. They exempt traffic crashes from keeping the deceased at the scene. They can and should be transported immediately according to this policy.

Years ago, delays in getting someone to respond and removed deceased persons from traffic crashes prompted the head of Emergency Medical Response in Chicago declared “Nobody dies on my highways”. He established a policy that all bodies would be removed expeditiously to a medical facility that has the only authority to declare death. This policy affectively reduced the length of closures on Chicago freeways.

“Agree To Agree”

Interagency agreements such as open roads policies, quick clearance agreements, shared real time data, and shared resources can be important in the improvement of delivery of services. Shared data can significantly improve the delivery of the proper resources to the proper locations. Imagine the responders having onboard, or at least direct video in their dispatch centers, showing the incident location and details. That process alone can reduce the number of vehicles and types of vehicles responding to the incidents. It can also get them to the incidents sooner by giving more detailed locations and traffic conditions.

Response protocols can be as simple of getting agreements on how many and what types of response vehicles will deploy for traffic incidents and how they will be situated on the roadway. They can be as comprehensive as the recently signed agreement between the Washington State Patrol and Washington Department of Transportation. This agreement covers all the interagency activities and defines who has what role related to all types on interagency activities.

Regardless of all the Intelligent Transportation Systems (ITS) being deployed, most motorists in their cars are going to rely on their radios to get information about changes in traffic conditions. That source is generally commercial radio unless there are Highway Advisory Radio (HAR) systems in place that are actually kept up to date.

Transportation, police and traffic media have some excellent partnerships throughout the nation that cooperate to provide good information to motorists. They communicate directly, they share space and real time data, and they share costs. Media aircraft with police radios help the responders with an eye in the sky. The pilots get better details to share with motorists. In Chattanooga, Tennessee, the media traffic reporter provides aerial photographs of all serious crashes free of charge to the police to assist with investigations.

Mutual aid agreements are routine between fire departments in adjacent jurisdictions. They are not as common between police agencies unless they have joint drug task forces, or tactical teams. They are virtually non-existent for general police services, including investigation of felony or fatal collisions.

Interagency agreements for incidents can be determining who is closer and having them responsible for immediate response even if it is not in their actual jurisdiction. It can also be similar to the agreement in South Dallas, Texas where the Sheriff has taken over patrol responsibilities for 7 communities that had a small part of the loop freeway system. This program has reduced response times and clearance times dramatically because the officers are out there all the time and have become experts at operating on that roadway.

“Training, Training, And More Training”

Major arterials and freeways, especially high-speed corridors require a different set of skills and abilities for responders to maintain their safety. Any response agency that enters freeways for incidents should have a training program designed for proper safety techniques on that system. If they don't, they may have someone become part of the huge number of casualties that occur on freeways every day.

Training together with the other agencies that respond to roadways can help each responder understand and respect the priorities of others. Opportunities should not be missed to share ideas and information with each other. All too often, the only contact the senior managers of the agencies may have is when something goes wrong and there is a disagreement between the agencies. The natural tendency is defend the actions of the people in your organization, even if they could have done better. That further detracts from good interagency coordination.

Having an incident team in the region that meets on a regular basis can reduce the misunderstandings that occur when responders only have part of the information. They can also work together to identify problems and develop collective solutions. Having a segment of training in each of these meeting focused on local issues, is a valuable way to get participation.

Training for specialists should also be more balanced. Technical accident investigators may have weeks, even months of technical training and never get one hour about the hazards of keeping roadways closed. Fire command personnel are trained extensively on the safety of their personnel and never have it balanced with the needs to reduce secondary crashes. Towing companies are often paid by the hour and resist hurrying up because it costs them money. By having them get lanes open and then do recovery, they still earn the same and traffic is restored sooner.

There are numerous examples of great results as the result of training. Working together, agencies in San Antonio and South Dallas have cut clearance times by more than 50%. They credit training as a key to that improvement.

We hope that something in this paper is significant to you and you can use it in your Incident Management program. Please feel free to contact either of us should you need further information.

This page intentionally left blank.

Technological Issues Discussion Paper

Prepared by:

Bruce Churchill

Senior Project Manager

NET Corporation

Pam Scanlon

Executive Director

San Diego Automated Regional Justice Information System

Overview

In any operation, and especially in Incident Management, information sharing is a powerful tool that facilitates improved inter-agency coordination. It is not the “end all” to operational issues in traffic incident management, but one of a set of tools available to the practitioners and managers of IM activities. In 1996, the San Diego InterCAD Project was initiated as the first in a series of “Early Start” projects for the Southern California Priority Corridor Showcase Program. The operational goal of this project was to improve IM operations through improved inter-agency communications. The scope of the project did not include on-scene voice communications but rather focused on communications between agency automated systems such as Computer Aided Dispatch and Advanced Transportation Management Systems. InterCAD enjoyed some early deployment success but the original objectives have not been fulfilled due to a series of institutional, technical and operational issues. Given the intense current interest in this integration goal, and its potential to improve IM operations, a Case Study of InterCAD is timely and will provide useful insight on the problems to avoid in the integration of public safety communications systems with transportation management systems.

InterCAD Project Background

The San Diego InterCAD (San Diego Regional Computer Aided Dispatch (CAD) Interconnect) project, designed to facilitate improved incident management in San Diego County’s portion of the Southern California ITS Priority Corridor, was begun in the fall of 1995. By summer 1996, the California Division of FHWA had approved the Federal Work Plan. InterCAD was originally envisioned as a two-phase project, leading to implementation in more than one region within the Priority Corridor.

As part of the local match funds required to receive federal funding for the project, the San Diego motorist aid call box authority, known as the Service Authority for Freeway Emergencies (SAFE), provided operating fund reserves to complete Phase 1 of the InterCAD project. Phase 2 of the project was funded from the FHWA FY 96 Priority Corridor Showcase budget administered by the San Diego Association of Governments (SANDAG).

The Phase 1 participants in the InterCAD project included San Diego Police Department (SDPD), San Diego Sheriff’s Department (SDSD) and the Border Division of the California Highway Patrol (CHP). Phase 2 of InterCAD was planned to incorporate the new Caltrans Transportation Management Center (TMC) when that facility’s new Advanced Transportation Management System (ATMS) became operational. Other public safety agencies within San Diego County, including fire and EMS, also planned to join the project in Phase 2. A similar project, Inland Empire InterCAD, had been proposed for Riverside and San Bernardino counties as part of the Showcase Increment II funding request - this project was not funded and was subsequently cancelled. Thus far, the only agencies on the InterCAD Phase 2 network include Caltrans District 11 TMC, Heartland Fire Communications (an East San Diego County Joint Powers Agency for fire/EMS communications) and the Federal Fire Department (a unified department consisting of local US Navy and Marine Corps base fire departments).

InterCAD Issues

Regional ITS information sharing projects typically suffer from the following barriers:

- Institutional inertia - resistance to change
- Lack of understanding of the other agency’s needs and “hot buttons”
- “Not Invented Here” syndrome
- Lack of a regional “vision”
- Lack of known and respected “champions”
- Technical limitations: legacy, closed systems
- Lack of a regional communications plan
- Security concerns - especially critical with public safety systems
- Lack of participation in ITS integration dialogue by public safety CAD vendors

At one time or another InterCAD has experienced all of these issues to some degree. In the following paragraphs some of the more critical are highlighted.

Institutional

As with all projects of this type, the major issues revolved around difficulties with institutional considerations. Law enforcement agencies had difficulties assuring themselves that the InterCAD system had adequate security safeguards. The security issue stalled the project for almost a year and gradually law enforcement agencies lost interest in participation. At a critical point in the project's life cycle, several agencies switched CAD vendors, which combined with an over-reliance on one CAD vendor to develop a workable CAD integration solution, struck a severe blow to project progress. Communications managers were understandably preoccupied with getting critical new CAD systems operational and much less interested in regional interoperability. Although senior law enforcement executives in the County had been briefed on the project early on, they were not kept apprised of the ongoing issues. Their counterparts in the fire service and EMS agencies were never briefed.

The project champion, a senior uniformed law enforcement communications commander, retired, and there was no leadership to fill the void. Since there was only one champion, his departure led to an onset of a Not Invented Here syndrome and a lack of qualified and motivated senior personnel to assume responsibility. The leadership mantle passed from law enforcement to fire/EMS, thus the focus of the project changed in mid-stream. At this point the project gained two fire service advocates that kept the project alive.

Technical

As mentioned above, an over-reliance on a single CAD vendor to solve the technical integration issue with host CAD systems, led to a technical stalemate when that vendor lost several contracts to upgrade key law enforcement and fire/EMS CAD systems in the region. Although the technical solution proposed by that vendor was effective and implementable, new CAD vendors were not made project stakeholders when they became the new agency consultants. As a result, new CAD systems were not designed to take advantage of the InterCAD architecture. There appeared to be no compelling reason for agencies to deal with InterCAD issues when they had more than enough to handle with just converting to new CAD systems.

One of the more challenging technical problems that had to be solved was the methodology to convert internal CAD incident representation on dissimilar CAD systems into a common language for regional dissemination over the InterCAD network. At the time there was no generally accepted standard to accomplish this objective, therefore the InterCAD project defaulted to a plain English representation of major incident record details such as location, incident type, response status, etc.

As a result of the above, the InterCAD project today consists of workstations that are installed in the three agencies listed earlier - these workstations are connected using a messaging protocol called MQSeries from IBM and a Switched Multimegabit Data Service (SMDS) network provided by the local wire line telephone carrier. The workstations are not connected to the host CAD systems as was originally envisioned, but operate as standalone terminals in the centers involved. For an integration project this is not an operationally satisfactory solution, since CAD and TMC operators do not typically have time to enter incident information on two different systems. See Figure 1.

The SMDS network that is currently operational for InterCAD has never been given an official "green light" for security by law enforcement agencies. In retrospect, the use of a law enforcement-sanctioned network such as the San Diego Automated Regional Justice Information System (ARJIS) would have been a strategically more acceptable choice than a private network. The prospect of increased support costs and reluctance to deal with additional bureaucracy drove the decision to use a more readily available and cheaper communications alternative.

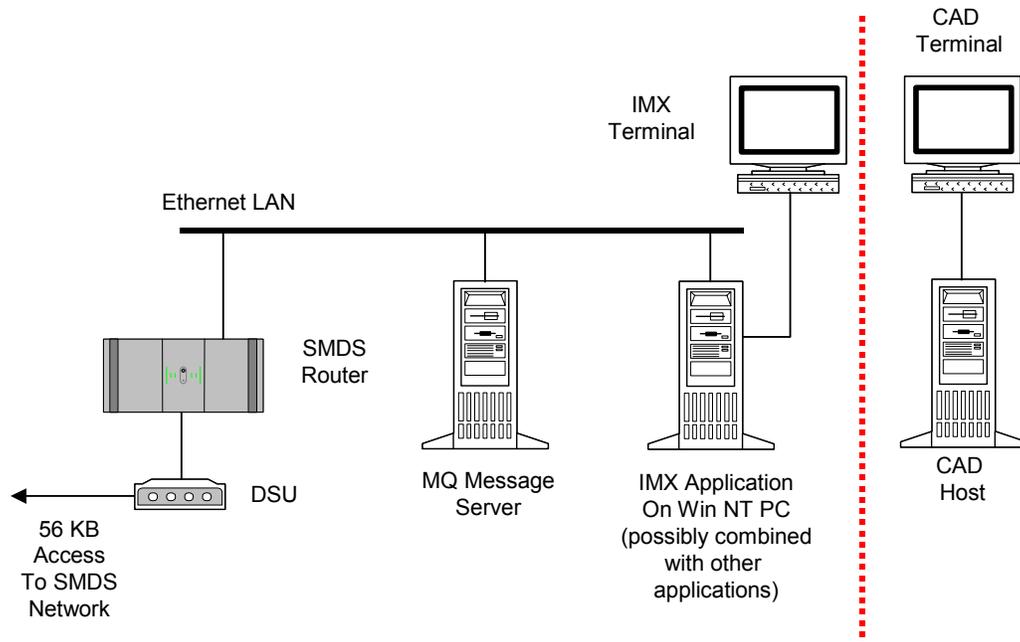


Figure 1. Existing InterCAD agency architecture (typical).

Operations

Although the InterCAD project had a reliable source of local match funding for Phase 1 and what initially appeared to be a sufficient federal funding level for Phase 2, technical difficulties with the change of CAD vendors and uncertainty in how to approach integration with the evolving Priority Corridor Showcase network, led to a significant funding shortfall that has not yet been addressed. The one CAD vendor who prototyped the initial technical solution lost a significant amount of money in the process and was not able to recoup this loss before losing several local CAD contracts to other vendors. The eventual funding shortfall can be at least indirectly attributed to not involving a broader segment of the CAD industry as stakeholders in public safety-transportation integration projects in general, and this project in particular.

InterCAD Lessons Learned

Were the InterCAD Project to be reinitiated today (and it yet may be), the lessons learned from the original project experience and from the current public safety/ITS dialogue would be applied to greatly increase the chances of project success. The lessons learned and potential solutions will be discussed from institutional, technical and operational perspectives.

Institutional

Issue: Lack of senior public safety management buy-in to support regional public safety and transportation information sharing and operational integration.

It is quite clear that there is a need to build a clear and convincing case for the benefits of public safety participation in regional information sharing and the resulting positive impact on incident management. This case must be presented to senior executive levels of local public safety agencies - this means executive management, not senior technical personnel. However, senior technical personnel must be engaged in the dialogue in parallel because their support is no less critical to long-term success. The business case must highlight the benefits of information sharing, a realistic security assessment (as opposed to a blanket statement that information sharing is inherently insecure), and the need to engage CAD vendors in a meaningful dialogue on interoperability.

Issue: Ensuring multiple agency champions for regional information sharing.

The lack of "champions" is one of the most critical impediments to a project of this nature, because without champions at agency executive and senior management levels, political support for mainstreaming the required changes will not be forthcoming. Mainstreaming is in turn critical to build a funding base that can support regional integration efforts on a continuing basis. The most difficult champions to recruit will be from some segments of the public safety community (traditional police agencies as opposed to Highway Patrol or State Patrol agencies)

because traffic incident management is not always high on their list of priorities - yet when these champions emerge, they typically have greater local political support than transportation managers thus the payoff is worth the recruitment and outreach effort. Multiple champions, or project "sponsors", are virtually required where dissimilar types of agencies are involved. Ideally this means champions from the Highway Patrol/State Police, Local Police, Fire, EMS and Transportation agencies as a minimum. In the case of InterCAD, this approach would have kept the project on the "front burner" and prevented the eventual loss of interest. In most agencies, there is at least one key person who can be convinced of the value of information sharing if he/she is approached with facts, case studies and success stories.

Issue: Multi-dimensional project outreach.

The following tactics have proven useful in other projects and may be even more crucial to success in projects involving the integration of public safety systems:

Executive level outreach brochures, particularly targeted to senior public safety officials, should be used, outlining benefits to their communities of sharing information with transportation centers and other public safety agencies (the transportation community already has numerous such materials dealing with incident management and its benefits).

A Concept of Operations, outlining the business case for regional integration and a conceptual view of how an integrated regional system would operate, should be prepared early in the project life cycle. The approach to this document should be from the layman's (read elected official) perspective.

Requirements Workshops should be conducted, involving all appropriate agencies to develop a sense of teamwork in the region and a collective buy-in to realistic information sharing requirements. These workshops must be supported by executive management of public safety and transportation agencies. A particular effort should be made to involve multiple CAD vendors in this effort.

Technical

Issue: The need to fully integrate information sharing into all regional systems as opposed to the "separate workstation" approach.

Full integration has two prerequisites: (1) a means to enable *screen-to-screen communications* between center operators (i.e. no double entry of incident data) and (2) a *common language to express critical data* being exchanged between dissimilar "host" systems (the word "host" is taken to mean either a CAD system, an ATMS system or a Transit Management System). *Screen-to-screen communications* means that an incident initiated in one CAD system is accepted into another CAD system (or an ATMS system) transparently to the receiving operator. The receiving operator can then choose to accept or reject the incident, and if it is accepted, it becomes a new incident within the receiving system (more on this later).

A common language means that when <10-36> in one system is a "felony want", and in another system it is "time check", the intent of the sending center is resolved into a system-independent language so that the receiving center can properly interpret the incident. Failure to accomplish this technical goal in a consistent manner has obvious officer safety impacts and makes public safety agencies (especially law enforcement) very nervous. The importance of developing a common "language" to support IM operations cannot be overstated. The Institute of Electrical and Electronic Engineers (IEEE) and its Incident Management Working Group (IMWG) are attempting to address this issue through publication of vocabulary standards encompassing all aspects of Incident Management.

In Phase 1, InterCAD actually had a very effective design for ensuring screen-to-screen communications through the use of a "pseudo console" approach. Since CAD systems typically send messages from one console to another (e.g. from a Call Taker to a Radio Dispatcher), the CAD vendor established a "pseudo" console that was actually a substitute for an external communications channel. When the CAD operator sent an incident report or incident update message to an allied agency (or TMC), the CAD system routed the message to the pseudo console address that was actually a serial communications port attached to the MQSeries Messaging Server connected to that CAD system. Figure 2 shows how this worked in theory for InterCAD. The Messaging Server handled inter-system messaging overhead tasks and removed that responsibility from the "host" CAD and ATMS systems. The MQSeries approach for host system integration was a sound technical and security decision in that it allowed the sending agency to "push" selected CAD data to one or more recipient agencies at the dispatcher's discretion. Further, the MQSeries approach used transmit and receive message "queues" that allowed message exchange to operate independently from host system processing. Other distributed processing solutions that "pull" data from sometimes sensitive databases are inherently less secure.

As mentioned earlier, the “common language” issue is approaching at least a partial solution as the IEEE 1512 Emergency Management-Transportation Management Data Dictionary and Message Set Standards mature. Balloting for these standards will be completed in 2002 and as joint public safety/transportation IM programs are initiated, these standards will play a major role in determining implementation requirements. Another form of common language is the Common Object Request Broker Architecture (CORBA) Interface Definition Language (IDL) being used for regional architectures in many major metropolitan areas (Southern California Corridor, Phoenix, Portland, Salt Lake City, Gary-Chicago-Milwaukee Corridor, Atlanta and parts of the I-95 Corridor, among others). Standard IDL is being developed as part of the National Transportation Communications ITS Protocol (NTCIP) Center-to-Center CORBA Profile (NTCIP Standard 2305). Figures 3 and 4 show how the IEEE 1512 or CORBA IDL might be used in conjunction with a message passing protocol such as MQSeries to exchange data from dissimilar systems.

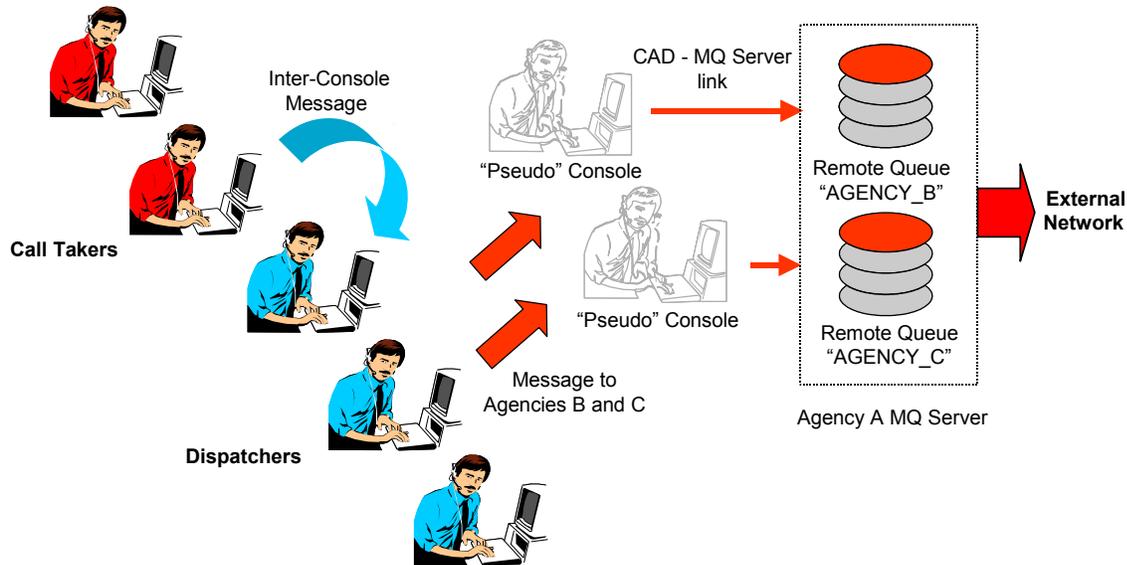


Figure 2. Integration of messaging architecture into CAD systems.

Issue: Operations support for new regional information sharing systems.

Ultimately, as regional information sharing architectures near deployment, the following products would greatly facilitate the adoption and operational use of such systems, especially by smaller agencies with limited internal staff technical support:

Implementation guidance for regional communications networks and what steps are typically needed by agencies and centers to connect to these networks - this guidance should also discuss capacity assessment.

Implementation guidance on integration technologies - presented in an executive level overview format as well as in more detail for planners and implementers. This should include information relative to costs and technical risks of the major integration alternatives and the advantages and disadvantages of each.

Implementation guidance on the IEEE 1512 EMC-TMC data element and message set standards including ways in which the standard can be applied in those regions where object oriented technology (CORBA) is being used for regional integration. The standard as currently formulated is not immediately adaptable to the CORBA integration approach. Further, considerable outreach to CAD vendors is needed to make these standards implementable. The public safety CAD vendor community is just now being made aware of the existence of these standards and their significance to future CAD system deployments.

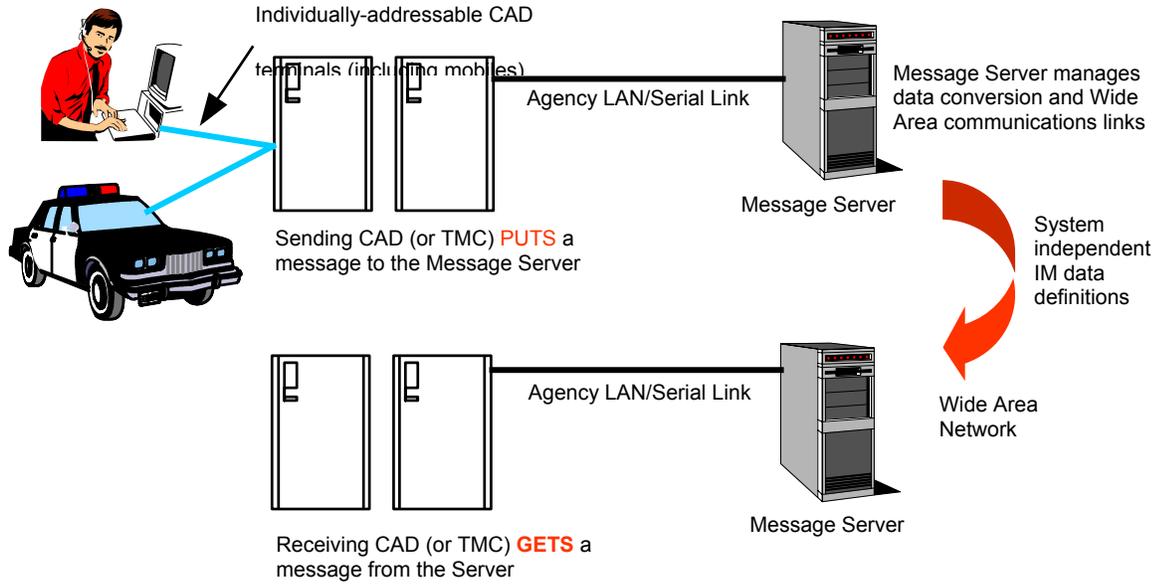


Figure 3. Use of messaging "middleware" to implement dissimilar system data sharing.

Operations

Issue: Recognizing the inherent differences in public safety dispatch and TMC operations

The key to maximizing success in the integration of public safety and transportation operations to support incident management is recognizing the strengths and weaknesses that each type of system brings to the table. A dispatch center's primary function is to take calls from the public and allied agencies and dispatch the response to those calls. Once officers are on scene, the dispatcher communicates via radio to receive the latest information from those on scene. Officers on scene and their dispatchers often do not have an appreciation for overall "situational awareness" in the transportation system as a result of the incident, but they have the best information from the scene itself. Many CAD systems do not have map displays and few dispatch centers have real-time CCTV video available. TMC's on the other hand, are designed to manage the overall transportation picture in the region by integrating several sources of information including real-time sensors, CCTV video and links to other TMC's. TMC's are often not the first to learn about incidents and until their own personnel are on scene, do not have detailed information about the incident. It would seem then, that the "marriage made in heaven" would be the integration of these two types of systems. Figure 5 illustrates this issue.

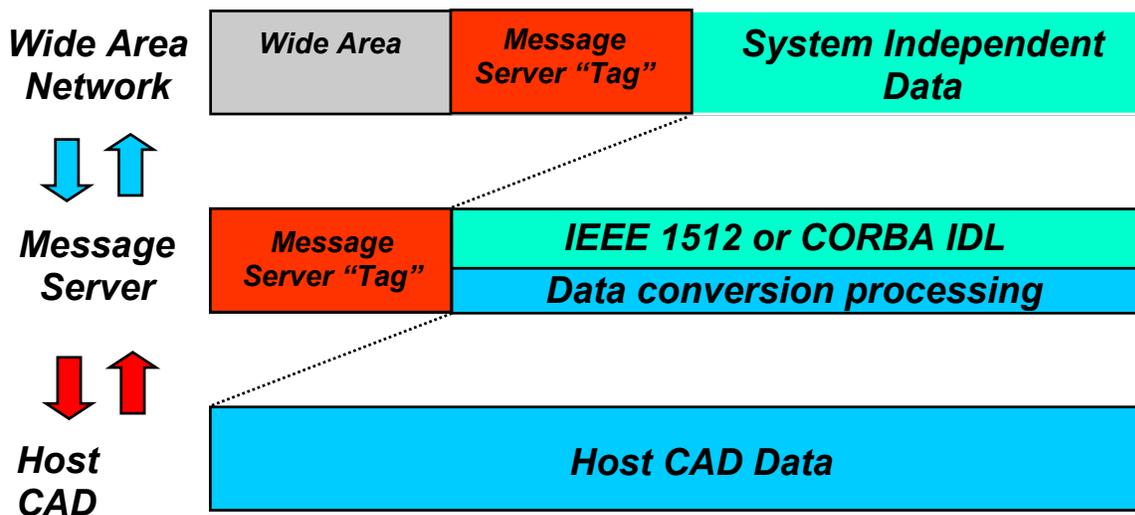


Figure 4. Use of standard data sets to communicate between dissimilar systems.

Issue: Working out “bugs” in operational integration.

Many projects lack a consensus Operational Concept Document in the early stages of their life cycle, or, as in the case with InterCAD, the OCD was incompletely thought out and did not involve agency operations personnel in its preparation. The thinking and brainstorming process that occurs during OCD preparation is invaluable for developing the later inter-agency agreements that will be needed to operate regional information sharing systems. One specific example that was partially addressed during InterCAD early working group discussions was how to handle the automatic transfer of incidents. Typically, dissimilar systems maintain independent and usually incompatible ways of describing and tracking incidents, e.g. log ID numbers. InterCAD participants found that each agency that handles a multi-agency incident must have access to all incident numbers currently active in the various systems. In addition each agency must maintain a different life cycle of the incident - the originating agency may choose to close the incident before an assisting agency. An agency may already carry an open incident in their CAD system that duplicates an incident number received from another agency. Many of these types of issues can be described and discussed in the OCD, even if final resolution is not attained. The OCD and its resulting dialogue can pay big dividends during system definition and design.

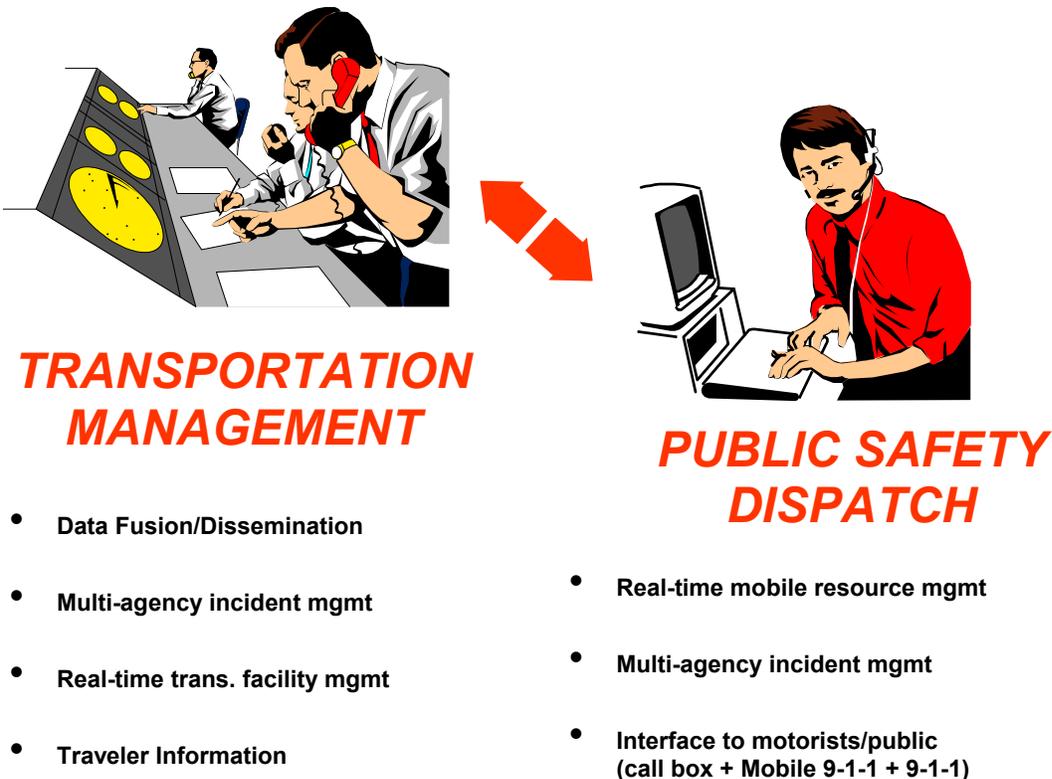


Figure 5. Operational differences between CAD systems and TMC's.

Issue: Understanding the roles and responsibilities of regional IM agencies

Understanding the roles and responsibilities of local agencies in responding to incidents is crucial to developing an approach to the integration of information to support regional incident management. This is an issue best handled during the development of the Operational Concept Document. Each agency has specific needs and constraints and these must be individually considered in developing a regional approach to information sharing. State Highway Patrol, local police agencies, County Sheriff's, fire services, EMS services, County Medical Examiner (Coroner) and transportation agency needs do not always coincide and yet it can be safely said that each of these entities can use better information, disseminated in a more timely manner that best supports their individual needs. Transportation agencies need more timely input of evolving incident data into their ATMS systems; public safety agencies need access to real time congestion data and video that provide dispatchers and the officers and units under their control with improved situational awareness; Medical Examiners need more timely notification of existing or potential fatalities and the location of incidents; fire services need transportation network data and

information from mutual aid agencies to better coordinate response to major fires, and the list goes on. In general the potential for improved coordination of local agency IM operations is limited only by the imagination and willingness to think "outside the box" of these agencies.

Summary

The InterCAD San Diego Project was born in 1995 as part of the Southern California ITS Priority Corridor Showcase Program. Its inspiration was a desire to eliminate the confusing and time consuming practice of exchanging telephone information between dispatchers of different agencies during incidents in which mutual support was required. In the ensuing years, InterCAD has had some successes but the original goals of fully integrating public safety agencies with each other and with the regional Transportation Management Center have not been met. Currently only two fire/EMS agencies and the TMC are connected to the InterCAD network and there are no internal connections to host CAD systems. However the project architecture is an approach that has been proven in other applications.

The major institutional requirement for future such projects in other regions is the identification of multiple project champions from all segments of regional public safety and transportation agencies and a vigorous campaign to enlist executive level law enforcement and other public safety agency support. One of the major missing technical elements is an understanding of the compelling need for integration and active participation by the public safety CAD vendor community. A cooperatively developed Operational Concept Document will go along way towards working through operational issues and should lead to effective regional agreements for information sharing. The potential benefits of an InterCAD or similar project to regional Incident Management are no less compelling now than in 1995, and indeed are now even more so in the light of recent initiatives in the US DOT/US DOJ ITS Public Safety Program.

This page intentionally left blank.

Institutional Issues Discussion Paper

Prepared by:

John Corbin

Wisconsin Department of Transportation

Steve Lockwood

Parsons Brinckerhoff

Introduction And Overview

Traffic incident management is the planning and coordination of people and material resources to safely address and quickly clear disruptions and distortions to the flow of traffic on our nation's highways. Traffic incident management encompasses the development and application of specific practices and tools, often involving the careful interaction of multiple agencies and functions.

Practices may include methods for determining command and control roles and responsibilities at an incident scene, means for administering towing and recovery services to clear stalled and crashed vehicles, and various approaches for parking emergency response vehicles and controlling passing traffic at the scene of an incident.

Tools include fire apparatus, crash measurement equipment, service patrol vehicles, and other equipment that support effective traffic incident management practices. An increasingly vital set of tools involves interpersonal and interagency communications networks and devices that can share voice, data, and video information between traffic incident responders and managers.

Creating, and refining the effectiveness of traffic incident management practices and tools typically require the existence of a traffic incident management program. Traffic incident management programs are more than just collections of successful traffic incident management practices and tools, which may address a static set of issues at one point in time. A traffic incident management program is an ongoing, administered, multi-agency interjurisdictional, and inter-organizational approach that is used to address a changing set of issues over time. These traffic incident management programs can exist at varying levels of formality, and can go through various stages of development. They most often are deployed at the regional or state levels.

Despite the fact that much of the discussion about traffic incident management focuses on operations and technology, there is widespread agreement that significant improvements require departures from "business as usual". The "institutional" changes go beyond improved practice in the field. They involve fundamental changes in certain aspects of the involved agencies including:

- Agency objectives and priorities
- Organizations, roles, relationships
- Human and financial resources
- Professional values, culture and conventions

Since the agencies involved in traffic incident management (law enforcement, fire and emergency response, transportation, towing) have different missions and legal status, it is important to identify critical differences and the way in which they can be resolved for improved coordination and integration. These differences extend to the agencies' cultures which may be response-oriented or project-oriented, may have different approaches to chains of command and communications, may place varying emphases on traffic safety and responder safety; or may be more focused on business and economic development relative to pure public interest.

Underlying a focus on institutional change and collaboration is the idea that measured progress can be made - simultaneously improving public safety and convenience - through evaluation of improved procedures, technology and improve coordination among agencies -- based on an awareness of state of the practice. There appears to be widespread agreement that, in general, ad hoc approaches based on cooperation, energy and good intentions of dedicated staff in the field -- while valuable - cannot be counted on in the long run. Improved procedures need to be explicitly described and formalized among agencies. In addition, ongoing working relationships between agencies and the individuals within them must be grown and nurtured.

The Ten Key Institutional Challenges For Traffic Incident Management

Understanding the correlations between traffic incident management and institutional issues can be approached through two basic questions.

- What institutional aspects and issues limit, preclude, or enable effective traffic incident management practices and tools?
- What is institutionally conducive to the successful implementation of ongoing traffic incident management programs?

Experience in the field and publications reviewing the state of the practice indicate that institutional issues and challenges identified through the above questions tend to fall into three basic categories.

Policy

Policy refers to the agencies stated mission(s), established by law or administrative action: what is the agency trying to do and how. Key dimensions of policy include:

- Traffic incident management program justification
- Agency priority of traffic incident management
- Policy maker understanding
- "Concept of Improvement" within performance effectiveness

Program Resources

Resources covers the agencies capability to execute its responsibilities including how the agency is organized, staffed and funded and where there is an "authorizing environment" of laws, regulations and traditions that supports or inhibits agency activities, location of responsibility in agency. Key factors include:

- Resource availability and allocation
- Constraints of law and local jurisdictions

Relationships

Traffic incident management is, by its nature a multi-jurisdictional activity. Police, fire and emergency response and transportation each have specific responsibilities. However, the effectiveness of the combination of responsibilities depends on interactions. These relationships are affected by:

- Agency culture differences
- Coordination of roles among agencies
- Stakeholder involvement
- Sustainability of multi-agency cooperation

Institutional Challenges And Improving Traffic Incident Management

In the material that follows each of these ten key institutional dimensions is presented. An overview of traffic incident management practice around the country indicates that there appears to major differences in the apparent effectiveness of traffic incident management programs (based on the very few performance analyses that have been conducted). The gap between average and best practice should be a source of concern

For each of the ten issue areas, the situation that exists in the average setting around the country is described. For comparison, "best practice" is then described. Best practice refers to the situation that exists in a few regions that have focused on this particular dimension and have attempted to produce a more effective approach. In general, best practice is associated with the following:

- Long-term sustained program (mainstreamed)
- Multi-agency cooperation and leverage
- Concept of progress (continuous improvement)

Some characteristics of institutional effectiveness evident in these regions are then described. Admittedly, there is no single best way to form and sustain traffic incident management programs. The most practical and productive approaches will vary from region to region. However, there seem to be fundamental "Characteristics of Effectiveness" that consistently underpin successful and continuously improving traffic incident management practices, tools, and associated programs. By understanding these Characteristics of Effectiveness - and what is required to attain them locally - we can identify national actions that are needed to overcome associated challenges.

The State Of Play And Best Practice - Institutional Approaches - Ten Issue Areas

1. Traffic Incident Management Program Justification - How Are Traffic Incident Management Programs Justified To Key Decision Makers?

Average Situation.

Traffic incident management is often part of the agency's routine mission and responsibility; it does not have to be justified. The benefits of are not measured and performance is not measured; the pay-off from improving practice are therefore not known.

Best Practice

Benefits of traffic incident management are measured and demonstrated and disseminated to decision-makers and the public.

Characteristics of Effectiveness

- Study of needs and benefits at various levels of effort to support increased efforts
- Development of performance measurement and analyses to guide improvements
- Introduce terrorism-related emergency response (weapons of mass destruction) modifications to standard procedures as appropriate

2. Agency Priority Of Traffic Incident Management - How Important Is Traffic Incident Management As A Function Within An Agency?

Average Situation

Traffic incident management is only one of several responsibilities of an agency and units within agencies - as a reaction to problems rather than a service program with its own line item budget. It is therefore vulnerable to budget and staff cuts.

Best Practice

Traffic incident management is recognized as an important service program by all the agencies in a region; a budgeted core agency program.

Characteristics of Effectiveness

- TQM and reorganization mechanisms and strategies include explicit recognition of Traffic incident management as core business area in goals and objectives, resource tradeoff
- Middle level staff leadership sensitizes leadership to key issues (up-management) so that functions are recognized in upper levels of organizational structure, and across multiple business areas
- Incorporation of traffic incident management responsibilities into career paths through management and staff position descriptions, individual performance assessment, and professional development
- Agency celebration and awards for individual and team traffic incident management accomplishments

3. Policy Maker Understanding -How Well Are Traffic Incident Management Practices, Tools, Programs, And Benefits Understood By Policy Makers And Senior Managers?

Average Situation

Policy makers not informed of benefits of traffic incident management and the potential of further improvements for enhanced public safety and convenience.

Best Practice

Senior management understands the value of traffic incident management and the potential for increasing benefits from improvements; provides agency commitment individually and together with leadership from other agencies.

Characteristics of Effectiveness

- Senior management exposure to program activities, benefits
- Establishment of executive committee within and among agencies

- Public awareness/outreach efforts (multiagency)
- Reporting and accountability mechanisms to keep decision-makers aware of program and performance

4. Concept Of "Improvement" In Performance Effectiveness - How Is The Enhancement Of Traffic Incident Management Functions And Programs Viewed And Carried Out?

Average Situation

Traffic incident management activity carried out under "business as usual" approach, using inherited techniques and legacy systems (ex: communications). There is no sense that improvements can and should be made (that it is possible to improve safety and reduced delay simultaneously).

Best Practice

Concept of measured progress accepted as demonstrated by evaluation of improved procedures and technology, synergy with other agency strategies, based on an awareness of state of the practice.

Characteristics of Effectiveness

- Systematic reviews of potential contributions of new procedures, based on an understanding of the state of the practice knowledge
- Use of performance measurement to indicate areas of potential improvement
- Introduction of new technology (ITS, Interoperable communications)
- Development of standards

5. Resources - How Are Financial And Human Resources For Traffic Incident Management Programs Prioritized And Allocated?

Average Situation

Traffic incident management activities, as a lower tier activity is often subject to resource availability from budgets unrelated to activity or to agency priorities. Resource availability uneven among stakeholder agencies.

Best Practice

Increase in priority together with performance accountability improves budget competitiveness and resource sufficiency.

Characteristics of Effectiveness

- Dedicated funding for traffic incident management
- Interagency support of resource requests of individual agencies
- Resource-sharing among agencies
- Shared funding for specific improvements

6. Constraints Of Law And Local Jurisdictions - To What Extent Do Laws, Legal Precedent, And Regulations Limit The Modification Of Traffic Incident Management Approaches?

Average Situation

Local laws and conventions such as boundary constraints, towing practices, and clearance policies inhibit improvements in key areas and are often supporting status quo stakeholders.

Best Practice

Needed changes in laws and regulations are introduced and supported.

Characteristics of Effectiveness

- Conduct coordinated multi-agency legislative discussions to develop interagency consensus
- Agencies cooperate on "campaign" for improvements
- Develop regional, statewide law, compacts focused on improved practice (quick clearance, open road, towing, coroner requirements)
- Clarify understanding of liability constraints via legal research

7. Agency Culture Differences - How Are Cultural Differences Between Agencies, Functions, And Professions Addressed?

Average Situation

Each agency possesses a culture with accepted conventions that are not well understood by other stakeholders. The priorities of other agencies are implied and guessed, and can be used to polarize viewpoints and prospective partners.

Best Practice

Cultural differences between agencies, functions, and professions are understood and respected. Agency priorities are explicit, and their understanding between agencies is used to enhance their mutual effectiveness.

Characteristics of Effectiveness

- Regular working encounters reconcile and reinforce shared goals and objectives, and productively acknowledge necessary differences in priorities.
- Multi-agency training and planning are accommodated and encouraged.
- Multi-agency critical incident de-briefings are routinely conducted, and outcomes are incorporated into refined traffic incident management practices and tools.
- Staff and management levels are supported in local and national peer networking, both within and across their functional areas.

8. Coordination Of Roles Among Agencies - How Are The Roles Of Specific Agencies Assigned And Defined For Both On-Scene Operations As Well As Within The Administration Of A Traffic Incident Management Program?

Average Situation

Roles are defined informally on a case-by-case basis, and may even vary within a function by personality or jurisdiction. Conflicts regarding roles may be partially resolved on site, and are disregarded after the clearance of an incident.

Best Practice

All stakeholders and partners recognize the Incident Management System. Administrative roles within a traffic incident management program are similarly formalized and committed to by participating agencies.

Characteristics of Effectiveness

- Multi-agency, actively facilitated teams meet regularly at both the executive and field or technical levels.
- Interagency memoranda of understanding reinforce commitment to the Incident Management System, and to the administrative structures for traffic incident management.
- There is appropriate interoperability of communications systems and practices to reinforce and support structured roles.
- Joint facilities and collocation may be pursued.

9. Stakeholder Involvement - How Are All Partners And Stakeholders In A Traffic Incident Management Program Identified And Appropriately Involved?

Average Situation

Key stakeholders can be uninvolved for extended periods, except as needed. Stakeholder involvement is determined by the strength of personalities, or the size of an agency.

Best Practice

The full spectrum of stakeholders are involved in program development and administration. Participation in decision-making is appropriately scaled based upon organizational and individual roles and expertise.

Characteristics of Effectiveness

- Steering committees, planning meetings, and other program functions receive broad and consistent participation by all key stakeholders.

- Stakeholder participation in the program is monitored, and overlooked partners are recruited back into the dialogue.
- Stakeholder spectrum defined by function, not just sector (e.g. towing & recovery industry, traffic media)
- Engagement mechanisms tailored to stakeholders (e.g. special meetings & training to focus on fire & rescue issues & needs)

10. Sustainability Of Multi-Agency Cooperation - How Is The Continuity Of The Traffic Incident Management Program Promoted?

Average Situation

The level of attention paid to traffic incident management practices and effectiveness depends upon recent events, or the personality of a strong program champion. The same problems must frequently be revisited and resolved.

Best Practice

Roles and relationships are formalized and ongoing. The level of institutional energy applied to continuously improving traffic incident management effectiveness is consistent, and is adapted to meet a growing set of challenges.

Characteristics of Effectiveness

- There is development of formal interagency agreements that outlast representative individuals.
- There is a continued commitment to seek individual and shared agency resources.
- A fiscally significant agency takes a champion or facilitator role on an ongoing basis (DOT, RPC, Sheriffs Dept., or other)
- Interagency coordination for traffic incident management is supported by a meaningful, incremental, performance-driven strategic planning process
- Relationships are "incorporated" to affect a Council of Governments for Traffic Operations.

Towards The National Agenda For Traffic Incident Management

There are several unifying values that cut across the Characteristics of Effectiveness listed above.

- Opportunities for improvement are sought out and pursued
- Ad hoc cooperation is purposefully built into a sustainable traffic incident management program
- Partner agencies recognize various aspects of a mainstreamed multi-agency traffic incident management program as core mission and business area
- Formalized and sustained cooperation applies to all levels - field and technical staff, front line management, senior administration, and elected officials.

Through the breakout sessions, we will seek the experts' reaction to these Characteristics of Effectiveness. The purpose of this dialogue will seek to understand why these characteristics are not more universally and uniformly evident within metropolitan regions and rural transportation corridors. Specifically, we will use the breakout sessions to seek answers to the following questions

1. What additional Characteristics of Effectiveness need to be recognized?
2. What limits the attainment of these Characteristics of Effectiveness locally?
3. What limits the attainment of these Characteristics of Effectiveness nationally?
4. How can these limitations be overcome locally or regionally?
5. What national actions might support the Characteristics of Effectiveness?

The list below is a straw man “starter” list for the final question in the breakout discussions. The list illustrates both the range and prospective depth of national actions to encourage Characteristics of Effectiveness within traffic incident management programs.

- Designated national process or federal entity to develop model regional compacts, model state legislation - promulgation with local government associations
- National research on legal issues, precedents and experience (ex: liability and risk)
- Focus on terrorism/WMD emergency response needed modifications to conventional traffic incident management practice
- General consensus on traffic incident management priorities and issues at the national association level (USDOT Public Safety Working Group?)
- Peer and association networking (national organization?)
- National executive level outreach
- Federal supported joint training (modules in existing programs)
- Focused research and technology development program including demonstration projects and pursue in existing research agendas (FSHRP, National R & T, etc)
- Identify traffic incident management applications for modified highway design features
- Formalize relationships with national equipment vendors to better define technology and equipment needs
- Identify key entities involved in relevant interoperability of standards and pursue dialogue and resolution
- Performance measurement support
- Build traffic incident management explicitly into federal funding programs

Appendix D: Priority Issues and Actions/Initiatives

Operational Topics

Priority Issues

- Training and Certification
- Motorist Information
- Communication, Coordination, and Cooperation
- Quick Clearance
- On-Scene Big Picture
- Positive Traffic Control
- Liability
- Scene Safety
- Secondary Incident Prevention
- National Standards

Training and Certification Actions/Initiatives

- Accomplish training at the police/fire academies
- Mandate this inclusion
- Develop guidelines for training requirements
- Include traffic incident management as part of the towing industry certification
- Certify all response operators
- Each agency should provide input to the processes
- Develop a mutual understanding of each agency's operation by cross-training between agencies
- Rotate agency locations for training meetings
- Include in freeway incident management team meetings
- Utilize train-the trainer procedures
- Train all responders in traffic control and standardize traffic control nationally so that motorists recognize what they see when approaching an incident.

Motorist Information Actions/Initiatives

- Develop a relationship with the media (be pro-active instead of reactive)
- Utilize technology to disseminate information to other agencies and the public
- Educate first responders to the importance of relaying accurate information
- Include improvements in technology in road construction programs plans
- Develop a comprehensive picture of real-time information
- Develop performance measures for timeliness and accuracy of information

Communication, Coordination, and Cooperation Actions/Initiatives

- Mandate/fund a statewide incident management program with oversight by a state coordinator (i.e., IM champion)

- Develop a mandate for interagency dialogue
- Create advisory groups/task forces/teams to encourage cooperation
- Increase interoperability between agencies (language, data, equipment, culture)
- Establish public/private partnerships to improve interoperability
- Document roles, responsibilities, agency decision making processes through incident management manuals
- Develop special incident command system for traffic incidents
- Formalize and implement a better after-hours response program

Quick Clearance Actions/Initiatives

- Communicate the advantages of quick clearance
- Create incentives and disincentives
- Begin an comprehensive lobbying effort (from FHWA, industry, etc) for quick clearance/open roads policy and legislative buy-in
- Change the towing rates from an hourly rate to an incident rate
- Educate the public - i.e., "move to the side of the road"
- Conduct/develop training and table top exercises
- Improve first responder on-scene processes
- Equipment staging at the ramps instead of scene
- Push bumpers of all first responder vehicles
- Consider law/policy change for corpse removal
- Accelerate implementation of dedicated color signage for IM

On-Scene Big Picture Actions/Initiatives

- Address the pressure points through a regional incident management plan (TMC, other agencies)
- Move voice/video/data between agencies as quickly as possible
- Develop IIMS (Integrated Incident Management System)
- Create a clearinghouse for information about planned special events, construction, etc. for the entire region
- Drive the route before diverting traffic
- Develop a system-wide detour/diversion implementation plan
- Develop a protocol for decisions to divert traffic
- Pre-plan routes for diversions/detours (talk to your planners, obtain all available data, pre-plan the required resources)

Positive Traffic Control Actions/Initiatives

- Keep as many lanes open as possible
- Communicate/educate on the importance of traffic flow
- Educate public on how to move out of/around scene
- Provide better traveler information
- Update heavy-duty towing regulations
- Set performance measures for clearance

- Manage investigations better
- Share responsibilities by responders and cross-training for site management
- Create clearer definition of authority/ownership
- May require changes or clarification to laws
- Conduct research on "best practices" and state-of-the-practice on quick clearance
- Establish queue protection
- Establish manual traffic control at all blocking incidents

Liability Actions/Initiatives

- NCHRP 20-6
- NCUTLO - National Committee on Uniform Traffic Laws and Ordinances
- MUTCD - Manual on Uniform Traffic Control Devices

Scene Safety Actions/Initiatives

- Standardize personal safety equipment (e.g. European mode), traffic control equipment, illumination of scene
- Research, collect, and distribute best practices
- Quickly activate VMS
- Establish clear, well delineated paths for motorists to follow

Secondary Incident Prevention Actions/Initiatives

- Establish a standard definition for crash data, and develop a model to measure them
- Require an incident management component for all construction projects
- Revise/modernize traffic control plan requirements
- Temporary signage cameras
- ITS
- Develop incentives for early completion of construction
- Establish traffic controls behind incident queues

National Standards Actions/Initiatives

- Secure reauthorization funding to develop a template of an Incident Management Plan for states to use in developing a state specific plan
- Establish a clearinghouse for incident management data
- Towing data
- Accident data
- Secondary incident data
- Best practices
- Fund an annual incident management performance report
- Mandate a state/regional/district report of performance metrics/measurements
- Develop standards for equipment requirements

Technological Topics

Priority Issues Actions/Initiatives

- The Case for the Benefits of Technology in Improving TIM
- Interoperability/integration Issues
- Minimum Basic Standards As Defined by All Agencies
- Data Sharing and Data Security
- Technology Life Cycle Issues

The Case for the Benefits of Technology in Improving TIM Actions/Initiatives

- Demonstrate Regional/Cross-Agency technology strategies can improve 1st responders/2nd responders picture of incident (detection/response)
- Show that standards will result in less expensive systems
- Demonstrate that operations and maintenance support will make technology benefits go further longer
- Continue Federal Research on Regional Operating Organizations
- Develop National TIM Program and establish baseline funding levels for regional TIM initiatives

Interoperability/Integration Issues Actions/Initiatives

- Confirm acceptance of need for interoperability
- Use of an Executive Board
- Develop regional/cross-agency systems architectures (Based on standards)
- Integrate legacy systems
- Address interoperability of mapping databases

Minimum Basic Standards As Defined By All Agencies Actions/Initiatives

- Need to "fast track" standards development--Use industry standards where available
- Need for coordinated federal standards development (USDOT and USDOJ) with sensitivity to users (possibly interagency board)
- Promulgate standards to key users, vendors, decision-makers, procurement offices, etc.
- Use financial incentives to move toward use of standards (USDOT regional architectures standards, etc.)
- Research issues associated with open code vending
- Require use of national standards for getting federal funds
- Need process for maintaining/updating approved standards

Data Sharing and Data Security Actions/Initiatives

- Establish basic national requirements/ standards for information to be displayed on map
- Conduct an assessment of user data needs
- Address Freedom of Information Act issues
- Establish Concept of Operation for multi-agency use of CCTVs and other technologies

Technology Life Cycle Issues Actions/Initiatives

- Organizations must have technologies/policies that allow for sharing of information
- Implement management policies to require full life cycle costing before system procurement is approved

- Recognize regional focus in developing/operating/funding TIM technologies
- Establish basic national requirements/standards for information to be displayed on a map

Institutional Topics

Priority Issues

- Enabling Performance Measurement
- Increase Resources
- Institutionalizing Regional Traffic Incident Management
- Policy Priority Campaign
- Impacting Agency Priorities
- National Coalition

Enabling Performance Measurement Actions/Initiatives

- Creation of standards and guidelines for performance data
- Creation of specific, national, performance benchmarks for TIM
- Linking evaluation and awareness activities
- Nationally recognized analytical approaches for capturing benefit/cost

Increase Resources Actions/Initiatives

- Notion of a National Traffic Incident Management Program Act
- Reauthorization mechanisms such as: TIM set aside, percentage of infrastructure improvement funds at the project level
- Homeland and transportation security funding
- Issue of resource sharing including public/private
- Providing funding incentives to areas with TIM programs to support cooperative planning

Institutionalizing Regional TIM Actions/Initiatives

- National program models and guidelines (Agreements, MOU's, best practices, standards (MUTCD, NFPA))
- Self assessment tools, accreditation concepts
- Training tools (Function specific protocols reflecting TIM, use existing delivery systems for training (NHI, academies), Support use of table top exercise techniques)
- Integrating TIM needs into highway planning and design
- Learning from responses to major events and crises

Policy Priority Campaign Actions/Initiatives

- Communications plan that integrates TIM and associated benefits into broader community issues
- Ride-along programs - show & tell for decision makers
- Scanning tours to take elected officials to see good programs
- TIM needs to be a continued, sustained effort at multiple level (From campaigns to a national awareness program)
- Recognizing distinct constituencies (e.g., commuters, goods movement, shippers, manufacturers, employers, port authorities)
- Make the case for TIM - part of making the case is being clear on the problem

Impacting Agency Priorities (Internal) Actions/Initiatives

- Professionalize incident management (Risk/reward systems, career path, cross training)
- National ratings of states and regions
- Recruiting and growing “functional pioneers”

National Coalition Actions/Initiatives

- Creation of a common voice for public safety (incorporating transportation)
- Multiple national coalition layers (Executive level, working peer level)
- Aggressive capture of immediate opportunities to grow this coalition building from this workshop
- Federal Agency relationships (e.g. among USDOT and USDOJ)

Appendix E: Issues and Actions/Initiatives Generated in the Breakout Sessions

Operational Topics - Session A (Participant Group #1)

Issues for Advancing the State of the Practice in Traffic Incident Management

- Using technology/ITS ops as related to local response
- Standardized dispatch decision tree
- Lack of quick-clearance policies
- Uniform procedures/procedures for IM
- Model practices for vehicle placement, site management, training
- Consistency in measuring incidents - duration/impacts
- Construction incident management - project management
- Tow trucks - right equipment, qualified operators, liability issues
- Integrated, co-located 24/7 dispatch/operations centers
- Dedicated (and direct) communication/coordination function
- Communicate accurate/consistent data at the beginning - to facilitate decisions
- Information to general public - advance warning, reliable detour info, time info
- Getting the right equipment, people, resources to the scene in real time
- Relationship with media on scene
- Training and certification of towing companies and law enforcement
- Safety of all responders (work zones, incident zones)
- Define "responder"
- Who's responsible for safety?
- Pre-warning notification and communication to all effected entities
- Real-time coordination of information on variable message signs
- Reporting and communicating changing condition of the incident
- Amount of time to clear incident
- Better info sharing among agencies - i.e. arterial

Priority Issues

- Safety
- Communication
- Policies and Procedures
- Clearance
- Training
- Coordination

Operational Topics - Session B (Participant Group #2)

Issues for Advancing the State of the Practice in Traffic Incident Management

- Distribution of information regarding TIM on National/State and local level
- Provide reliable, accurate and timely motorist information
- Provide good customer service with a customer focus
- Legislative awareness of quick clearance needs
- Encourage interagency training
- Creating incentives (Federal \$) for TIM performance
- Whole-system integration (freeway and arterial roads)
- Telematics and impacts on operational practices
- Improvements in quality of information relayed from scene
- Standards for site management
- Find ways to increase awareness of legislative requirements (lobbying efforts)
- Training of first responders in TIM
- Understanding other agencies resources
- Public education by combining traffic incident education with crime prevention education
- Support quick clearance/open roads by legislative support for DOTs, public education, training, and open roads policies for each state
- Policy requirements at the local level for criteria for cargo clearance
- Development and Federal funding for statewide TIM Policy/Plan
- Federal Incident Management guidelines
- Create performance measurements and evaluations
- Create standardized continuous training for certification of towers
- Raise standards for towing equipment
- Reduce lack of adherence to ICS by increasing understanding/appreciation of system with training
- Improve political involvement in policy guidance
- Encourage experience sharing/"best practices"
- Explore availability of Federal funds for TIMs for local agencies
- Perform continuous updating of pre-planning
- Provide timely, appropriate responses
- Improve flow of information between scene and dispatch
- Increase interoperability of types of data between agencies
- Provide establishment of temporary work zones for incidents
- Increase enforcement of traffic control on the scene of an incident
- Encourage use of Freeway incident management techniques on secondary roads
- Establish actual requirements for investigation duration
- Create a dialogue between agencies for interagency communication/cooperation
- Increase communication interoperability at incident scene

- Coordinate emergency light discipline
- Improve initial mobilization/information and quality of detail

Priority Issues and Candidate Actions/Initiatives

Issue: Development and Federal funding for statewide TIM Policy/Plan

- Secure reauthorization funding for a statewide incident management plan
- Develop a template of an Incident Management Plan for states to use in developing a state specific plan
- Clearinghouse for incident management data
- Towing data
- Accident data
- Secondary incident data
- Best practices
- Funding of an annual report containing incident management performance report
- Mandating a state/regional/district report of performance metrics/measurements

Issue: Create a dialogue between agencies for interagency communication/cooperation

- Develop a mandate for interagency dialogue
- Get wording in the federal reauthorization process
- Within each state's DOT, develop a task force, each agency will assign a member and divide into subcommittees
- Subcommittees will develop recommendations
- Send recommendations to Federal level for implementation
- Create a public safety advisory group to encourage cooperation between agencies
- Make the advisory group the spokes group for traffic incident management
- Serve as a forum for federal level issues
- DOT has an ITS public safety group with many components which can be utilized for information dissemination

Issue: Training of first responders in TIM

- Funding needs should be identified
- Training could be accomplished at the Police/Fire Academies
- Mandate this inclusion
- Develop guidelines for training requirements
- Part of the certification of the towing industry should include traffic incident management
- Cross-Training between agencies to develop a mutual understanding of each agency's operations
- Rotate agency locations for training meetings
- Include in Freeway Incident Management Team meetings
- Utilize train-the-trainer procedures
- Develop new training techniques for first responders

Issue: Provide reliable, accurate and timely motorist information

- Develop a relationship with the media (be pro-active instead of reactive)
- Utilization of technology to disseminate information to other agencies and the public
- Educate first responders to the importance of relaying accurate information

- Include improvements in technology in plans for road construction programs
- Improve detection

Issue: Legislative Support and Funding for Quick Clearance

- Create incentives for the performance of quick clearance
- Change the towing rates from an hourly rate to an incident rate
- Reduce the liabilities on the responders
- Legislative implementation of technology in the investigation process (satellite systems, photogrammetry)
- Comprehensive lobbying effort (from FHWA, Insurance Industry, etc) for Quick clearance/Open Roads policy and legislative buy-in
- Develop credibility for Traffic Incident Management by publicizing improvements, changes, and technology ("Dog and Pony" show)
- Add a fee to insurance policies to fund Quick Clearance

Operational Topics - Session C (Participant Group #5)

Issues for Advancing the State of the Practice in Traffic Incident Management

- Initial incident assessment
- Top down communication and bottom-up communication
- Receiving clear information -- as a motorist and to and from the scene
- Alternate Routes - which to use, how to inform, when to discontinue
- Getting right equipment on scene and away from scene when needed
- Scene safety for responders and motorists
- Early detection, verification, and rapid removal
- Management of scene/proper clearance of scene
- Having information to differentiate recurring congestion and incidents - communication system interoperability
- Procedures for dealing with commercial vehicles in incident
- Formal policies and procedures for both in the field and in centers
- Management of traffic flow thru the scene and restoration of traffic flow
- Unnecessary closures
- Coordination of and understanding each responding agency's decision-making process
- Training - defined roles before the incident/event; "check egos at the door"
- Automation and sharing of information through technology (performance standards)
- Setting up traffic control
- Standardizing the incident

Priority Issues and Candidate Actions/Initiatives

Issue: Scene safety for responders and motorists

- Standardization of personal safety equipment (e.g. European mode), traffic control equipment, illumination of scene
- Research, collect, and distribute best practices
- Scene/traffic management - looking at the overall picture

- Quick activation of VMS
- Clear path (well delineated) for motorists to follow

Issue: Coordination of and understanding each responding agency's decision-making process

- Understanding what resources are available
- Document thru Incident Management manuals
- Multi-agency training
- Development of standard table-top
- Create regularly-meeting incident management teams
- Develop special incident command system for traffic incidents
- Provide training for incident command system to all responder communities
- Formalize and implement a better after-hours response program

Issue: Management of traffic flow thru the scene and restoration of traffic flow

- Keep as many lanes open as possible
- Communicate/educate on importance of traffic flow
- Set performance measures for clearance
- Educate public on how to move out of/around scene
- Provide better traveler information
- Update heavy-duty towing regulations
- Better-managed investigations
- Shared responsibilities by responders and cross training for site management
- Clearer definition of authority/ownership -- need to change laws and/or clarify laws
- Research - "best practices" and state-of-the-practice on quick clearance

Operational Topics - Session D (Participant Group #6)

Issues for Advancing the State of the Practice in Traffic Incident Management

- Provide training for first responders in traffic control
- Managing traffic control in work zones keeping public informed of changes
- Update/improve standards for work zone control and incident management
- Identify who is in charge of traffic control
- Provide continuous training in TIM by increasing training and resources
- Reduce liability by quick clearance policies and procedures
- Provide cross-training between agencies/understanding of roles and responsibilities
- Make secondary crash prevention a priority
- Make traffic a priority for police agencies
- Create an agreement with medical examiners
- Improve partnerships with response agencies
- Manage traffic entering incident queue through instituting detours/diversion routes quickly
- Require timely response by DOT after hours

- Create/define performance metrics/measures with reporting requirements and publish data - "You can't manage what you can't measure"
- Clearly define the language of incident management - How is an incident defined? How is clearance measured?
- Create a national mandate for TIM
- Increase level of competency in traffic management for towing and other response agencies in incident management
- Create a database for training in incident management and traffic control
- Encourage train-the-trainer policies to increase information dissemination
- Redesign equipment to improve responder safety
- Place emergency vehicles to improve safety/traffic flow
- Place a priority on a public safety, reduce liability on first responders
- Encourage interagency communication outside of incidents
- Change the way towing rates are charged (incident vs. hourly/lbs)
- Create new standards for towing/recovery equipment
- Find a method to fund improvements for equipment and operations and maintenance
- Improve response times by establishing trust between first responders (agencies)
- Develop a standard architecture for emergency service communications
- Look at secondary road (corridor) instead of just freeway incidents
- Create uniform/universal language for incident classes
- Require certification of incident response operators (job descriptions)
- Develop standards for traffic incident response vehicles
- Find methods of reducing demands
- Improve resources on the scene (both equipment and operators)
- Maintain training on new technologies
- Improve interstate coordination for traffic incidents and long range diversions and dissemination of this information
- Share information on unusual incidents between agencies
- More clearly define roles and responsibilities of each agency and concentrate on core competencies
- Encourage input on new MUTCD
- Highlight the need for good data
- Achieve change by showing value
- Challenge of dual performances
- Encourage more communication between responding agencies before arriving on scene
- Better define tasks/jobs/agencies for traffic incident control
- Enforcement of traffic laws at an incident scene
- Need direction from FHWA or USDOT on the cleanup of non-cargo diesel fuel and motor oil spillage
- Involve prosecutors in decision making processes for SOPs

Priority Issues and Candidate Actions/Initiatives

Issue: Increase level of competency in traffic management for towing and other response agencies in incident management

- Certification of Towing Operators (TRAA certification standards are currently being updated)
- Ensure re-certification requirements include traffic incident management
- Design job descriptions that include traffic incident management roles
- Certifications
- Cross-Training
- Require ongoing training for all responders
- Require enforcement of standards

Issue: Interagency cooperation for training in traffic control

- Develop courses to be given at the local level to train responders in traffic control
- Motorists should recognize what they see when approaching an incident
- Standards for traffic control nationally

Issue: Improve on-scene communication between responding agencies

- Increase interoperability between agencies (language, data, equipment, culture)

Issue: Develop standards for traffic incident responses (communications, equipment, procedures)

- Establish a national clearinghouse for information
- Create a national database of traffic incident information
- Develop standards for equipment requirements
- Establish a source for best practices
- Issue: Liability issues (MOUs or legislation)
- NCHRP 20-6
- NCUTLO - National Committee on Uniform Traffic Laws and Ordinances

Issue: National agenda for prevention of secondary crashes

- Establish a standard definition for crash data, and develop a model to measure them
- REACT program in Maricopa County, AZ
- AASHTO Crash Database

Operational Topics - Session E (Participant Group #3)

Issues for Advancing the State of the Practice in Traffic Incident Management

- Communication, Coordination, and Cooperation
- Inter- and intra-agency
- Interoperability
- Unified command
- Defined roles and responsibilities
- Multi-agency and incident command training
- Incident-related congestion
- Motorist information
- Accurate, real-time information
- HAR, VMS

- Speed on highway
- Trip reliability
- Alternate Routes
- Advance notice
- Guidance through detours
- Quick clearance
- Formal and informal accident investigation sites
- Truck removal
- Reduce closure length
- Performance Measures
- Shared resources and shared costs
- Training
- Standards for temporary work zones
- Transportation and response agencies
- Experience level of first responders
- Training in scene management
- Consensus on operation/performance measures
- Better integration of IM and TMC/ITS
- CAD
- TMC software
- Better traffic control at incident site
- Lack of resources for traffic control and quick removal for first responders
- Including portable equipment
- Including safety equipment
- Mobility and safety for managing the incident and traffic
- Better communication to get the right equipment to the scene quickly
- Verify the incident - what is it
- Concise information
- Freeway service patrol programs
- Poorly timed and executed work zones
- IM in work zones
- Rubber necking
- Need for TIM association/group to coordinate effort

Priority Issues and Candidate Actions/Initiatives

Issue: Motorist information

- Comprehensive picture of real-time information
- Have better information and provide it in a more efficient way (in-vehicle and safe)
- Develop standard info formats

- Develop performance measure for timeliness and accuracy of information
- Use consistent VMS messaging

Issue: Quick clearance

- Communicate the advantage of quick clearance
- Training
- Create incentives/disincentives
- Education of public, i.e. "move to the side of the road"
- Have push bumpers on all first responder vehicles, service patrols
- Use service patrols better
- Develop signed agreements on time goals
- Consider law/policy change for corpse removal

Issue: Lack of resources for traffic control and quick removal for first responders

- Accelerate implementation of dedicated color signage for IM
- Prioritize at state/local/metro level
- Implement multi-agency grant applications

Issue: Communication, Coordination, and Cooperation

- Training - to include all players
- Incident command for incidents - make sure everyone is represented
- Get input from all players for better understanding
- Establish consistency in a region
- Establish public-private partnerships to improve interoperability
- Establish better communication to get the right equipment to the scene quickly

Issue: Training

- Develop training standards for responders
- Make training mandatory for towers
- Provide training/develop awareness for construction, utility personnel
- Cross-train responders
- FHWA/NHI provide more training opportunities for local responders
- FHWA support for MUTCD training
- Include standards/performance measures in accreditation

Operational Topics - Session F (Participant Group #4)

Issues for Advancing the State of the Practice in Traffic Incident Management

- Communication/Cooperation between agencies (intra/inter)
- Make quick clearance a priority across the board
- Improve responder safety through improved policies/strategies/op procedures
- Improve level of competency of responders and measurability/standards
- Standardize response operators/equipment
- Change methods of qualifying towers for rotation lists

- Separate classification for recovery towing equipment
- Focus on entire system (regional perspective) impacts of an incident instead of just the incident scene - "Look at the big picture"
- Increase the priority for creating strategies for preventing secondary incidents
- Improve the accuracy of incident verification after a 911 call
- Improve investigation techniques by obtaining funding for training and equipment
- Find ways to reduce impacts of an incident
- Improve decision making in scene management - "Who is in charge?"
- Development of system wide detour/diversion implementation plan to control traffic flow by pre-planning and involving all agencies
- Make real-time motorist information a priority
- Stimulate and improve media relations
- Improve data fusion problems in the early response time of an incident
- Increase shared information between call takers/response agencies
- Manage the flow of information between transportation and dispatch
- Require real-time updated information from response operators (change in status information)
- Minimize incidents in work zones (special events and construction zones) with detailed instructions
- Standards for incident management in construction zones
- Reduce incident duration
- Attempt to secure funding for incident management resources (training, equipment)
- Improve competency of responders (training standards) and a certification program
- Get top management "buy-in" for incident management prioritization
- Create strategies for incident prevention
- Identify methods for verifying incidents and appropriate response by improving trust between agencies responding to incidents
- Change abandoned vehicle policy changes
- Use proper lighting in work zones

Priority Issues and Candidate Actions/Initiatives

Issue: Communication/Cooperation between agencies (intra/inter)

- Mandate a statewide Incident Management Program, with oversight by a State Coordinator to act as an incident management champion
- Find means for establishing funding priority (reauthorization bill lobbying)
- Remove the barriers to obtaining funding
- Examine possibility of establishing a Incident Management Unit, removing the responsibility from Maintenance
- Issue: Make quick clearance a priority across the board
- Quick detection, response and verification of incident information
- Revise state-level clearance policies to allow the quick removal of vehicles
- Inter-agency agreements (MOUs, MOEs) for an "open road" philosophy
- Public Outreach to inform them of quick clearance requirements

- Equipment staging at the ramps instead of at the incident scene
- Table-top exercises
- Issue: Focus on entire system (regional perspective) impacts of an incident instead of just the incident scene - "Look at the big picture"
- Address where the pressure points are - need a regional incident management plan
- TMC
- Other agencies
- Cooperation between agencies
- Move voice/video/data between agencies as quickly as possible
- Develop IIMS (Integrated Incident Management System)
- Create a clearinghouse for information about planned special events, construction, etc. for the entire region
- Drive the route before diverting traffic

Issue: Development of system wide detour/diversion implementation plan to control traffic flow by pre-planning and involving all agencies

- Develop a protocol for decisions to divert traffic
- Pre-plan routes for diversions/detours
- Talk to your planners
- Obtain all available data
- Pre-plan the required resources

Issue: Create strategies for incident prevention(work zones)

- Require an incident management component for all construction projects
- Revise/modernize traffic control plan requirements
- Temporary signage cameras
- ITS
- Smart signs
- Incentives for early completion of construction

Issue: Standardization of response operators/equipment

- Certification of response operators
- Provide input for certification by other agencies
- Cross-training between agencies
- Tow truck standards for recovery vehicles
- New standards for rotation schedule development

Technological Topics - Session A (Participant Group #5)

Issues for Advancing the State of the Practice in Traffic Incident Management

- Communication and plans (Network, organizational structures, interagency H/W)
- Databases for performance measures
- Ensure everyone is on the same "wavelength": language standards and technology standards
- Ensure everyone is on the same "wavelength": technology standards

- Standardize detection and response technology
- Standardize performance measures
- Wireless data communication problems (coverage, transmission speed)
- Interoperability (standards, integration of systems)
- Data Security
- Seamless integration and redundancy of communication systems (reliability)
- Integrate data through data mining/warehousing
- Urban versus rural perspective and standardization
- Regional and statewide visions
- Plug 'N Play transparent to end users
- Think modular and incremental ("Lego model", COTS)
- Automation of ATIS to minimize operator intervention
- Communication among responding agencies
- Probe vehicles program to verify and calibrate
- Need for multi-disciplinary management centers with interoperability
- Stable and continuous field equipment for detection
- Systems integration plan (Fed to state to region to local)
- Voice and data communications funding contingent on plans
- Vendor source code must be available
- Capability of agency and tow response vehicles
- Data quality
- Voice interoperability plus filtering capability
- Automate Performance measures (add Issues 2 and 6)
- Means to standardize rural-urban needs
- Emergency lighting research
- Address vehicle design to facilitate TIM operations (human factors)
- Develop and refine simulation models to assist with TIM
- Develop framework for predicting travel times
- Communicate on-site information to responders (CCTV, others)
- Accident and data collection
- Gaps in service areas
- Real-time traveler information (added with - getting information to users of the transportation network)
- Data sharing of real-time information
- Affordable ways for private towers to tap into communication systems
- Corridor-wide traffic control
- Better real-time traffic control
- E-911 location finding
- Standardized traffic control plans

- Arterial versus freeway issues

Priority Issues and Candidate Actions/Initiatives

Issue: Communicate On-Site Information from First Responders To Others

- Require use of standard language - use of similar terminology
- Use existing technologies applied outside of transportation, e.g., EMS responders being able to communicate with hospitals while enroute, similar to media use of remote cameras, etc.
- Establish standards for the initial evaluation of the scene in order to overcome perspectives of individual agency/entity responders.
- Address the need for data communications and supporting computer equipment to convey on-site expertise; incorporate into training.
- Promulgate appropriate funding guidelines.
- Select the appropriate incident action plan based on national IMC guidelines.
- Educate the general public and individuals on how to report an incident.
- Require proactive monitoring and detecting of the (potential) site by a TMC.
- Prior to a TMC in-place, employ the use of "smart" telephone technology to filter, route, or enhance calling information.
- Enforce the Federal mandate to capture and transmit the lat/long of cellular calls. Make the case for the benefits of improved TIM.
- Establish improved communication protocols for verification based on existing technologies (pagers, service patrols, cellular, etc.) - integrate, coordinate, etc.
- Establish new or expanded joint programs between USDOJ and USDOT to address TIM.
- Establish a set of standardized criteria for reporters of an incident.
- Develop a data warehouse of reported information (text, video, etc.) about a potential incident with standardized reports.
- Make sure state/regional/local investments are reviewed and compatible with Federal guidelines (USDOJ and USDOT) to ensure compatibility; possible use of sample plans and approaches.
- Research issues associated with standardization and open code vending.
- Encourage USDOJ to get industry CAD vendors to establish an agreed-upon set of standards.
- Share/compare emerging USDOJ standards (end of March 2002) with USDOT standards; possible use of common translators, etc.

Issue: Real-Time Traveler Information

- Develop (federal) outreach programs to share technological successes associated with first responder programs/activities.
- Develop models of regional funding mechanisms and procurement agreements done through Federal encouragement and/or guidelines.
- Standardize terminology for travelers.
- Address the data collection issues when outside of a "closed" system, e.g., arterial coverage.
- Get traveler information to the users - when, format, usefulness for decision-making, etc.
- Automate system information and provide directly to the public
- Establish important types of traveler information:
- Travel time between key points (Needs research)
- Audiences: getting them out of the area, diverting them from coming into the area, and getting appropriate responders into the incident area.

- Develop better specification of the information provided by the 511 systems
- Address the need for high reliability and accuracy of alternate routes and/or other information (to retain user confidence)
- Require mandatory monitoring of alternative route information and factor into real-time traveler information.
- Establish procedures on when to stop information dissemination (agencies, media, etc.)
- Use probe vehicles to expand coverage
- Lift the restriction on 10-watt broadcast power for HARs to broaden coverage (USDOT to work with FCC); possible use of variable power based on incidents.
- Need to confirm accuracy of media traffic broadcasts - standard terminology, plain language, accurate, timely, reliable information.
- Need to develop approaches to convey long-distance traveler information about incidents/weather/other factors many miles away - criteria for type of information to be broadcasted for certain distances for selected durations.
- Use of the internet to provide real-time traveler information - subscriber services to provide accurate, reliable, timely traveler information.
- Provide intermodal information to offer traveler choices.
- Use an overlay "Intelligent Agent" with a national/state/regional/local incident and/or road closure information systems to allow users to explore travel information, construct route plans, and explore other options.

Technological Topics - Session B (Participant Group #6)

Issues for Advancing the State of the Practice in Traffic Incident Management

- Broaden technology choices for rural incident detection (beyond cell phones)
- Need to develop traffic control/management systems for rural incidents that cause traffic problems (i.e., fire, plane crashes)
- Create Systems Architecture
- Improve technology portability for special events (temporary issues)—beyond traffic
- Provide technology for emergency vehicle response on local streets (v. freeways) to include mutual aid (better ramp metering, signal preemption, etc.)
- Improve security (data access, network, communications)—Define access controls, privacy issues, public, agency v. interagency
- Improve AVL reliability/timeliness in crisis management operations
- Improve communications infrastructure in rural areas
- Improve monumenting/signage to help public identify where they are reporting incidents
- Ensure distributed/system-wide redundancy to reduce vulnerability of loss and capability in any one physical area
- Improve technology education
- Shorten development time and ensure upgrades are designed in
- Reduce use of proprietary technologies
- Make technology use affordable
- Ensure access to ITS technologies to all areas (traveler information) and data exchange
- Create TIM Technology "Blueprint" and Make available

- Improve Dispatch Communication
- Improve/Expand use of incident documentation technologies to reduce need for manual crime scene documentation

Priority Issues and Candidate Actions/Initiatives

Issue: Enhance voice communications/data interoperability through systems-wide regional/architecture and standards

- Implement common standards in consistent nation-wide fashion
- Develop unified architecture approach across federal programs/organizations (institutional issue as well)
- Identify all TIM partner agencies who need to participate in shared architecture
- Create policy to ensure implementation of standards.
- Ensure funding for implementation of these technology and protocol standards (specifically local responders)
- Create agreements between partner agencies to share information (institutional)
- Develop timeline, with agreement among all partner agencies, for migration to standard implementation (i.e., changeable message signs, NTCIP)
- (4) Improve technology portability for special events (temporary issues)—beyond traffic

Issue: Ensure access to ITS technologies to all areas (traveler information) and data exchange

- Accelerate 511 deployment through increased funding
- Identify commonalities/uniformities in VMS/CMS & HAR technologies
- Enhance partnerships with private sector value added service/technology providers

Issue: Improve Dispatch Communication-- Improve ability for agency dispatch centers in city or region to communicate with each other in timely manner

- Resolve incompatibilities between local radio systems and Nextel—Address spectrum allocation/available issues with FCC.

Issue: Improve technology education

- Improve communications infrastructure in rural areas--Develop public safety satellite system

Technological Topics - Session C (Participant Group #3)

Issues for Advancing the State of the Practice in Traffic Incident Management

- Establish a center to handle all communications -- city and surroundings areas
- Integrate detection devices into public safety communication systems
- Best examples of patching technologies to tie legacy systems
- Radio communications from initial responders to allied agencies directly
- Lack of IM standards and standards compliance (interfaces, equipment, devices, communications)
- Hauling enough equipment for first responders.
- Cost effective data sharing
- Back-up communication systems independent of primary infrastructure
- 911 screening capabilities to minimize overloads.
- Tradeoff between new technologies (standards) versus use of existing technologies (Vendor-driven) to address interoperability issues
- Need to get correct vision (assessment) of the incident to get the right equipment to the site.
- Use of programmable (SDR) cellular technology

- Access real-time information about incidents for responders
- Provide real-time and accurate information for public (users) and routing.
- Interstate coordination of traffic incident information (share, coordinate, set criteria for range of dissemination, timing, etc.)
- Use and integration of mobile data terminals.
- Data privacy parameters.
- National database to explore new technologies (unbiased clearinghouse of successes and failures)
- Redundancy of TMCs (operations and data backup/security)
- Standard practice for backup systems
- Need standardized procedure for ITS (IM) elements for performance evaluation.
- Acknowledge public-private partnerships with media to get better access to real-time information
- Affordable interagency GPS, especially in rural areas
- Expand the use of on-line (web-based) roadway conditions reports to any portable device, plus graphics, maps/pictures
- Provide national awareness of funding issues
- Regional assessment and deployment of technologies - procure, deploy, operate, evaluate
- Recognize regional focus for developing, operating, and funding traffic incident management (Federal incentives, train MPOs)
- Procedures to analyze regional needs and develop templates/approaches

Priority Issues and Candidate Actions/Initiatives

Issue: Recognize Regional Focus for Developing, Operating, and Funding TIM Endorse a regional operating approach which involves all parties (public safety, transportation, etc.).

- Funding should go to regional entities - regional operations authority concept with traffic incident management elements.
- Develop a TIM program and establish "baseline" funding levels for regional TIM initiatives, even though it may not go through a regional entity based established criteria and incentives.
- Continue federal research on Regional Operating Organizations.
- Identify the benefits from a regional approach to traffic incident management to assist in long-term operations and funding.

Issue: Provide/Integrate Detection Devices into Public Safety Communication Systems

- Integrate cameras and loops into CAD/Dispatch systems and centers.
- Need to forward centralized information (text, video, etc.) to mobile responders.
- Need to identify the information (text, video, etc.) exchange "loop" to/from all agencies and the appropriate information to be disseminated (pre-programmed).
- TMCs need information feeds from emergency response local, state and federal agencies.

Issue: Access Real-Time Information About Incidents For Responders

- Define who has the information
- Use of web-access techniques
- Use of Virtual Private Networks (VPNs) and associated security issues
- Define common data definitions/elements
- Define for CAD vendors a required, standard interfaces

- Define and develop opportunities for the private sector to be the information provider for selected data/information
- Define standards for separating public safety information which can be used for traffic incident management purposes
- Use of portable cameras for on-site information collection and sharing with appropriate agencies
- Need to build in backup systems and contingency plans into overall system development
- Need standards for GIS mapping and displays - interoperability of mapping databases (SAE working on this issue)
- Need for standards on GPS

Issue: Radio Communication From Initial Responders To Allied Agencies

- Provide \$\$\$
- Address interoperability issues:
 - Multi-state models?
 - Statewide model?
 - Region-wide model?
- Define protocols and training to address information sharing needs
- Evaluate existing technologies from a multi-agency perspective
- Use of civilian field personnel to aid with incident management
- Promote multi-agency integration and private sector sharing of infrastructure (e.g., cell towers and fiber)
- Disseminate information about ROW and placement of telecommunication assets

Issue: Lack of IM Standards

- Need a national focus on standards, larger than the current efforts (beyond NTCIP/USDOT to include USDOJ).
- Use industry standards when available, e.g., 802.11b, open system architectures, etc.
- Need to "fast track" standards development.
- Promulgation of standards to key users, vendors, decision-makers, etc.
- Use financial incentives to move towards use of standards, e.g. USDOT regional architecture standards, etc.
- Develop national database to explore and explain new technologies, benefits, costs, advantages, disadvantages from a national clearinghouse
- Best examples of patching technologies to tie legacy systems together
- Interoperability focus on procurement standards versus vendor driven

Technological Topics - Session D (Participant Group #4)

Issues for Advancing the State of the Practice in Traffic Incident Management

- Need to resolve communications between organizations
- Improve systems integration/interoperability between TIM partner organizations and their systems
- Address TMC operator overload
- Need additional mechanisms for Incident Management - Reliance on public phone system for operators causes problems
- Need to find better ways to allow cell phone users to identify location - better incident detection systems needed

- Proprietary systems pose problems
- Need city-wide information system that gives signal operators the "big picture" of what's going on
- Need for expanded interoperable frequencies for on-scene TIM
- Improve coordination/control of CCTV feeds for TIM
- Implement procedures to use technology to help avoid secondary accidents
- Implement location signage/call boxes for location ID
- Need to manage/maintain regional communications infrastructure capabilities
- Rate of technology change
- Near real-time common operation picture between
- National implementation of 511
- Need to address policies that would address privacy issues/barriers to implementation of AVL/GPS

Priority Issues and Candidate Actions/Initiatives

Issue: (Technology focus) Improve systems integration/interoperability between TIM partner organizations and their systems—(mapping, TIM, 1st responder radios/systems, communication networks, etc., with both on-scene and center-to-center systems)

- Develop regional architecture—design in/develop redundant system capabilities
- Must think on both major and minor incident scale—Incorporate 9/11 lessons learned
- Coordinate FCC involvement in examining/expanding incident management frequency usage/spectrum allocation and develop plan to have cross-service frequency coordination within a region.
- FCC and State PUCs—Address prioritization for emergency responders through cellular/PCS system
- Look for lessons-learned in aerospace industry for data fusion to avoid operator overload issues
- Beware of linear integration which risks causing operator overload—everything coming through one terminal with no prioritization/intelligent incident notification

Issue: Institutional/process focus) Need to resolve communications policies/procedures between organizations (both with on-scene and center-to-center communications)

- Must think on both major and minor incident scale—Incorporate 9/11 lessons learned

Issue: Need to manage/maintain regional communications infrastructure capabilities—ID requirements, total cost of ownership, budget (lease/buy, etc.)

- Determine methodology for managing influx of software upgrades—maintaining/enforcing standard architecture
- Develop regional architecture and Transition Plan to support costing/budgeting of system and required support
- Develop "plug & play" guidance and make available to those who want to plug in
- Cost in expenditures for support of systems and system transition/upgrades (i.e., x% of capital plus installation costs for annual maintenance/support)

Issue: Address TMC Operator Overload

- Implement intelligent technology to enable operators to focus only on inputs of incident and quickly prioritize

Technological Topics - Session E (Participant Group #1)

Issues for Advancing the State of the Practice in Traffic Incident Management

- Complexity of entire process for commonplace technologies
- Basic standards for interoperability (voice, data) for messages, open architecture, and networks

- Need for public safety and transportation to play together on standards.
- Need for better coordination between field and system developers/purchasers - User involvement
- Technology would provide IM Action plan (templates) that would unfold as part of a comprehensive Incident Command System
- Public wireless information system promotes levels of incident-type systems (public buy-in, part of ICS, routing info)
- Joint investment program to deploy technology
- Integrated co-located emergency response centers (e.g., ARTEMIS)
- Use of tools to: avoid an incident, clear an incident, and manage traffic during an incident.
- Use of dynamic traffic information to aid in "Template" development (see #6)
- Integrate technology planning and development with institutional vision processes, user involvement is critical
- Couple interoperability issues with homeland security initiatives.
- Re-visit state procurement procedures for low bid on technology acquisition.
- Address technical staffing issues (retention, sharing, promotion, etc.)
- Capability to share and control CCTV, photos, digital camera images, etc. across responding agencies
- Interoperability/translation of maps (Combine with #19)
- Low cost, easy to maintain detection and monitoring systems
- Data management: formats, usability, archive procedures, others
- Need for system-wide adaptive controls
- Design for survivability and redundancy
- Need set of technology evaluation tools
- Utilize existing technologies through middleware
- Performance measures
- Use of new/refined procedures upon introduction of new technologies.
- Acceptance of need for interoperability: use of Executive Board, integration of legacy systems, intra-regional coordination, use existing technologies to bridge technologies

Priority Issues and Candidate Actions/Initiatives

Issue: Basic Standards

- Need for coordinated federal standards development with sensitivity to users - possibly an interagency board
- Require use of national standards for getting federal funds
- Need a process for maintaining, promulgating, and updating approved standards
- Build the case that standards will result in less expensive systems
- Educate users on the benefits of using open architecture and basic standards

User Involvement In Systems Development And Implementation At All Levels

- Utilize systems engineering approach in procurement - requires user groups to provide inputs on requirements
- Conduct business process review prior to requirements development
- Get executive-level buy-in on system development and personnel needs for project continuity
- Have users involved in entire systems development phases, including standards

- Use frequent user reviews during system development
- Provide proper training to assist users in system development and system use; re-certification, hands-on
- Involve users in the systems acceptance definition and testing
- Maintain project scope to avoid creep
- Pay attention to change management principles and techniques

Issue: Interoperability

- Confirm acceptance of need
- Use of an Executive Board
- Integrate legacy systems
- Bridge/link existing technology
- Confirm business case for interoperability (may require research)
- Leverage use of shared resources
- Need to prioritize data
- Demonstrate cost effectiveness (benefits/costs) of shared systems

Issue: Field-To-Field, Field-To-Center, and Center-To-Center Data Sharing

- Establish basic national requirements/standards for information to be displayed on a map (e.g., accurate location)
- Need for new data compression techniques
- Develop an affordable wireless data systems
- Provide a national evaluation of wireless data systems
- Conduct an assessment of users' data needs (define basic information sets from multi-agency perspective -type, severity, location, etc.)
- Use of existing communication systems to meet data sharing needs; add additional technologies to meet new, common needs
- Establish Concept of Operation for multi-agency use of CCTVs, other technologies
- Address security/data privacy issues
- Address Freedom of Information issues

Technological Topics - Session F (Participant Group #2)

Issues for Advancing the State of the Practice in Traffic Incident Management

- Improve transmission of crash data from scene to hospital to assist trauma centers
- Wireless e-911 would enhance incident detection--need to evaluate due to problems with urban GPS
- Technology needed to allow 1st responders to get visual data from site to 2nd responders
- Improve inter-agency integration/interoperability of TIM systems
- Streamline data inputs from scene from multiple agencies to eliminate redundancy and resolve issue of inconsistent data to each agency
- Reliable, timely dissemination of information to media outlets (radio)
- Address security, privacy, ownership issues with sharing information
- Improve conformity to established standards among TIM partner agencies
- Reconcile inconsistencies in standards of agencies beyond traditional transportation agencies (DOJ, etc.)

- Need to define common data standards, languages, dictionaries for CAD system effectiveness
- Need to address future technology requirements
- The cost of developing and maintaining automated incident detection capabilities is high
- Lack of planning and foresight with O&M with TIM systems--failing to support cost of maintaining developed systems--do we need to require this kind of life cycle costing?

Priority Issues and Candidate Actions/Initiatives

Issue: Improve inter-agency integration/interoperability among TIM systems (CAD, ATMS, radio transmission, dispatch systems, etc.) Establish minimum standards/mandates to ensure agencies can interoperate

- State procurement processes/procedures must be addressed to ensure they reinforce standards compliance
- Define/Implement common data language/dictionary to facilitate data exchange between systems
- Fund and field results of field operational tests of candidate systems
- Ensure system designs address future as well as current network, capacity, and data sharing requirements

Issue: Need to define common data standards, languages, dictionaries for CAD system effectiveness

- Get TIM standards issue included in ITS standards-making process or consider using ITS standards in TIM standards
- Ensure TIM community stays plugged in to develop and help maintain standards with key standards bodies such as IEEE.
- Just do it!

Issue: Lack of planning and foresight with O&M with TIM systems--failing to support cost of maintaining developed systems--do we need to require this kind of life cycle costing?

- Implement management policies to require full life cycle costing before system procurement is approved
- Regional architectures should include life cycle maintenance plan and transition plan
- Leverage/utilize systems engineers in developing architectures and life cycle systems transition plans—transportation community needs to better recognize systems engineering expertise in systems maintenance/planning—often view as “overhead”
- Build life cycle costs into capital improvement projects
- Issue: sometimes legislative priorities are levied that are not funded—this can

Issue: The cost of developing and maintaining automated incident detection capabilities is high—need for constant re-calibration of algorithms drives costs up.

- Implement pilot programs (for large venues) with funding from private sector partners (example City of LA)

Issue: Technology needed to allow 1st responders to get visual data from site to 2nd responders

- IIMS Project in NYC has mobile traffic mgt system that allows digital images overlaid on GIS maps to get incident information to needed parties ASAP and shorten duration of incident.
- NC has “sleeping giant” TMC that goes up and takes over during race events and then shuts down
- Need to fund Field Operational Tests to alert others and enable them to benefit

Institutional Topics - Session A (Participant Group #3)

Issues for Advancing the State of the Practice in Traffic Incident Management

- Need \$ for people, equipment for IM programs
- Getting data in a timely fashion - real-time accident/incident data
- Communication - from dispatch and to/from scene

- Interagency communications at the scene
- Lack of national benchmark for high quality performance in TIM - model practices
- Poorly informed/educated decision makers (elected officials) about IM needs - including ITS benefits regionally
- Disconnect between capital planning boundaries and "operational boundaries
- Inadequate intra-agency priority given to IM within the agency
- Upper level communications, coordination among agency leadership - policy level - need higher level of support
- No "tradition of cooperation" among multiple agencies
- Lack of willingness to share assets with other agencies - sometime due to proprietary restrictions, sometime lack of policy
- Lack of dedicated group for IM responsibility (team)
- Conflicting multiple agency cultures, values, priorities - and we don't understand each other
- Can't communicate with other public/private sector responders at the scene
- Skills needed for traffic management at the scene are different from localized traffic control - need better training
- Inconsistency in level of understanding - variations among responders
- Inadequate joint in internal training/exercise among responders
- Who's in charge at scene - of what and when - ambiguity in command and control
- Lack of "sense of urgency" about TIM - economic, public safety, etc. (IM as part of solution to congestion)
- Lack of successful examples to showcase to others - including small, medium, and large communities
- Poor management of scheduled events - that lead to incidents
- Lack of formal clearance goals at local level
- Unclear legal responsibilities
- Fascination with new technology rather than solving the problem and using technology appropriately
- Nomenclature differences
- Ambiguity in responsibility for "operations"

Priority Issues and Candidate Actions/Initiatives

Issue: Need Funding for People, Equipment for IM Programs

- Set aside/mandate highway funds for operations
- Educate 1st responders on resources available through homeland defense legislation
- Congressional education about resources needed for IM programs - link to homeland defense
- AASHTO/ATA coordinate "messages" to Congress, agency leadership at national and state levels
- Educate transportation professional about resources available through homeland defense and other programs
- Leverage available resources through resource sharing (people, equipment, etc.)
- Leverage non-transportation (public/private) entity assets to expand resource base.
- Integrate IM into capital planning process (regulatory/legislation)
- Analysis to articulate and justify IM resource investment.

Issue: Inadequate Joint in Internal Training/exercise Among Responders

- Develop curriculum - standard procedures, best practices for joint operations
- Integrate "joint perspective" into internal training/exercises
- Use existing "delivery systems" for training (NHI, academies)
- More table top exercises and contingency plans - "playbooks"

Issue: Conflicting Multiple Agency Cultures, Values, Priorities - and We Don't Understand Each Other

- Joint training
- MUTCD supplement; NFPA language to promote cross-cultural thinking
- National Association for Traffic Incident Management (NATIM) or something that gets folks together
- Professional motivators, career risks/rewards documented, communicated
- Joint Concepts of Operations for TIM

Issue: Can't Communicate With Other Public/private Sector Responders at the Scene

- Develop consistent language
- Assign priority to interoperability
- Patch (technical fix)
- FCC assigned frequency for TIM operations
- Procurement policy

Issue: Poorly Informed/educated Decision Makers (Elected Officials) About IM Needs - Including ITS Benefits Regionally and Upper Level Communications, Coordination Among Agency Leadership - Policy Level - Need Higher Level of Support

- Executive outreach materials
- Meet with NGA, etc. to explain importance of TIM to economic development, QOL, public safety
- Sustained dialogue to show continued support

Institutional Topics - Session B (Participant Group #4)

Issues for Advancing the State of the Practice in Traffic Incident Management

- Lack of uniform internal awareness (transportation and public safety agencies)
- Need to make clear, quantified agency-specific and economic benefits
- Competing, politically driven decision maker priorities (e.g., perceive speeding as most important priority)
- "Lead" responsible entity is unclear
- Stakeholder group is too limited, not all stakeholders are involved on a constant basis (e.g., coroners, towers are left out)
- Mutual understanding is limited
- There is a lack of pre-planning
- On scene policies are inconsistent
- There is no case being made to administrators that there is a problem with TIM - "if it ain't broke don't try to fix it"
- From a consumer standpoint, there is no understanding of who to call to complain about problems
- Highways aren't designed for incident management
- There's no collection of TIM best practices from around the country

Priority Issues and/or Actions/Initiatives

1. TIM Considerations in Green Book - to incorporate TIM focus in highway design
2. National TIM Interstate Act and Program
3. National CALEA (accreditation standards) for institutional elements of TIM
4. National ad campaign for TIM
5. Active national clearinghouse
6. "Critical incident reporting" requirement or incentive
7. National executive level TIM awareness (e.g. briefing of IACP, etc)
8. Encouragement for regional operations entities
9. National rating of states/regions
10. Incorporation of TIM considerations into driver testing and education
11. National protocols by subject matter experts (e.g., "react" teams for traffic centers)
12. Federal grants for private industry collaboration

Institutional Topics - Session C (Participant Group #1)

Issues for Advancing the State of the Practice in Traffic Incident Management

- Multi-jurisdictional coordination among PD, FD, ER - need for standards
- No coordinated, widely accepted/understood definition and understanding of roles (partnerships)
- No dedicated frequency for TIM communications - lack of consensus on need for common frequency
- Conflicting (or competing) missions, priorities, values without "common" TIM mission
- Unmeasured (or unknown) benefits; or benefits not communicated - lack of good measures
- Unclear state laws about who is in charge under various conditions (esp. important to paramilitary organization)
- Responsibility for coordination and communication before, during, and after the response period not "institutionalized" - formalize the cooperative process
- Lack of understanding of other agency roles, procedures
- Need for leadership during incidents - scene management
- "Reactive" rather than "proactive" thinking about TIM - response oriented (e.g., for maintenance)
- Reframing the problem - incident management versus emergency response - ER is broader term
- Reluctance of agencies to share information - e.g., incident report - liability issues
- Responders don't understand implications of their actions on the "entire life cycle of the incident (inter/intra agency)
- No single budget for TIM - not coordinated among agencies
- PD/FD understand "command" culture; DOTs don't
- Perception that institutional issues are "easy to solve" and don't need attention
- PD have limited \$ and traffic management is not a priority
- Communication from scene to responders - need understanding of equipment needs to clear incident

- Lack of status for DOTs in ER/IM - DOTs don't give priority to IM
- Risk/rewards/accountability for TIM traffic operations component for public safety and DOTs
- Elected officials/opinion leaders lack understanding of effect of traffic incidents on system performance - no common voice among national organizations
- Lack of investment in solving "non-recurring" congestion - importance of operations and management as part of solution to congestion
- Not good at marketing ourselves
- Fragmented responsibilities for TIM among agencies
- We don't know what % of budget is needed for effective TIM
- TIM is not a "career" within transportation professionals
- Uneven resources (and solutions) among agencies/jurisdictions to address TIM needs

Priority Issues and Candidate Actions/Initiatives

Issue: Responsibility for Coordination and Communication Before, During, and After the Response Period Not "Institutionalized" - Formalize the Cooperative Process

- Fund a regional IM coordination group (state or federal funding)
- Develop interdisciplinary teams at national/state/regional level with equal representation (fire, police, transportation, etc) to develop cooperation, policy and procedures, and an integrated communications system; link to funding; provide model procedures
- Major associations serve as national level team
- Make joint coordination/communications "part of the job" - shared resources
- Cross training among PD, FD, DOTs - create viable career path in IM
- Individuals commit to an action plan to make TIM better - do what you can do now; build on small successes
- Frequency allocation for dedicated to interoperable communications for IM

Issue: Lack of Investment in Solving "Non-recurring" Congestion - Importance of Operations and Management As Part of Solution to Congestion

- Dedicate federal funds for Management and Operations
- Develop cost/benefit data to support M&O and TIM
- Leverage homeland security investment to support TIM, esp. for 1st responders
- State level dedicated funds for TIM
- Leverage private investment - e.g., motorists patrols, cell phone service
- Document, disseminate lessons learned to justify investments
- NIJ practitioner team (peer-to-peer) to help use resources wisely
- Use some project funds to support M&O solutions to TIM (redirect existing resources)
- Balance investments in infrastructure for M&O (e.g., ITS) and funds for doing M&O
- Build partnerships that capitalize on existing political access and credibility

Issue: Unmeasured (or Unknown) Benefits; Or Benefits Not Communicated - Lack of Good Measures

- Research to define and measure incidents and the response
- Establish standards/benchmarks for good performance - consistent measures (for internal/self-assessment)
- Identify the "beneficiaries" of good TIM to develop constituencies
- Tell a good story!

Issue: Uneven Resources (and Solutions) Among Agencies/Jurisdictions to Address TIM Needs

- Ride-along programs - show & tell for decision makers
- Hands-on experience to explain and build support
- Symbols/gifts as "reminders"
- Show how security plays in TIM
- Scanning tours to take elected officials to see good programs
- Use experiences (problems) to demonstrate needs to leadership
- Develop coordinated messages
- Tell the public what they can do - outreach/education

Institutional Topics - Session D (Participant Group #2)

Issues for Advancing the State of the Practice in Traffic Incident Management

- No champion or champion burns out or moves on
- Lack of local government support
- Lack of champion continuity
- Support of law enforcement is limited
- Support of other public safety is limited
- Turf consciousness
- Lack of "role education" - no one understands what their role is during an incident
- Lack of funding
- Lack of staffing
- Resistance to change
- TIM mainstreamed into planning, DSN, construction/work zones
- Recruit and nurture internal TIM advocates
- Difficulties in getting people to the table
- Educating politicians about the significance of traffic incidents
- Overcoming limitations of small businesses such as the towing industry
- Fear of liability
- TIM is not on top of every agency's list
- Until now TIM has always just happened, incidents didn't cause as much of a backup as they do today
- Need to get internal buy-in - there are multiple levels of stakeholders within agencies

Priority Issues and/or Actions/Initiatives

13. TIM reflected in reauthorization
 - Emphasis on operations and management of highways ("core business")
 - TIM set aside
 - Certain percentage of infrastructure improvement funds needs to go to ITS/TIM
14. National cross disciplinary guidebook (updated and maintained current)

15. Coordinated body as a voice for public safety
16. National "strawman" TIM plan and program
17. Standards, guidelines for performance data for TIM
18. Recruit or grow fire/rescue, EMT, pioneers
19. Analytical models for TIM
20. Network of national groups (fire, police, DPW/transportation, etc)
21. NHI courses - national TIM training program
22. National case for TIM
23. Research plan inputs from TIM
24. Define relationship between infrastructure and TIM
25. Sustained national dialogue

Institutional Topics - Session E (Participant Group #5)

Issues for Advancing the State of the Practice in Traffic Incident Management

- Too much "ad hoc ness" - TIM depends on single champion; no institution for TIM; inadequate planning
- Dedicated level of response effort - lower priority
- Sporadic information sharing; not routine; need buy-in to value of routine info sharing rather than event by event
- Lack of common shared mission statement about what we're trying to accomplish (e.g., incident avoidance vs. response)
- Coordination among many public safety agencies in multiple jurisdictions
- Different priorities assigned to IM tasks by different agencies (e.g., PS, EMS, traffic)
- Resistance to and fear of change - (e.g., of using technology to improve performance)
- Failure to prioritize - don't know significance or benefits (and for whom) of TIM
- Policies in some departments change more slowly than others - uneven solutions across agencies
- Lack of "building blocks" to institutionalize TIM - agreements, legislation
- We don't match resources to stated priorities for TIM; no dedicated resources
- How to get (integrating) towing community into larger TIM community
- Human factor - lack of willingness to cooperate in TIM among different agencies due to basic cultural differences
- Honesty, integrity with respect to honoring signed agreements between agencies and jurisdictions and accountability for following agreements
- Lack of uniform/standard operating procedures among multiple jurisdictions
- Lack of identified and agreed to performance metrics for TIM (e.g., clearance time, etc.)
- No formal evaluation/assessment of TIM to improve over time
- We don't understand how TIM is best implemented - top down or bottom up

Priority Issues and Candidate Actions/Initiatives

Issue: Lack of Identified and Agreed to Performance Metrics for TIM (e.g., Clearance Time, etc.)

- Research to identify measures; find best practices (synthesis)
- Develop linkages between response performance (benchmarks) and response resources/approach
- Compare performance to expectations of key constituencies
- Think about performance measures systemically (complementary measures)
- Be able to show the value of TIM to help secure resources

Issue: We Don't Match Resources to Stated Priorities for TIM; No Dedicated Resources

- Life cycle (including M&O) funding for transportation facilities
- Line item funding at federal/state/local levels to fund TIM - but may not always be desirable

Issue: Human Factor - Lack of Willingness to Cooperate in TIM Among Different Agencies Due to Basic Cultural Differences

- "Get 'em while they're young"; cultivate "interagency thinking" among young professionals; cross-training; "professionalize" incident management - career track
- Clarify the vocabulary across agency boundaries
- Joint training/exercises to encourage interaction outside the incident response
- Jointly sanction courses - police, fire, transportation
- Get department executives involved with each other across agencies (PD, FD, DOTs)

Issue: Too Much "Ad Hoc Ness" - TIM Depends on Single Champion; No Institution for TIM; Inadequate Planning

- Formal interagency agreements
- Learn from special events management and build on those experiences and relationships and agreements
- Dedicated resources - assigned to TIM program
- Adopt common/standard "symbols" (e.g., colors) for TIM and use to institutionalize TIM
- Leverage other regional programs (e.g., planning, ITS regional architecture, etc.) to build TIM institutional strategy on regional basis
- Federal funds to encourage developing regional TIM approach (multi-agency, multi-jurisdictional)

Issue: Lack of Common Shared Mission Statement About What We're Trying to Accomplish (e.g., Incident Avoidance Vs. Response)

- Broaden to include incident avoidance (design, enforcement, operations, ITS, education)
- National initiative to define incident response across multiple agencies

Institutional Topics - Session F (Participant Group #6)

Issues for Advancing the State of the Practice in Traffic Incident Management

- Turf issues
- Resources
- Competing priorities
- Inadequate communications
- Lack of champions
- Lack of commonly agreed to goals
- Lack of understanding of incident management program and incident command system
- Lack of education

- Rural areas not feeling incident management is necessary
- A lot of people don't understand concept of operations
- TIM will not eliminate congestion - this is a false benefit
- TIM is not solving a problem that is first and foremost in people's minds, when something doesn't happen it means that there's not a demand for it, it's not valued as highly as other things
- Average state and local officials don't know what incident management means
- The proof and statistics of the benefits of TIM are hard to show - you can't show the statistics of a secondary incident not happening, you can't quantify the benefits
- Transportation didn't understand or recognize its role in the bigger picture until September 11, terrorism wasn't a factor to think about - TIM is more relevant today than it was previously
- The operating cultures of transportation, public safety and other stakeholders are very different
- There isn't one person responsible so it is harder to succeed - from an ongoing standpoint there are unclear leadership roles distinct from the notion of on scene command
- Extremely slow secondary response by DOT assets to the scene
- Lack of high-level, top-down support or buy-in - they don't want to change
- TIM is regarded as a quality of life characteristic to the traveling public, rather than an economic or public safety issue
- Lack of cooperation between federal, state and local law enforcement agencies
- Limited success in TIM programs because they are not multi-modally aware
- There can be inherent conflicts in cross purposes
- Disagreeable personalities
- Communication - there is no common language to get everybody to the table
- Without a crisis there is no motivation to create a TIM program - need to get people to buy into the need for preparedness
- Lack of coordination among agencies
- Legacy mentality - "we've always done it this way"

Priority Issues and/or Actions/Initiatives

- National and highly publicized recognition of excellence
- Other agencies have their table and transportation may or may not be invited to it - the federal agencies need to get together to figure out that they're all dealing with public safety and mobility, the agencies themselves need to get together and start coordinating together
- Setting up national standards/guidelines on TIM practices and institutional programs
- Active guidance - a check and balance system/Accreditation
- Peer Exchange - every 4 of 5 years each state DOT research department has to bring in their peers to discuss their programs
- Empower people by writing legislation for the funding for TIM at the state level but give it to Congressional delegation and try to get that legislation passed as an earmark
- Ability to fund various federal programs against another - use a DOT grant as a match for an HHS grant for example, be able to use multiple sources of federal funds to match each other
- National scanning tours/peer networking
- Creation of an information clearinghouse - a shared database - knowing what kind of staff incident management people have in other states, knowing what kind of equipment is involved, how they dispatch employees

- Training protocols for law enforcement, fire, towers and recovery, DOT, EMS and then there needs to be a marketing program that follows this - take it to where the rubber meets the road
- Model TIM after extreme sports -Have a team competition based upon regional TIM teams at the national level - involve police, fire, EMS, transportation, towing and recovery, put it on national TV and have a cash reward
- Do something for TIM analogous to the model deployment initiative
- Require an organized TIM approach in certain cities or regions in order to get funding - just like a regional ITS architecture is required
- Better linkage to federal emergency management and military
- Hold a TIM conference automatically at least twice a year and broaden the invitee list
- Clarify and codify liability relief
- National legislation that governs the NHS - anything that happens on the NHS is governed by federal law

Appendix F: Post-Conference Survey Summary

After the conference, a survey was sent to all attendees thanking them for their participation and requesting additional input. The survey questions were designed make sure conference sponsors heard all of the traffic incident management issues and actions that were most important to participants. Fifty-seven individuals, 34% of conference attendees, responded to the survey. Below is a break down of responses by discipline represented at the conference.

Discipline	Percent of Survey Respondents
Transportation	48.1%
Law Enforcement	13.0%
Research	13.0%
Consultant	9.3%
Other	7.4%
Towing and Recovery	5.6%
Fire, Rescue, and Emergency Response Services	1.8%
Technology	1.8%
Total Respondents	100.0%

Survey respondents were asked if they felt that the breakout session format allowed the capture of their most important issues and ideas. Over four-fifths (83.9%) felt that the breakout session format captured their ideas; 16.1% did not.

Those who did not feel their issues and ideas were captured during the breakout sessions were provided the opportunity to submit them in their survey response in an open-ended format. The following is a summary of survey responses on traffic incident management issues and actions to address traffic incident management issues.

Traffic Incident Management Issues

- Jurisdictional coordination, Tow vehicle contracting strategies, standardization of practices
- I believe the task of getting all parties together, Fire, Police, Transportation folks Towing and all other entities to come up with a uniform procedure is the toughest part of the process. Each must recognize the other and assist each other. I think more regional meetings are needed.
- There remains very little participation from public safety - until that is addressed we'll continue to have different agendas, systems, and priorities
- Procedures and best practices
- Many of the issues focused on research and more guidelines and such, which I feel, will just lead us back to where we are now. I feel the way inc. mgt. needs to get off the ground everywhere maybe anew non-technical approach and kind of out of the box idea but instead of federal dollars going toward more research, instead supply funding to target the "DOT and MPO managers with the money" by forcing the issue through a national public awareness and publicity (national ad campaigns, PBS specials, special documentaries by consultants to get the word out, USA today advertisements). They would target the benefits by mentioning that USA has the technology to make the publics life easier and safer and Inc. Mgt. is how to do it, and that they should call (special dot number in their area) to let them know how important incident management is to them.). This through time would be the answer, because with (1) funding for installation and operations of these systems and (2) the priority of the DOT and MPO managers stating that Inc. Mgt. is required more over than just another construction project; these 2 keys will open the real door to improvements.

- Insufficient public safety participation in the TIM conference.
- We did not address the total system impact of incidents. There was too much focus on actions to be taken at the incident site and not enough energy spent on what are the system-wide impacts and actions. If we are to take full advantage of the growing capability of ITS our total capability must be analyzed and appropriately applied in a regional context.
- Getting all disciplines to cooperate, even if a corporate cultural change is required.
- Understanding the each other's role and respecting their responsibility with full support and quick information for the benefit of early clearance. Incident management commander need full understanding the impact on congestion and overall impact on traveling public in the form of delay and cost benefit. Private tow trucks policy need to revise to get right kind of specialize equipment at first time to reduce response time and clearance time.
- Much of what is termed traffic incidents is the result of vehicular problems; i.e., overturned trucks, major pile-ups etc. The only way these situations are going to be expedited is by getting the equipment on scene that is going to clear the road. All the law enforcement, Fire, Paramedics, et. al. on scene will not move the vehicle actually causing the back-up. Currently, the tow and recovery vehicles can be stuck in the same traffic jam as the rest of the population. Some plan must be developed to get the tow and recovery vehicles on scene as rapidly as possible. Do we clear a path to the scene? Bring the trucks in from the other side? In either case, law enforcement must assist in getting them there. As we went through these issues at the conference, they made their way onto the board, but as we voted to retain some, the number of other interests represented, dictated the actual flavor of responses. At the end of the day, there was no mention of our industry and/or what our involvement might be to make it better.
- Quick clearance; delay in highway use cost issues; interoperability both in policy and equipment for emergency responders.
- Operations conversation, in my opinion, is still too focused right at the actual scene (i.e. within a few hundred yards), this is one of the classic language hurdles between the two communities, when discussing scene control, PS is thinking w/in 1/4 mile, Transportation is alerting and diverting 2 miles back (moving back from scene once devices in place to a rear guard position preventing secondaries and protecting other responders and continuing to move control points away from scene if it escalates
- PSAP, telematics, CAD integration and interoperability with transportation systems
- Use of existing standards for computers, communications, vehicles, etc.
- One of the biggest unresolved issues is how to reduce rubber necking and the added congestion it causes.
- Most of the discussion focused, appropriately, on short-term improvements. Longer-term issues, especially related to state and federal policy, funding, legislation, and related issues, received less attention. Those issues need to be addressed in other ways.
- First, I wish to say that the breakout sessions were a good idea. One must realize that most Incidents are traffic accidents and quick clearances are hampered by the Tow Truck inaccessibility to the scenes. This item is the most important for expediting the scene clearance. The law enforcement must find a suitable way of getting the equipment into the scene quickly. If this means, escorting the tow trucks through the shoulder, center divider, or even from the wrong side of the roadway, this must happen for the incident to clear expeditiously. Also, when considering the players in this arena, please always include the Towing Industry as we are a major player. The reason why I have voiced this opinion, is that I found looking back on the outcome of our breakout groups, that the actual scene clearance was lost. This is a difficult transition to combine the Bureaucracy and Industry - But it must be done for the betterment of all.
- To many people that were at the conference did not understand or participate in incident management. To mush time was spent on education. This was among the transportation people attending. Before we reach to public safety we need to educate Transportation. Education and training should have been the # 1 concern.

Action Items to Address Traffic Incident Management Issues

- Federal requirements/mandates for jurisdictional coordination
- The suggestions should have been attached for our review - with so many identified it's important to forward those with the highest priorities. I'd like to see the issues and ideas in electronic format - can you please make them available - Also what criteria was used to prioritize them - also, who's responsible for taking the idea forward, next steps, etc.
- Up-to-date and predictive information
- Set up a champion for incident management. This should be at the federal level. Then establish a funding mechanism to implement the initiatives. Make sure the projects are completed.
- For the next conference: Solicit, support, invite, and admit groups, each consisting of at least one representative from each public safety profession (minimum law enforcement, fire & rescue, EMS), and no more than one transportation representative. Strive to limit the overall proportion of transportation professionals to all attendees to a small plurality, or even a minority.
- Catalogue not only the on-scene activities but also those actions that are taken in support of, reaction to or because of an incident as addressed from a regional, multi-agency (and potentially multi-jurisdiction) perspective.- Determine what planning, coordination and training actions are needed to prepare for execution of these response activities.- Prepare a "Best Practices" document that will document the above and serve as a mental tickler for DOTs at all levels as they prepare to improve their IM capability.
- Professional associations must be in agreement i.e. IACP etc
- Policy direction for all agencies to understand and cooperate - all the agencies involved in Incident Management.
- In some cases, even with consensus, there were some consensus because those voting were more concerned with the field operational issue
- Involve the towing industry in all discussions about traffic/incident management
- Ensure PSAP (911 caller center); OnStar/ATX; emergency medical; and wireless communication industry participation in the future . . . participation was weak to non-existent from these communities. Overall, public safety participation should be much higher
- A new standards organization is not needed except to find the pertinent standards developed and disseminate them, and possibly to identify missing standards and work with the existing SDOs.
- One method to reduce rubber necking is better education and outreach to the public to make them more aware of the problem and their role in causing the added congestion. Perhaps use of CMS to alert drivers to maintain speed or drive at some posted speed would help.
- Encourage continued discussion within AASHTO, FHWA, Office of the Secretary; support policy level work as part of F-SHRP; encourage more sessions at TRB; sponsor periodic conferences on incident management and make "policy" the focal point for a future meeting.
- Please always include the Towing Industry in discussions, seminars, conferences, etc. on Traffic Incident Management.
- Education and training should have been the # 1 concern.