

APPENDIX L

Project No. NCHRP 20-59(23)

A GUIDE TO EMERGENCY RESPONSE PLANNING AT STATE TRANSPORTATION AGENCIES

WHITE PAPER: IDENTIFICATION AND DELINEATION OF INCIDENT MANAGEMENT AND LARGE-SCALE EMERGENCY RESPONSE FUNCTIONS

Prepared for:

National Cooperative Highway Research Program
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of
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ABSTRACT

In response to the attacks on 9/11, Hurricane Katrina, and a host of other major events, the United States has taken numerous steps to improve planning for *incidents* of all types—referred to as *all-hazard* threats: consolidation of federal emergency management and security agencies into a new Department of Homeland Security (DHS); a sequence of Presidential Directives, policies, plans, and guidelines; and, the development of a systematic and organized set of emergency preparedness and emergency response doctrines and procedures.

The owner-operators of surface transportation infrastructure—state, territorial, local, and tribal—must be key players in the emergency response process as well. This is a white paper covering the topic, *Identification and Delineation of Incident Management and Large-Scale Emergency Response Functions*.

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INTRODUCTION

Over the last several years, the emergency planning and response framework has changed dramatically in the United States. From the events of September 11, 2001, to the Blackout of 2003, to Hurricane Katrina, to wildfires in the west, tornados in the Midwest and flooding in New England, to new concerns over pandemic influenza, at all levels of government, challenges to the nation's emergency preparedness are being examined and addressed. As a result, practices in place to plan for and respond to emergencies have been evolving rapidly, driven by the changing risk environment and new policy direction at both the state and federal level, as well as by emerging technology.

Perhaps no agencies have been more affected by these changes than state transportation agencies. Not only are agencies assuming greater responsibility for the management of large-scale evacuations in response to natural disasters such as hurricanes and wildfires, but also new roles are being established to address no-notice evacuations and situations requiring mobility limitations (shelter-in-place, quarantine) such as response to biological outbreaks and weapons of mass destruction (WMD).

To support the efforts of states to enhance their emergency planning and response capabilities in the face of these challenges, the National Cooperative Highway Research Program (NCHRP) is sponsoring Project 20-59(23), *A Guide to Emergency Response Planning at State Transportation Agencies*. The objective of this project is to develop a recommended guide for state transportation agencies to use in planning and developing their organizational functions, roles, and responsibilities for emergency response within the all-hazards context of the National Incident Management System (NIMS) and the National Response Framework (NRF), formerly the National Response Plan (NRP), promulgated by the U.S. Department of Homeland Security (DHS) and the Federal Emergency Management Agency (FEMA).

Telvent Farradyne Inc. (Telvent), in association with the Boyd, Caton & Grant Transportation Group, Inc. and PB Consult, was engaged by NCHRP to conduct this project.

Subsequent to project commencement, the Technical Panel authorized an expansion to include Task 11. A presumption exists that the ability to adequately prepare for and respond to a localized incident is scalable to successfully address a large-scale emergency response. The purpose of this research was to determine if this presumption is true. The research was intended to help define what state transportation agency capabilities are needed to respond successfully to events at either end of the spectrum (see Figure 1) by identifying those capabilities that do scale well, as well as identifying new capabilities or different capabilities that might be needed for one class of event or the other. The results of this work will identify potential training requirements for operations managers and emergency managers through the operations academy and the security professional capacity building programs. It will also help American Association of State Highway and Transportation Officials (AASHTO) committees (namely, Special Committee on Transportation Security and Emergency Management [SCOTSEM] and Subcommittee on Systems Operations and Management [SSOM] of the Standing Committee on Highways) to ensure that the committee work is complementary and appropriate to each focus area. This work will provide state transportation agency staff and the two committees the appropriate roles for agency staff and focus areas for the activities of each committee.

Purpose of White Paper

This white paper has been developed by the Telvent team to report on, define, compare, and contrast the functions associated with day-to-day localized incident management activities and those associated with large-scale emergency response activities so that state transportation agency job functions, research, training, and AASHTO committee-related activities are appropriately defined and targeted.

This white paper is aimed at state transportation agencies, to inform them of the roles and responsibilities of other responder agencies for various levels of incidents. It is not, in any manner, an attempt to establish protocols for these other agencies—they have their own protocols for emergency response (mainly based on NIMS)—but rather to inform the state transportation agencies that might not be fully engaged in emergency response outside the core unit.

Task Scope and Process

This task included four subtasks, described as follows:

1. Review existing literature and Web resources to identify the characteristics of localized incidents.
2. Review and identify the characteristics of large-scale emergency incidents.
3. Compare and contrast the similarities and dissimilarities between these classes of events with an eye toward determining what skills, systems, and capabilities are needed to successfully plan for, prepare for, respond to, and recover from such events.

4. Develop an incident scenario comparison in a matrix format.

The first three of these were undertaken as part of the research and are not reported explicitly herein. This paper focuses on the deliverable of the task.

It is important to emphasize that this white paper's purpose is to be informative to transportation agency personnel. It in no way proposes any protocols on other agencies. They already have their own protocols.

Task Deliverable

The final product of the task is a matrix with a brief explanation outlining the similarities and dissimilarities of the different classes of events. The sources used for supporting the conclusions are documented and provided. The matrix seeks to classify the work functions that could be the focus of future training efforts and job responsibilities. The matrix is a Microsoft Excel[®] spreadsheet, but is included in the hard copy of this white paper as Exhibit 1.

This white paper is included as Appendix L to the 2010 Guide. It is available in PDF and, in the case of the spreadsheet, in Excel on the TRB Web site housing the Guide itself (search for *A Guide to Emergency Response Planning at State Transportation Agencies* at www.TRB/SecurityPubs).

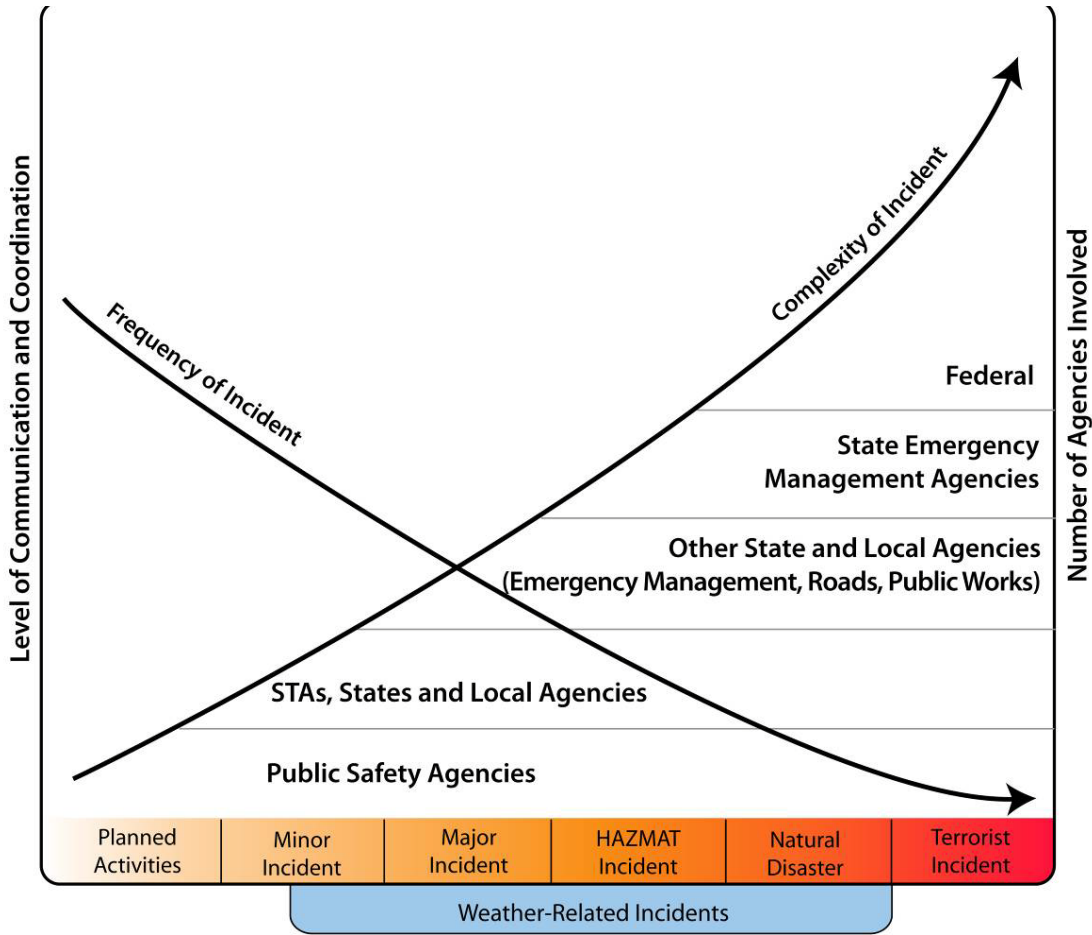
SPECTRUM OF INCIDENT MANAGEMENT AND LARGE-SCALE EMERGENCIES

Figure 1 was adapted from the *NCHRP Report 525: Surface Transportation Security, Volume 6, Guide for Emergency Transportation Operations (ETO)* (NCHRP-6, 2005). In the discussions that follow, readers will note that this task has added the ultimate category of catastrophic incidents or emergencies, which obviously involves all the agencies depicted in the figure for the more serious types of incidents.

The Guide (as well as many other national documents) defines the various types of incidents shown in the figure; however, for clarity in this white paper, these are defined as intended herein in Table 1. Also, more detailed descriptions of various hazards and threats within these incident types can be found in Table 5 in the Guide.

Work zones were not included as a planned special event (PSE) in Table 5 because they are not considered as such in national guidance on PSEs. (FHWA 2003) On the other hand, obviously they are *special events* and are *planned*; however, the special nature of work zones, coupled with their substantial treatment published separately, led to their not being included as PSEs or even as a separate incident type in this study. Indeed, the *Guide for Emergency Transportation Operations (ETO)* lists them as a planned activity, but not as a *special event*. (NCHRP-6, 2005) They are significant,

however, and are often the cause (directly or indirectly) of incidents of other types, so they need to be considered implicitly in this discussion.



Source: Adapted from (NCHRP-6, 2005), Figure 6 in the Guide

Figure 1. The Complexity of Emergencies and Response

Table 1. Incident Definitions

Incident Type	Description	Typical Impact Area	Typical Causes
Planned Event	A prescheduled activity or event, such as sports, entertainment, political, social, etc., including work zones as a special case	Generally local to venue or work zone	Any recurring or nonrecurring planned special event or construction activity
Minor Incident	Any nonrecurring event that reduces highway capacity and/or an increase in demand	Generally highly localized, but impact may propagate	Vehicle crash, vehicle breakdown, fluid spill, minor weather event, etc.

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Incident Type	Description	Typical Impact Area	Typical Causes
Major Incident	A more serious incident that has more far-reaching impact	Might spread to multiple venues, facilities, etc.	Multi-vehicle crash, major weather event, bridge collapse, power or telecommunications outage, etc.
HAZMAT Incident	Any spillage or escape of a potentially deadly hazardous material (but not minor vehicle fluid spills)	Depending on released quantity and weather, may range from local impact to widespread, borne by winds, water, etc.	Storage tank or tanker trailer rupture, explosion, radioactive discharge, etc.
Natural Disaster	Any widespread naturally occurring event that threatens life and/or property, typically weather related or may be geologically induced	May vary from highly localized to vast area covering large regions and even multiple states	Landslide, earthquake, flood, hurricane (tropical cyclone), tornado, tsunami, volcanic eruption, wildfire, winter storm, etc.
Terrorist Incident	Any activity that involves an act dangerous to human life or potentially destructive of critical infrastructure or key resources; is a violation of the criminal laws of the United States or of any state or other subdivision of the United States in which it occurs, and is intended to intimidate or coerce the civilian population or influence or affect the conduct of a government by mass destruction, assassination, or kidnapping. ¹	Generally confined, except for extreme cases (e.g., 9/11)	Civil disturbance, school violence, terrorist act, sabotage, or war related (NOTE: technically some examples are criminal acts and not true terrorist acts, but the end results are similar)
Catastrophic Incident²	Any natural or man-made incident—including terrorism—that results in extraordinary levels of mass casualties, damage, or disruption severely affecting the population, infrastructure, environment, economy, national morale, and/or government functions. A catastrophic incident could result in sustained nationwide impacts over a prolonged period of time; almost immediately exceeds resources normally available to state, tribal, local, and private sector authorities in the affected area; and significantly interrupts	Potentially sustained regional or national impacts over a prolonged period of time; almost immediately exceeds resources normally available to authorities; and significantly interrupts governmental operations and emergency services to such an extent that national security could be threatened.	Major hurricane (e.g., Katrina, Rita), major tropical storm (i.e., not a named hurricane, but causing extreme flooding), widespread freeze, regional flooding, widespread wildland fires (as in Southern California in 2003 and 2007), volcano (e.g., Mount St. Helens), severe drought, large-scale terrorist attack (e.g., 9/11), large-scale regional power outage, etc.

¹ Adapted from Section 2 (15), Homeland Security Act of 2002, P.L. 107-296, 116 Stat. 2135 (2002).

² Description from the Catastrophic Incident Annex to the National Response Framework (NRF), November 2008.

Incident Type	Description	Typical Impact Area	Typical Causes
	governmental operations and emergency services to such an extent that national security could be threatened.		

Emergency Responders and Responsibilities

The typical incident and emergency responder agencies are illustrated in Figure 1. Appendix C of the Guide goes into much more detail in defining their roles and responsibilities—information that is not repeated here. The Guide covers all levels of government, associations, private sector stakeholders, volunteer organizations, and just about anyone who might be involved in incident response. Readers are encouraged to review that table before proceeding.

Table 2, following, is repeated from Table 7 of the Guide for ease of reference because it provides a high-level overview of the matrix. Note that there are obvious exceptions to the generalities expressed in Table 2. One need only reflect on the 2009 Presidential Inauguration to know that *many* federal, state, local, private, social, religious, and other agencies were deeply involved.

The breadth of typical actions of various responders in traffic incidents, as an example, can be illustrated in Exhibit 2, which was taken from the I-95 Corridor Coalition’s Traffic Incident Management (TIM)/Quick Clearance (QC) Toolkit (I-95CC, 2009). This was developed for the Coalition to reflect its suggested practices in response to traffic incidents (minor or major). The parallel with more significant emergencies can be imagined; however, it is beyond the scope of this study to do so explicitly.

Incident Command

There is reference to the Incident Command System (ICS) and more specifically to Incident Command(er) in the following material. To comply with the National Incident Management System (NIMS), any incident of any type and of any level should comply with the ICS. (NIMS, 2008) ICS is flexible and expandable; it can range from a single police officer working a minor crash alone, in which case the officer is the Incident Commander, to a full-scale emergency with the Emergency Operations Center activated and the full, formal ICS structure in place. Since transportation agencies and their law enforcement traffic units deal most frequently with traffic incidents, we refer to the less formal, on-scene ICS as *small scale*, but ICS it is.

Nature of Incidents

There are a number of characteristics that affect the way agencies respond to incidents. These may be generally classified in the following sets:

- *Incident Type*—type and severity of the incident will have great impact on response activities.
- *Spontaneity*—considers whether or not the incident occurs suddenly or if it evolves over time. The common phases of reference are:
 - No notice—incident occurs with little or no advanced warning, so the response must be spontaneous (examples include terrorist attack, earthquake, plane crash or railroad derailment, bridge collapse, HAZMAT release from a crash or explosion, and school violence), or
 - Notice—some advanced warning that the incident will occur (such as planned events, hurricane, flood, severe weather, volcanic eruption).³
- *Affected Area*—considers not only the geographic area impacted, but more significantly the geoeconomic and even geopolitical area affected. This might be of the following types:
 - High impact—Large governmental and/or financial centers where incidents could likely seriously impact well beyond the physical locations, such as a severe weather event or terrorist attack on a city like New York City or Washington, DC, or a seemingly localized incident that has far-reaching impact, such as a traffic crash in Chicago that prevented many airline crews from reaching O'Hare, thus crippling air service across the nation;
 - Medium impact—less direct impact on the nation as a whole, but widespread disruption, such as a chain of tornados or ice/snow storms affecting a number of states with perhaps moderate loss of life, but significant economic losses; or
 - Low impact—more localized incidents that cause limited broader adversity, such as a disaster in a small town.

Other examples of the range of affected areas are the following:

- A relatively confined area (such as an avalanche or plane crash that has little possibility to expand);
- An escalation occurring as the event evolves (such as epidemics, floods, wild fires, major weather events, HAZMAT release, and others that might *grow* in size and severity, or even a major traffic incident as reported in Section 5, Nature and Degree of Hazards/Threats, in the Guide);

³ There are clear exceptions to all of these.

Table 2. Stakeholder Roles in Varying Incidents

Incident Type	Agency Type*				
	Federal Agencies	SEMA	Other State/Local EMA, etc.	State Transportation Agencies/Local Transportation	Public Safety
Planned Event	Not generally	Not generally	EMA not generally involved, sponsoring agency will lead incident management	If transportation system affected	Generally traffic management and security and will be Incident Commander for most purposes
Minor Incident	Not generally	Not generally	Not generally	As needed in the jurisdiction	Police is generally Incident Commander
Major Incident	Not generally	If regional impact and GDE*	If Authority-declared emergency	As needed in the jurisdiction	Police (or fire) is generally Incident Commander
Natural Disaster	Coordination/compensation (FEMA)	Any GDE, generally lead coordination agency	Any GDE	As needed in the jurisdiction; may be lead recovery agency for transportation repairs	Police (or fire) is generally Incident Commander
Terrorist Incident	Coordination/compensation (DHS, FEMA, TSA, USCG, FBI, USACE)	Any GDE, generally lead coordination agency	Any GDE	As needed in the jurisdiction	Police is generally Incident Commander
HAZMAT Incident	If nuclear or other federally controlled waste	If regional impact and GDE	HAZMAT mitigation, generally Incident Commander	As needed in the jurisdiction	As needed in the jurisdiction
Catastrophic Incident	Coordination/compensation (DHS, FEMA, TSA, USCG, FBI, USACE, USM), may be lead recovery agency for very large, multi-state incidents	Any GDE	Any GDE	As needed in the jurisdiction; may be lead recovery agency for transportation repairs	Generally Incident Commander unless multiple states; otherwise as needed in the jurisdiction

*Key to acronyms not introduced previously:

EMA = Emergency Management Agency
 FBI = Federal Bureau of Investigation
 GDE = Governor-declared emergency
 SEMA = State Emergency Management Agency

TSA = Transportation Security Administration
 USACE = United States Army Corps of Engineers
 USCG = US Coast Guard
 USM = United States Military (multiple branches)

- A widespread event that immediately or quickly affects large geographic regions, populations, government and commercial activities, and/or response resources (such as a major hurricane or tsunami, and a large winter storm system); or
- A series of events in different locations (obviously 9/11 caused response preparations not only in DC and New York City, but at hundreds of other locations across the nation).

There are clearly exceptions and extension to the latter examples given above. An excellent source of case studies (generally the more serious incidents) is found in the writings of William Waugh, who offers a number of case studies in emergency management. (Waugh et al., 1990 and 1999)

Cross tabulating all combinations of these characteristics with all responder levels and types would be impractical, at least within the resources of this study. The approach taken, therefore, is to provide a baseline set of descriptions of the *similarities and dissimilarities of the different classes of events (incidents)*, including typical work functions for each responder/stakeholder to enable planning and training efforts.

Further, guidelines for escalating incidents from a less serious level to a more serious level are given for incidents that actually evolve in this manner. The opposite is not necessary to describe because all incidents resolve themselves differently, depending on the nature of the incident.

Assumptions

The matrices cover the significant activities of the various levels of government (and others) during the planning, preparation, response, and recovery phases. The following assumptions were made in developing the matrices:

1. Focus has been placed on incidents that impact the highway transportation system. Other incidents that are not physically on the highway might also have an indirect impact, and thus would be included as appropriate; however, minor and major incidents are restricted to traffic incidents.
2. Traffic incident levels refer to those defined in the *Manual on Uniform Traffic Control Devices (MUTCD)* as minor, moderate, and major. These are also referred to as levels 1–3 (see Appendix E in the Guide).
3. Emergency medical services (EMS) are often organizationally part of fire rescue and the two are represented together in the matrices; however, if EMS is a separate agency, then EMS functions would clearly be performed by that unit.
4. In the matrix, law enforcement is *assigned* maintenance of traffic (MOT) responsibilities, such as controlling traffic within and approaching the incident

scene and *protecting the back of the queue*. Where safety service patrols (SSPs) exist, these units often relieve police of these activities.

5. SSPs might also assist in removing vehicles and debris from roadways and other activities that wrecker/towing companies might otherwise do.
6. Planned special events, as a result of their nature and design, are recognized as being different from other incidents, which are generally not anticipated. Planned special events are therefore considered last in the matrix.
7. Finally, no attempt has been made to cover every conceivable type and level of incident. The matrix should therefore be viewed as covering *typical* incidents.

CONCLUSION

This white paper can serve state transportation agencies and their partners in planning for, and scaling responses to, incidents over a wide range of types and severity. This document supplements *A Guide to Emergency Response Planning at State Transportation Agencies* by defining, comparing, and contrasting the functions associated with day-to-day localized incident management activities as well as those associated with large-scale emergency response activities and PSEs so that state transportation agency job functions, research, training, and committee-related activities are appropriately defined and targeted.

ACRONYMS

9/11	September 11, 2001
AASHTO	American Association of State Highway and Transportation Officials
CBRNE	Chemical, Biological, Radiological, Nuclear, and Explosive (threats)
CSR	Customer Service Representative
EMA	Emergency Management Agency
EMS	Emergency Medical Services
EOC	Emergency Operations Center
ESF	Emergency Support Function
ETO	Emergency Transportation Operations
FBI	Federal Bureau of Investigation
FEMA	Federal Emergency Management Agency (of DHS)
GDE	Governor-declared Emergency
MOT	Maintenance of Traffic
MUTCD	Manual on Uniform Traffic Control Devices
NIMS	National Incident Management System
NRF	National Response Framework
NRP	National Response Plan (replaced by the NRF)
PSAP	Public Safety Answering Point
QC	Quick Clearance
SCOTSEM	Special Committee on Transportation Security and Emergency Management (of AASHTO)
SEMA	State Emergency Management Agency
SSOM	Subcommittee on Systems Operations and Management
SSP	Safety Service Patrol
TIM	Traffic Incident Management
TMC	Transportation (or Traffic) Management Center
UC	Unified Command
USACE	U.S. Army Corps of Engineers
USCG	U.S. Coast Guard
USM	U.S. Military (multiple branches)
WMD	Weapons of Mass Destruction

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EXHIBIT 1 INCIDENT MANAGEMENT AND LARGE-SCALE EMERGENCY RESPONSE FUNCTIONS MATRIX

PURPOSE

The purpose of this tool is to provide a baseline set of descriptions of the *similarities and dissimilarities of the different classes of events (incidents)*, including typical work functions for each responder/stakeholder to enable planning and training efforts. Further, guidelines for escalating incidents from a less serious level to a more serious level are given for incidents that actually evolve thusly. The opposite is not necessary to describe, since all incidents resolve themselves differently depending on their nature.

TABS IN EXCEL SPREADSHEET

In the Excel[®] version, the tabs are identified as follows (short names in bold):

Minor Traffic Incident
Major Traffic Incident
Natural **Disaster**
Terrorist Incident
HAZMAT Incident
Catastrophe (Catastrophic Incident)
PSE (Planned Special Event)

Minor Traffic Incident

Description

Minor traffic incidents, such as a one- or few-vehicle crash, stall, cargo spill, fallen object, etc., are generally resolved by local agencies. Incidents might be on the shoulder or even in the travel lane(s), but these are generally considered only a MUTCD Level 1 (minor) or low 2 (moderate). In addition, they typically last no longer than 30 minutes.

Response Level

Response is generally totally localized through a small-scale ICS. The response focuses on immediate needs of the incident with no marshaling of other resources. Minor vehicle spills contained and cleared by first responders. Localized dissemination of public information.

Similarities to Prior Level

This is the lowest level of incident discussed.

Dissimilarities from Prior Level

This is the lowest level of incident discussed.

Criteria for Escalation to Next Level

If the incident escalates due, for example, to a secondary incident, the Incident Commander (IC) would more formally convene the interagency Unified Command (UC) and either jointly, or if the need is obvious, unilaterally escalate ICS.

Typical Activities by Agency Type

AGENCY	INCIDENT PHASE			
	PLAN	PREPARE	RESPOND	RECOVER
Federal	Promote TIM good practices, but not directly involved.			
SEMA	Promote TIM good practices, but not directly involved.			
Other State	Promote TIM good practices, but not directly involved.			
Local EMA	Promote TIM good practices, but not directly involved.			
State Transportation Agency (District Level)	Develop TIM plans. [1]	Develop TIM teams.	Provide routine response on state highways.	Clear roadway, repair minor infrastructure damage.
Local Transportation	Develop TIM plans. [1]	Develop TIM teams.	Provide routine response on local highways, and state as needed.	Clear roadway, repair infrastructure damage.
Law Enforcement	Develop TIM plans. [1]	Participate in TIM teams.	Provide routine response, typically Incident Commander.	Control traffic during recovery, protect queue.
Fire Rescue and/or EMS	Develop TIM plans. [1]	Participate in TIM teams.	Provide routine response, typically Incident Commander if fire or injury involved.	Remove injured to medical facilities.
Other Local	Support TIM plans.	Participate in TIM teams as appropriate.	Provide support as needed. Towers clear roadway.	Tow vehicles and debris off the roadway.

Notes:

[1] Agencies should strive to collaboratively develop joint TIM Plans.

Major Traffic Incident

Description

Major traffic incidents requiring multiple jurisdictions/agencies, such as a serious vehicle crash, often multi-vehicle, large cargo spill, damaged/failed infrastructure, etc. These types of incidents often block one or more travel lanes, are considered MUTCD levels 2 (moderate) or 3 (major), and generally last 2 hours or longer. Some other localized types of disasters might fall into this category as well.

Response Level

Response is generally localized, on-scene ICS may rotate among responders, and a more formal Unified Command may be established. The response focuses on immediate needs of the incident with potential marshaling of other resources in anticipation of escalation. Minor vehicle spills are contained and cleared by first responders, while more serious spills are responded to by fire rescue or even HAZMAT team. For very small disasters, a local (county or regional) EOC might be activated.

Similarities to Prior Level

Still a fairly localized, scene-specific response, unless HAZMAT are involved.

Dissimilarities from Prior Level

A somewhat more formalized ICS, more response assets, wider dissemination of public information.

Criteria for Escalation to Next Level

If it rises to a *catastrophic* traffic incident with multiple scenes, deaths, fires, etc., this could transition to the level referred to as natural disaster and/or HAZMAT. This decision would generally be made by the Incident Commander or mandated by higher authority.

Typical Activities by Agency Type

AGENCY	INCIDENT PHASE			
	PLAN	PREPARE	RESPOND	RECOVER
Federal	Promote TIM/EM good practices, but not directly involved.			
SEMA	Promote TIM/EM good practices, but generally not directly involved.			
Other State	Promote TIM/EM good practices, but generally not directly involved.			
Local EMA	EOP should cover this level.	Train and prepare as for larger disasters.	May activate if incident is more severe than can be controlled on scene.	
State Transportation Agency (District Level)	TIM plans should cover this level and checklists for multiple levels.	Have formal notification schema, TMC dispatch.[1]	Provide routine-extraordinary response on state highways.	Clear roadway, emergency repair of infrastructure damage.[2]
Local Transportation	TIM plans should cover this level and checklists for multiple levels.	Have formal notification schema, TMC/TCC dispatch.[1]	Provide response on local highways and state highways, as needed.	Clear roadway, repair infrastructure damage.[2]
Law Enforcement	TIM plans should cover this level and checklists for multiple levels.	Have formal notification schema, CAD dispatch.	Provide coordinated response, typically Incident Commander.	Control traffic during recovery, protect queue.

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AGENCY	INCIDENT PHASE			
	PLAN	PREPARE	RESPOND	RECOVER
Fire Rescue and/or EMS	TIM plans should cover this level and checklists for multiple levels.	Have formal notification schema, CAD dispatch.	Provide coordinated response, typically Incident Commander if fire or injury involved.	Remove injured to medical facilities.
Other Local	TIM plans should cover this level and checklists for multiple levels.	Have formal notification schema.	Provide support as needed. Towers clear roadway. HAZMAT response as needed.[3]	Tow vehicles and debris off the roadway.[1]

Notes:

[1] If no alert/notification system is available, consider using a commercial Internet-based notification and emergency management system.

[2] Specialty contractors on call as needed.

[3] Where available, deploy heavy towing, rapid clearance incentive program.

Natural Disaster

Description

A (largely) naturally occurring major emergency ranging from a severe storm, tornado, or wildfire that is locally or (small) regionally contained, through a more widespread regional event, such as a river flood, earthquake, or series of tornados, to a very widespread event such as a hurricane, pandemic, or multi-state blizzard. These severities are referred to below as small, medium, and large disasters, respectively.

Response Level

The total responses will depend on the incident severity, geography, and sociopolitical nature of the area(s) affected. Response might justify use of a rapidly deployable shelter system for the IC post and/or an emergency deployable interoperable communications system. For *usual* events, the following levels of response would be common:

Small: local (county or regional) EOC would be activated by a mayor or other competent authority.

Medium: several regional EOCs and perhaps the state EOC would be activated as above, or by the state governor.

Large: as above, multiple State EOCs, FEMA Emergency Centers, and others are activated as appropriate. U.S. President might declare emergency for extremely serious/severe disasters.

Similarities to Prior Level

Progressively a more widespread condition if generally in the small disaster realm, unless HAZMAT is an issue.

Dissimilarities from Prior Level

More formalized ICS, perhaps away from the scene itself, particularly for larger disasters. As severity increases, EOC activations and support resources increase.

Criteria for Escalation to Next Level

Among the three subcategories of natural disaster, escalation would be dictated by events and the decision generally made by the IC or higher authority. The introduction of HAZMAT would automatically shift to that category. If it rises to a catastrophic disaster, then all ICS support would transfer to the highest level.

Typical Activities by Agency Type

AGENCY	INCIDENT PHASE			
	PLAN	PREPARE	RESPOND	RECOVER
Federal (FEMA, U.S.DOT, others)	Publishes national policy and guidelines for emergency planning and response.	Conduct exercises with state and local partners. Frequent coordination between Regional Emergency Centers and SEMAs.	When necessary, activate FEMA Emergency Management Centers. U.S.DOT assists as needed.	FEMA provides sustenance, resources, financial compensation, etc., as needed. May be lead recovery agency for very large disasters; U.S.DOT and other agencies provide support per law and presidential direction.

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SEMA	Maintains SEOP, training and exercising.	Conduct exercises with federal and local partners. Frequent coordination between SEOC and regional EOCs.	For GDE, activate SEOC.	Continue SEOC operations until deactivated; possibly transfer ICS support to local EOC or local authorities.
Other State	Participate in SEOP.	Participate in training and exercises with federal and local partners.	For GDEs, participate in SEOC. Provide resources as needed.	Continue in SEOC. Provide resources as needed.
Local EMA	Maintains local EOP training and exercising.	Participate in training and exercises with state and local partners.	Activate EOC as needed (directed by mayor or other authority).	Continue EOC operations until deactivated.
State Transportation Agency (Districts and Central levels)	Agency ETO Plan/EOP should cover this category.	Participate in training and exercises with state and local partners. Stockpile replacement units (e.g., signal heads) and generators.	Participate in SEOC and local EOC. Provide response on state highways. Install generators and temporary traffic control devices as needed. Activate contraflow operations if warranted.	Continue ESF #1 (etc.) services in SEOC and support recovery. Clear roadway, repair infrastructure damage.[1]
Local Transportation	Participate in local EOP.	Participate in training and exercises with state and local partners.	Participate in local EOC. Provide response on local highways, including temporary traffic control devices. Provide transit services as needed.	Continue ESF#1 (etc.) services in EOC and support recovery. Clear roadway, repair infrastructure damage.[1]
Law Enforcement	Participate in local EOP.	Participate in training and exercises with state and local partners.	Generally IC. Participate in local EOC. Provide enforcement and MOT response on local highways.	Control traffic during recovery; protect lives and property along highways.

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Fire Rescue and/or EMS	Participate in local EOP.	Participate in training and exercises with state and local partners.	Participate in local EOC. Provide fire rescue and minor HAZMAT response. Provide search and rescue operations within damaged infrastructure.	Continue to remove victims to medical facilities.
Other Local	Participate in local EOP.	Participate in training and exercises with state and local partners.	Provide support as needed. Towers clear roadway. HAZMAT response as needed.	Continue clearing debris from the roadway.[1]

[1] Specialty contractors on call as needed.

Terrorist Incident

Description

A human-perpetrated major emergency, generally chemical, biological, radiological, nuclear, and/or explosive (CBRNE) weapons attack.

Response Level

As with a major disaster, the total response will depend on the severity and geography of the incident, as well as the sociopolitical nature of the area(s) affected. Because of the traumatic effect of terrorist attacks, a *higher* level of response is likely.

Similarities to Prior Level

In most respects, planning and response are similar to other types of disaster. The physical response is generally more geographically constrained than a natural disaster, unless an air- or waterborne agent was involved.

Dissimilarities from Prior Level

A major difference is the more active involvement of Fusion Centers (where they exist), federal law enforcement, such as the FBI, Federal Bureau of Alcohol, Tobacco, and Firearms (ATF), and Department of Energy (if nuclear).

Criteria for Escalation to Next Level

Depending on the nature of incident, escalation would be dictated by the nature of the event and would be made by the IC or a higher authority. If it rises to a catastrophic disaster, then all ICS would transfer to the highest level; this decision would generally be made jointly by the secretary of homeland security or the president, along with the affected governors.

Typical Activities by Agency Type

AGENCY	INCIDENT PHASE			
	PLAN	PREPARE	RESPOND	RECOVER
Federal (DHS, FEMA, TSA, USCG, FBI, USACE)	Publishes national policy and guidelines for homeland security and emergency planning and response.	Conduct exercises with state and local partners. Frequent coordination between Regional Emergency Centers and SEMAs.	When necessary, activate FEMA Emergency Management Centers. Coordinate intelligence via Fusion Centers, and National Operations Center as needed. U.S.DOT and others assist as needed.	FEMA provides sustenance, resources, financial compensation, etc., as needed. Other agencies provide support per law and presidential direction. Assist in decontamination as needed. Lead investigation if a serious incident.

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SEMA	Maintains SEOP, training and exercising.	Conduct exercises with federal and local partners. Frequent coordination between SEOC and regional EOCs.	For GDE, activate SEOC.	Continue SEOC operations until deactivated; possibly transfer IC to local EOC or local authorities.
Other State	Participate in SEOP.	Participate in training and exercises with federal and local partners.	For GDEs, participate in SEOC. Provide resources as needed.	Continue in SEOC. Provide resources as needed.
Local EMA	Maintains local EOP, training and exercising.	Participate in training and exercises with state and local partners.	Activate EOC as needed (directed by Mayor or other authority).	Continue EOC operations until deactivated.
State Transportation Agency (Districts and Central levels)	Agency ETO Plan/EOP should cover this category.	Participate in training and exercises with state and local partners.	Participate in SEOC and local EOC. Provide response on state highways.	Continue ESF #1 (etc.) services in SEOC and support recovery.
Local Transportation	Participate in local EOP.	Participate in training and exercises with state and local partners.	Participate in local EOC. Provide response on local highways. Provide transit services as needed.	Continue ESF #1 (etc.) services in EOC and support recovery.
Law Enforcement	Participate in local EOP.	Participate in training and exercises with state and local partners.	Generally IC. Participate in local EOC and SEOC. Provide enforcement and MOT response on local highways.	Control traffic during recovery, protect lives and property along highways. Participate in investigation.
Fire Rescue and/or EMS	Participate in local EOP.	Participate in training and exercises with state and local partners.	Participate in local EOC. Provide fire rescue and minor HAZMAT response. Provide search and rescue operations within damaged infrastructure.	Continue to remove victims to medical facilities.
Other Local	Participate in local EOP.	Participate in training and exercises with state and local partners.	Provide support as needed. HAZMAT response as needed.	Participate in investigation.

Notes:

HAZMAT Incident

Description

Any incident involving a hazardous material-qualified response, whether accidentally or intentionally discharged (might be considered a terrorist act if the latter).

Response Level

As with a major disaster, the total response will depend on the severity and location of the incident, as well as sociopolitical nature of the area(s) impacted. The same subcategories (small, medium, large) applied to major disasters apply here.

Similarities to Prior Level

In most respects, planning and response activities are similar to other types of disasters. The physical response depends on the type of HAZMAT agent, and may be locally constrained unless an air- or water-borne agent was involved.

Dissimilarities from Prior Level

The major difference is the presence of the hazardous material itself. In this event, responders and the public will generally have to be protected from contamination.

Criteria for Escalation to Next Level

Depending on the nature of incident, escalation would be dictated by the nature of the event, and would be made by the IC or a higher authority. If it rises to a catastrophic disaster, then all ICS support would transfer to the highest level.

Typical Activities by Agency Type

AGENCY	INCIDENT PHASE			
	PLAN	PREPARE	RESPOND	RECOVER
Federal	Publishes national policy and guidelines for homeland security and emergency planning and response.	Conduct exercises with state and local partners. Frequent coordination between Regional Emergency Centers and SEMAs.	When necessary, activate FEMA Emergency Management Centers.	FEMA provides sustenance, resources, financial compensation, etc., as needed. Other agencies provide support per law and presidential direction. Assist in decontamination as needed. Lead investigation if a serious incident.

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SEMA	Maintains SEOP, training and exercising.	Conduct exercises with federal and local partners. Frequent coordination between SEOC and regional EOCs.	For GDE, activate SEOC.	Continue SEOC operations until deactivated; possibly transfer ICS support to local EOC or local authorities. Coordinate decontamination.
Other State	Participate in SEOP.	Participate in training and exercises with federal and local partners.	For GDEs, participate in SEOC. Provide resources as needed.	Continue in SEOC. Provide resources as needed.
Local EMA	Maintains local EOP, training and exercising.	Participate in training and exercises with state and local partners.	Activate EOC as needed (directed by mayor or other authority).	Continue EOC operations until deactivated.
State Transportation Agency (Districts and Central levels)	Agency ETO Plan/EOP should cover this category.	Participate in training and exercises with state and local partners.	Participate in SEOC and local EOC. Provide response on state highways.	Continue ESF #1 (etc.) services in SEOC and support recovery.
Local Transportation	Participate in local EOP.	Participate in training and exercises with state and local partners.	Participate in local EOC. Provide response on local highways. Provide transit services as needed.	Continue ESF #1 (etc.) services in EOC and support recovery.
Law Enforcement	Participate in local EOP.	Participate in training and exercises with state and local partners.	Participate in local EOC. Provide enforcement and MOT response on local highways.	Control traffic during recovery, protect lives and property along highways. Participate in investigation.
Fire Rescue and/or EMS	Participate in local EOP.	Participate in training and exercises with state and local partners.	Participate in local EOC. Provide fire rescue and minor HAZMAT response. Provide search and rescue operations within damaged infrastructure.	Continue to remove victims to medical facilities. Assist in decontamination.
Other Local	Participate in local EOP.	Participate in training and exercises with state and local partners.	Provide support as needed. HAZMAT response as needed.	Participate in investigation and assist in decontamination.

Notes:

Catastrophic Incident

Description

Extraordinary levels of mass casualties, damage, or disruption severely affecting the population, infrastructure, environment, economy, national morale, and/or government functions.

Response Level

As with the previous categories, the total responses will depend on the nature and severity of the incident, coupled with the geographic and sociopolitical climate of the area(s) impacted. Regardless of pre-planning, resources are likely to be strained to or beyond capacity. Martial law might be called, if needed.

Similarities to Prior Level

Most similar to a large major disaster, terrorist act, or HAZMAT event, but virtually all aspects are scaled up.

Dissimilarities from Prior Level

The highest application of ICS and response at a massive scale. Recovery could take weeks, months, even years (such as for 9/11 and Katrina). UC will span multiple incident scenes or states.

Criteria for Escalation to Next Level

This is the highest level of incident and the marshalling of resources imposed at the highest levels of government.

Typical Activities by Agency Type

AGENCY	INCIDENT PHASE			
	PLAN	PREPARE	RESPOND	RECOVER
Federal (DHS, FEMA, TSA, USDOT, USCG, FBI, USACE, USM)	Publishes national policy and guidelines for emergency planning and response.	Conduct exercises with state and local partners. Frequent coordination between Regional Emergency Centers and SEMAs.	Activate FEMA Emergency Management Centers. Provide emergency services.	FEMA provides sustenance, resources, financial compensation, etc., as needed. Other agencies provide support per law and/or presidential direction.
SEMA	Maintains SEOP, training and exercising.	Conduct exercises with federal and local partners. Frequent coordination between SEOC and regional EOCs.	For GDE, activate SEOC.	Continue SEOC operations until deactivated; possibly transfer ICS support to local EOC or local authorities.
Other State	Participate in SEOP.	Participate in training and exercises with federal and local partners.	Participate in SEOC. Provide resources as needed.	Continue in SEOC. Provide resources as needed.

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Local EMA	Maintains local EOP, training and exercising.	Participate in training and exercises with state and local partners.	Activate EOC as needed (directed by mayor or other authority).	Continue EOC operations until deactivated.
State Transportation Agency (Districts and Central levels)	Agency ETO Plan/EOP should cover this category.	Participate in training and exercises with federal, state, and local partners.	Participate in SEOC and local EOC. Provide response on state highways.	Continue ESF #1 (etc.) services in SEOC and support recovery. Clear roadway, repair infrastructure damage.[1]
Local Transportation	Participate in local EOP.	Participate in training and exercises with state and local partners.	Participate in local EOC. Provide response on local highways. Provide transit services as needed.	Continue ESF #1 (etc.) services in EOC and support recovery. Clear roadway, repair infrastructure damage.[1]
Law Enforcement	Participate in local EOP.	Participate in training and exercises with state and local partners.	Participate in local EOC. Provide enforcement and MOT response on local highways.	Control traffic during recovery, protect lives and property along highways.
Fire Rescue and/or EMS	Participate in local EOP.	Participate in training and exercises with state and local partners.	Participate in local EOC. Provide fire rescue and minor HAZMAT response. Provide search and rescue operations within damaged infrastructure.	Continue to remove victims to medical facilities.
Other Local	Participate in local EOP.	Participate in training and exercises with state and local partners.	Provide support as needed. Towers clear roadway. HAZMAT response as needed.	Continue clearing debris from the roadway.[1] Assist in any decontamination needed.

Notes:

[1] Specialty contractors on call as needed.

Planned Special Event

Description

Planned special events (PSEs), recurring or nonrecurring (e.g., one time), such as entertainment, sports, social, or political events.

Response Level

As with other categories, responses will depend on the size of the event and the geographic location of the affected area. For *usual* PSEs, the following levels of response would be common:

Small: highly localized, as in a stadium, theater, or other *isolated* venue; the county or regional EOC might be activated.

Medium: multiple venues or days (such as a championship tournament) and might require several regional and perhaps the State EOCs be activated.

Large: huge events, such as the Presidential Inauguration, the Olympic Games, etc.

Similarities to Prior Level

Depending on magnitude, not unlike other incidents except these are planned in advance. Other incidents such as traffic incidents, can occur and should be planned for.

Dissimilarities from Prior Level

The main difference, again, is the ability to pre-plan and make all conceivable preparations.

Criteria for Escalation to Next Level

Generally, escalation would occur only if some other form of incident occurred during the PSE, such as a traffic crash on the one extreme, to a terrorist attack at the other.

Typical Activities by Agency Type

AGENCY	INCIDENT PHASE			
	PLAN	PREPARE	RESPOND	RECOVER
Federal (large PSE only)	Publishes national policy and guidelines for emergency planning and response. Leads development of PSE Plan, including TMP.	Conduct exercises with state and local partners. Frequent coordination between Regional Emergency Centers and SEMAs.	When necessary, activate FEMA Emergency Management Centers, and for very large federal PSE, may assume IC status.	Provide resources, financial compensation, etc., as needed. Other agencies provide support per law and presidential direction.
SEMA	Maintains SEOP, training and exercising. Assists in PSE Plan and TMP.	Conduct exercises with federal and local partners.	If needed, activate SEOC.	Continue SEOC operations until deactivated.
Other State	Participate in SEOP. Assist in PSE Plan.	Participate in training and exercises with federal and/or local partners.	For GDEs, participate in SEOC. Provide resources as needed.	Continue in SEOC. Provide resources as needed.

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Local EMA	Maintains local EOP, training and exercising. Assist in PSE Plan and TMP.	Participate in training and exercises with state and local partners.	Activate EOC as needed (directed by mayor or other authority).	Continue EOC operations until deactivated.
State Transportation Agency (Districts and Central levels)	Participate in SEOP. Assist in PSE Plan and TMP.	Participate in training and exercises with state and local partners. Install temporary traffic control devices and guide signs.	Participate in SEOC and local EOC. Provide response on state highways.	Continue ESF #1 (etc.) services in SEOC and support recovery. Remove temporary devices and signs.
Local Transportation	Participate in local EOP. Assist in PSE Plan and TMP.	Participate in training and exercises with state and local partners. Install temporary traffic control devices and guide signs.	Participate in local EOC. Provide response on local highways. Provide transit services as needed.	Continue ESF #1 (etc.) services in EOC and support recovery. Remove temporary devices and signs.
Law Enforcement	Participate in local EOP. Assist in PSE Plan and TMP.	Participate in training and exercises with state and local partners.	Participate in local EOC. Provide enforcement and MOT response on local highways.	Control traffic during recovery.
Fire Rescue and/or EMS	Participate in local EOP. Assist in PSE Plan.	Participate in training and exercises with state and local partners.	Participate in local EOC. Provide fire rescue and minor HAZMAT response if needed.	Assist as needed.
Other Local	Participate in local EOP. Assist in PSE Plan.	Participate in training and exercises with state and local partners.	Provide support as needed. Towers clear roadway. HAZMAT response as needed.	Assist as needed.

Notes:

EXHIBIT 2 AGENCY RESPONSIBILITIES IN TRAFFIC INCIDENT MANAGEMENT⁴

As shown in Figure 1 in this white paper, the various levels of responder/stakeholders are involved to varying degrees, depending on the level of incident. This exhibit presents the individual agencies' roadmaps for managing *traffic incidents* and their roles. Rather than reinventing a format for this white paper, this information is adapted from the I-95 Corridor Coalition Traffic Incident Management/Quick Clearance (TIM/QC) Toolkit. (I-95CC, 2009) The steps here would apply as a matter of intensity for either minor or major incidents. This level of detail is not, however, repeated for each incident level in the graphic. A reader can easily make a translation to other levels.

In the context of the plan, prepare, respond, and recover phases that form the basis of the 2010 Guide, these incident stages fall mostly into the respond phase and somewhat into recovery. It is, however, the advanced planning and preparation for such incidents that hopefully makes the response more effective and efficient.

The standard outline for each agency type for TIM/QC is as follows:⁵

- Detection
- Verification
- Notification
- Response
- Clearance
 - Roadway Clearance
 - Incident Clearance
- Recovery
- After-Action Review

The individual stakeholder's actions for TIM/QC continue on the next page; bear in mind that the *focus here is on traffic incidents* (generally crashes).

⁴ Appendix material beyond this page was adapted in almost its entirety from (I-95CC, 2009).

⁵ The definitions of these *stages* of an incident are defined in Appendix D of the 2010 Guide.

TRANSPORTATION

These are transportation engineers, planners, and *managers*, such as TMC managing engineers.

Detection

These professionals rarely have a direct personal role in incident detection per se. Their primary role here is to promote QC policies and encourage QC best practices.

Verification

Likewise, these professionals rarely have a direct role in incident verification other than possibly becoming involved in major incidents to determine the assets needed for multiple needs.

Notification

For large incidents, they might notify counterparts in other agencies or regions. All are part of the motorist information process.

Response

Generally, these are not responders.

Clearance

In larger incidents, transportation personnel, particularly TMC managers, might become involved in the off-site management of the incident. This may include:

- Marshaling additional or extraordinary resources, such as heavy-duty cranes;
- Coordinating with other agencies, particularly those not normally involved in everyday incident management;
- Arranging for emergency procurement of equipment, supplies, materials, personnel (such as coordinating response from maintenance resources);
- Assisting in emergency planning, such as evacuation, diversions, etc.; and
- Coordinating the public information program into other impacted regions.

Recovery

The aforementioned activities would continue as long as there are lingering effects of the incident.

After Action

- Participate as appropriate in post-incident debriefings.
- Update SOPs and the like to incorporate new lessons learned.

TRANSPORTATION MANAGEMENT CENTERS

This stakeholder group consists of Transportation (or Traffic) Management Center (TMC) and Traffic Control Center (TCC) operators, dispatchers, customer service representatives (CSRs), and nonengineer managers (engineers are included in the previous group). It also includes Emergency Operations Center (EOC) and Public Safety Answering Point (PSAP) operators and dispatchers to the extent that they are involved in TIM/QC.

The primary role of a TMC is to help in traffic incident management. If this is not the case in any particular TMC, the agency might reconsider the TMC's role in TIM. TCCs often are limited to running the traffic signal system, so those personnel are not as apt to be active in TIM; but if a particular TCC is, it should treat the references to TMC below as applicable to its personnel.

Detection

TMC and PSAP personnel are often very active in incident detection. EOCs and TCCs generally are not.

Transportation Management Centers

- TMC operators may detect incidents on CCTV.
- Operators may react to TMC software incident detection module alert.
- Operators and/or CSRs react to calls from PSAP or law enforcement dispatchers and from agency personnel in the field and even citizens if there is a call-in number available to the TMC. If the call is from the PSAP or reliable agency personnel, the incident can generally be considered as verified. Calls from citizens need further verification in the next stage.

Public Safety Answering Point

- PSAP operators react to calls from agency personnel in the field, and verification can generally be assumed.
- PSAP operators react to calls from citizens. Generally, further verification will be required.

Verification

Similarly, TMC and PSAP personnel are often very active in incident verification. Recall that verification means not only confirming the occurrence of an incident, but locating it reliably as well.

Transportation Management Centers

- TMC operators verify incidents viewed on CCTV (immediately, if seen *live*) or shortly thereafter if sought out based on notification from another source.

- Operators and/or CSRs react to calls from PSAPs, from agency personnel in the field, and from citizens. If the call is from the PSAP, law enforcement dispatcher, or reliable agency personnel, the incident can generally be considered as verified, as stated above.
- If calls are from citizens, verification may be based on something like the following:
 - If a single caller is absolutely certain about the details and location—for example, the individual remains in sight of the incident and has irrefutable information about location, such as a mile post of reference location sign, or
 - At least two independent *reliable* calls relay very similar details about the incident and its location.
- Open the incident in log.
- If integrated with law enforcement CAD, establish the link.

Public Safety Answering Point

- If the call is from agency personnel in the field, then verification can generally be assumed.
 - If calls are from citizens, then verification may be based as above.

Notification

Similarly, TMC and PSAP personnel are often very active in incident notification once the incident is verified. Ideally, an alert and notification guide will exist.

Transportation Management Centers

- Notify law enforcement and/or other dispatcher(s) as per local protocol.

Public Safety Answering Point

- Notify TMC, law enforcement, and/or other dispatcher(s) as per local protocol.

Response

This section refers only to the TMC, as PSAPs are not directly involved in response per se.

- Develop or review and edit pre-prepared response plan.
- Activate DMSs, HAR, etc., as per the response plan.
- Initiate public information alerts.
- Notify media and other ISPs.
- Activate diversion route plan if applicable.
- Coordinate with TCCs (or local traffic engineering agency if no TCC) if diversion is warranted.

Clearance

This section refers only to the TMC, as PSAPs are not directly involved in clearance per se. Above all, be very proactive in quick clearance.

- Continue to reassess and refine response plan.
- Continue to update incident log.
- In the event of a serious incident, initiate agency notifications (for example, upper management usually wants to be informed of fatalities).
- Continue to activate or change DMSs, HAR, etc., as per the response plan.
- Continue public information alerts.
- Continue media and other ISPs.
- Notify secondary responders as needed.
- Continue diversion route plan if applicable.
- Continue coordination with TCCs (or local traffic engineering agency if no TCC) if diversion is warranted.
- Activate special response team if incident is very serious.
- Coordinate with other regions and TMCs as needed.

Quick Clean-Up of Minor Spills

- In the event of a minor spill and no responder is readily available on scene, dispatch a secondary response, such as a SSP to clean up the spill (if permitted to do so).

Recovery

This section refers only to the TMC, as PSAPs are not directly involved in recovery per se.

- Continue to update incident log.
- Continue to activate or change DMSs, HAR, etc., as per the response plan.
- Continue public information alerts.
- Continue media and other ISPs.
- Continue diversion route plan if applicable.
- Continue coordination with TCCs (or local traffic engineering agency if no TCC) if diversion is warranted.
- Coordinate with other regions and TMCs as needed.

After Action

- Participate in post-incident debriefings.
- Recommend updates to SOPs and the like to incorporate new lessons learned.

LAW ENFORCEMENT

This group includes state and local traffic officers. Some tolling authorities have their own police force as well, which are included here. Motor carrier enforcement officers

might apply here in emergency situations. Traffic and homicide investigators are a separate group.

Detection

Law enforcement officers on patrol are often the first to detect incidents. In the event this is not the case, a law enforcement dispatcher or desk might serve the same role as the PSAP described above; namely, if the call is from the PSAP or reliable agency personnel, then the incident can generally be considered as verified. If from citizens, further verification, then is needed in the next stage.

Verification

Law enforcement on patrol or having been dispatched to a suspected incident are often the first to arrive at the scene. In the event this is not the case, a law enforcement dispatcher or desk might serve the same role as the PSAP described above; namely:

- If the call is from agency personnel in the field, then verification can generally be assumed.
- If calls are from citizens, then verification may be based on the following:
 - If a single caller is absolutely certain about the details and location—for example, the individual remains in sight of the incident and has irrefutable information about location, such as a mile post of reference location sign,
 - At least two independent *reliable* calls relay very similar details about the incident and its location, or
 - Depending on the type of emergency, police are obligated to respond in almost all cases based on one call.

Notification

Law enforcement will generally notify other needed assets, either directly or through law enforcement dispatch, to include the following at a minimum:

- Fire rescue in the event of fire, nonminor/noncargo fluid spill, suspected hazardous material spill or potential release, or need for extrication;
- Emergency medical service (if different from fire rescue) for injuries and/or fatalities;
- HAZMAT handler for known hazardous material spill or potential release;
- TMC if not already notified;
- SSP to assist as needed;
- Towing and wrecker service;
- Begin planning for diversion if applicable and notify appropriate authorities; and
- Other special assets as needed.

Response

Law enforcement is a key stakeholder in response.

- Reach the scene as quickly and safely as possible.

- Assess situation (if not already done) and solicit needed resources (see notification above).
- Position vehicle to protect the scene.
- Secure the scene to maximize the safety of self, fellow responders, victims, and passing vehicles (see introduction to this part):
 - Assessment should include risks of the incident versus risks of traffic delay and potential for secondary crashes, and
 - Consider temporary channelization versus shut down.
- Don high-visibility apparel as appropriate.
- Deploy flares, cones, etc., as appropriate.
- Initiate incident command structure and establish Command Post and communications as appropriate.
- Continue or initiate notifications as appropriate to the following:
 - Fire rescue,
 - Emergency medical services,
 - Hazardous material/fuel response/EPA,
 - Towing and recovery,
 - DOT (state and/or local),
 - Utilities if needed, and
 - Initial media notifications if diversions or evacuation.

Clearance

Law enforcement is a key stakeholder in clearance.

Roadway Clearance

The top priority is to open lanes blocked by the incident. Some of the following may continue into incident clearance, but they should be started during roadway clearance if possible.

- Encourage drivers to move their vehicles off the roadway, if practical.
- Assist drivers in removing vehicles from roadway using push bumpers or tow lines.
- Coordinate with fire rescue and EMS (if separate) to organize the scene such that the responders' and victims' safety is assured, but minimizes the blockage of lanes.
- Direct tow company to recover and/or move the vehicles if approval from the responsible party is not forthcoming.
- Remove debris from roadway if practical.
- Direct traffic around the incident.
- Reposition vehicles at scene as necessary as lanes open to increase traffic flow.
- Plan for secondary crashes as detour is established—position traffic warning devices (use DOT resources).
- Remove traffic trapped between incident and detour (check on welfare of trapped motorists). Use both law enforcement and DOT/SSP resources.

- Monitor and respond to developments to ensure delays are minimized.
- Continue to plan for road opening as early as possible.

Quick Clean-Up of Minor Spills

- Stop leaks,
- Contain spilt liquids, and
- Clean up minor spillage.

Incident Clearance

Once all incident persons, vehicles, and materials have been removed from the roadway, the next priority is to remove all evidence of the incident from the scene as soon as possible, subject to safety and necessary investigations.

- Relocate to an accident investigation site (if available) or to a location off the highway, preferably out of site of remaining traffic.
- Conduct police investigation as quickly as possible with minimal impact on traveled lanes.
- Continue to direct traffic past the incident site as long as necessary.
- Practice good emergency light discipline.
- Protect the back of the queue (or use SSP).
- Communicate anticipated road opening to media and detour units.
- Communicate change of scene control to responding agencies.
- When appropriate, ensure efficient and timely collection of evidence.

Recovery

- Remove all vehicles from the incident scene if practical.
- Provide traffic management services on diversion routes if necessary.

After Action

- Follow up with media information on reasons for delay so the public is informed.
- Participate in post-incident debriefings.
- Recommend updates to SOPs and the like to incorporate new lessons learned.

FIRE RESCUE

Fire rescue will be involved if there is a danger of fire, victims are injured and/or need to be extricated, or if HAZMAT is an issue. The emphasis is on scene safety and discipline. (Note that EMS is treated separately even though fire rescue provides these services in some jurisdictions.)

Detection

Fire rescue is generally not involved in detection, unless they operate the PSAP.

Verification

Fire rescue is generally not involved in verification, unless they operate the PSAP.

Notification

Fire rescue is generally not deeply involved in notification; however, if they have responded to an incident and there is a HAZMAT threat, fire rescue might notify the HAZMAT mitigation organization. They may also initiate the emergency medical service system.

Response

Fire rescue is generally very efficient in terms of response once their presence is requested. In responding, the following actions are recommended:

- Minimize lane blocking—use no more than one lane as a *buffer*, preferably a partial lane.
- Be wary of undeployed airbags when working in the dashboard area.
- Minimize the equipment to that actually needed.
- Managing *volunteers* out of uniform is a challenge. If individuals are not in uniform, they should stay away.

Clearance

In situation where fire rescue is needed at the scene, the incident is usually sufficiently severe that special attention needs to be given to quick clearance.

Roadway Clearance

- Coordinate with law enforcement and EMS (if separate) to organize the scene such that the responders' and victims' safety is assured, but minimizes the blockage of lanes.
- Assist drivers in removing vehicles from roadway, if this is part of their practice, which is not common.
- Remove debris from roadway if practical. The use of absorbent materials (such as kitty litter and peat moss) is encouraged.

Quick Clean-Up of Minor Spills

- Stop leaks,
- Contain spilt liquids, and
- Clean up minor spillage.

Incident Clearance

- Relocate to an accident investigation site (if available) or to a location off the highway, preferably out of site of remaining traffic.
- Conduct fire investigation as quickly as possible with minimal impact on traveled lanes.
- Practice good emergency light discipline.

- Have a good recall policy to avoid excess equipment at the scene.

Recovery

Fire rescue is generally not involved in recovery, unless there are potential fire or spill hazards that might occur during recovery.

After Action

- Participate in post-incident debriefings.
- Recommend updates to SOPs and the like to incorporate new lessons learned.

EMERGENCY MEDICAL SERVICES

Emergency medical services (EMS) will be involved if there are injuries or deaths. The emphasis is on scene discipline and safety.

Detection

EMS is not generally involved in detection.

Verification

EMS is not generally involved in verification.

Notification

EMS is not generally involved in notification, unless they happen onto an incident.

Response

EMS is generally very efficient in terms of response once their presence is requested. In responding, the following actions are recommended:

- Minimize lane blocking—use no more than one lane as a *buffer*, preferably a partial lane.
- Minimize the equipment to that actually needed.
- Managing *volunteers* out of uniform is a challenge. If individuals are not in uniform, they should stay away.

Clearance

Like fire rescue, the presence of EMS already suggests a serious situation and thus needs a special focus on safe and quick clearance.

Roadway Clearance

- Coordinate with law enforcement and fire rescue (if separate) to organize the scene such that the responders' and victims' safety is assured, but minimizes the blockage of lanes.
- Remove victims from the roadway as quickly as possible. Treatment is better done in the ambulance than on the roadway.

Incident Clearance

- Remove the ambulance from the scene as quickly as is safely possible.
- Avoid causing a secondary crash by taking unsafe maneuvers en route to a treatment facility.

Recovery

EMS is generally not involved in recovery, other than to avoid the secondary crashes as above.

After Action

- Participate in post-incident debriefings if scene management was an issue.
- Recommend updates to SOPs and the like to incorporate new lessons learned.

CRASH AND HOMICIDE INVESTIGATORS

Generally, a police investigation is required whenever a crash involves injury or death. The investigators may be secondary responders and do not arrive until the incident is already being managed.

Response

Once the investigators are notified, response should be as quick as possible.

Clearance

Investigators should use the fastest method available to conduct their investigation. Enough investigators should be involved to share the duties and reduce the clearance time.

Roadway Clearance

- Minimize the time that it is necessary to close lanes for investigation.
- Do immediate paperwork out of the traveled lanes.

Incident Clearance

- Minimize the time that it is necessary to complete the investigation.
- Do remaining paperwork off site, either at an accident investigation site or off the facility altogether.

Recovery

Investigators help recovery the most by minimizing the length of their on-scene investigation.

After Action

- Participate in post-incident debriefings.

- Recommend updates to SOPs and the like to incorporate new lessons learned.

HAZARDOUS MATERIAL HANDLERS

If HAZMAT is involved, the mitigation must be as timely as possible, not only to minimize the clean-up time, but also to minimize exposure to the material.

Response

In responding the following actions are recommended.

- Minimize lane blocking.
- Minimize the equipment to that actually needed.
- Avoid adding to the problem with mitigation materials.

Clearance

As with fire and EMS, the mere need for HAZMAT suggests lengthy incident duration. Handlers should help clear travel lanes first, and then try to minimize their time on scene to that absolutely necessary for both safety and in keeping with QC principles.

Recovery

For HAZMAT situation, there might be lingering effect that delays recovery. Handlers should try to minimize such effects.

After Action

- Participate in post-incident debriefings if scene management was an issue.
- Recommend updates to SOPs and the like to incorporate new lessons learned.

ROAD MAINTENANCE

The need for roadway maintenance staff may vary from minor clean up to major reconstruction, such as shoring up a damaged bridge. If highway maintenance is done with contractors in a region, the contract must ensure contractors' responsibilities for incident management are very clear.

Detection

As they are often on the road, maintenance workers might encounter an incident. It is important that they be trained in the proper response.

Verification

They should verify and report the incident to the proper channel.

Notification

Part of their training should be the appropriate notifications.

Response

Once dispatched, maintenance should respond as quickly as possible with the appropriate equipment. A response and notification guide should have the location or source of all specialized equipment.

Clearance

The first order of business for maintenance is clearance.

Roadway Clearance

- Coordinate with other responders to organize the scene and plan removal of debris that minimizes the blockage of lanes.
- Remove vehicles and debris from the roadway as quickly as possible.

Quick Clean Up of Minor Spills

- Stop leaks,
- Contain spilt liquids, and
- Clean up minor spillage.

Incident Clearance

- Depart the scene as quickly as possible.
- If repairs are needed on the infrastructure, assess whether these can better be done later in a nonincident situation.
- Mark damaged areas as needed to alert motorists (for example, to damaged guardrail).

Recovery

Maintenance is generally not involved in recovery unless some lengthy repair is needed, in which case, as above, assess whether this can better be done later in a nonincident situation.

After Action

- Participate in post-incident debriefings.
- Recommend updates to SOPs and the like to incorporate new lessons learned.

TOWING AND RECOVERY

The keys to towing and recovery are timely response and having the right equipment and skill sets.

Detection

As they are often on the road, tow truck operators might encounter an incident. It is important that they be trained in the proper response.

Verification

Because they are trained professionals, they can generally be counted on to verify incidents.

Notification

Part of their routine should be the appropriate notifications. Tow operators prefer to know the details of the incident so they can determine the appropriate response, instead of being told what equipment is needed.

Response

Once dispatched, the tower should respond as quickly as possible with the appropriate equipment.

Clearance

The first order of business for the tow company is clearance.

Roadway Clearance

- The top priority is safety—self, victims, scene—then apply the craft.
- Coordinate with other responders to organize the scene and plan removal of debris and vehicles that minimizes the blockage of lanes.
- Identify the responsible party, but do not unnecessarily delay recovery or towing decisions.
- Follow instructions of public safety responders.
- Remove vehicles and debris from the roadway as quickly as possible.

Quick Clean-Up of Minor Spills

Assist in mitigation and clean up if possible.

Incident Clearance

- Depart the scene as quickly as possible.
- Transport persons from towed vehicles to a location off the facility.
- Handle financial negotiations off site.

Recovery

The tower's main role is to have cleared the scene as soon as possible.

After Action

- Participate in post-incident debriefings or have towing association do so to represent multiple companies.
- Recommend updates to industry standard practices to incorporate new lessons learned.

SAFETY SERVICE PATROL (SSP) OPERATOR

The participation of Safety Service Patrols (SSPs) will depend on whether their mission includes both motorist-assist and full TIM actions. In the discussion below, we assume first all SSPs, and then elaborate further for TIM-equipped patrols.

Detection

SSPs are often the first to come upon an incident, so they frequently detect the incident.

Verification

SSPs are generally qualified to verify incidents and report to the TMC or other dispatcher.

Notification

SSPs generally do not notify other responders, but rather go through their TMC or dispatcher.

Response

SSPs are a key stakeholder in response.

- Reach the scene as quickly as possible.
- Don high-visibility apparel as appropriate.
- Position vehicle to protect the scene.
- Assess situation (if not already done) and notify further information (see notification above).
- Help secure the scene to maximize the safety of self, fellow responders, victims, and passing vehicles.

TIM Service Patrols

- Deploy flares, cones, etc. as appropriate.
- Recognize the incident command structure and participate in the unified incident structure.

Clearance

SSPs are key players in clearance.

Roadway Clearance

- Instruct drivers to move their vehicles off the roadway, if practical.
- Direct traffic around the incident.

TIM Service Patrols

- Assist drivers in removing vehicles from roadway by push, pull, or drag.
- Assist other arriving responders in positioning assets to ensure responder safety, and minimize lane blockages.

- Remove debris from roadway if practical.

Quick Clean-Up of Minor Spills (TIM Service Patrols)

- Stop leaks,
- Contain spilt liquids, and
- Clean up minor spillage.

Incident Clearance

- Continue to direct traffic past the incident site as long as necessary.
- Practice good emergency light discipline.
- Protect the back of the queue.

Recovery

- Continue to protect the back of the queue.

After Action

- Participate in post-incident debriefings, or at least have manager do so.
- Recommend updates to SOPs and the like to incorporate new lessons learned.

MEDICAL EXAMINER (ME)

The Medical Examiner (ME) is only involved in the case of a fatality.

Response

If called to a fatality, respond as quickly as possible or arrange with law enforcement to move deceased victims from the roadway.

Clearance

The main goal is to clear the roadway and avoid secondary crashes. Shared investigative duties can also help expedite clearance. MOUs to this effect are also useful.

Roadway Clearance

If it is necessary for law enforcement to move the bodies, explain as succinctly as possible what the responder needs to do to satisfy ME requirements.

Incident Clearance

Remove, or authorize others to remove the victims from the scene and transport to a mutually agreeable location.

After Action

- Participate in post-incident debriefings that involved fatality(ies).
- Recommend updates to SOPs and the like to incorporate new lessons learned.

MEDIA

The media are the primary pipeline to the public. Their role is critically important.

Detection

Traffic reporters often see incidents before others. Have a standing protocol for reporting these to authorities as quickly and succinctly as possible.

Verification

Traffic reporters should be reliable sources of verification if the location information is solid.

Notification

The media's primary role is to notify the public of the incident.

Response

Media should not respond to a crash scene and impede emergency responders.

Clearance and Recovery

Media's role throughout the clearance and recovery stages is to continue informing the public of the status of the incidents, thus encouraging diversion or delaying trips.

After Action

For very serious incidents in which media played a key role, they should participate in post-incident debriefings.