Incident Management Successful Practices

A Cross-Cutting Study

Improving Mobility and Saving Lives

April 2000

Foreword

Dear Reader,

We have scanned the country and brought together the collective wisdom and expertise of transportation professionals implementing Intelligent Transportation Systems (ITS) projects across the United States. This information will prove helpful as you set out to plan, design, and deploy ITS in your communities.

This document is one in a series of products designed to help you provide ITS solutions that meet your local and regional transportation needs. The series contains a variety of formats to communicate with people at various levels within your organization and among your community stakeholders:

- **Benefits Brochures** let experienced community leaders explain in their own words how specific ITS technologies have benefited their areas;
- **Cross-Cutting Studies** examine various ITS approaches that can be taken to meet your community's goals;
- **Case Studies** provide in-depth coverage of specific approaches taken in real-life communities across the United States; and
- **Implementation Guides** serve as "how to" manuals to assist your project staff in the technical details of implementing ITS.

ITS has matured to the point that you are not alone as you move toward deployment. We have gained experience and are committed to providing our state and local partners with the knowledge they need to lead their communities into the next century.

The inside back cover contains details on the documents in this series, as well as sources to obtain additional information. We hope you find these documents useful tools for making important transportation infrastructure decisions.

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Incident Management Overview

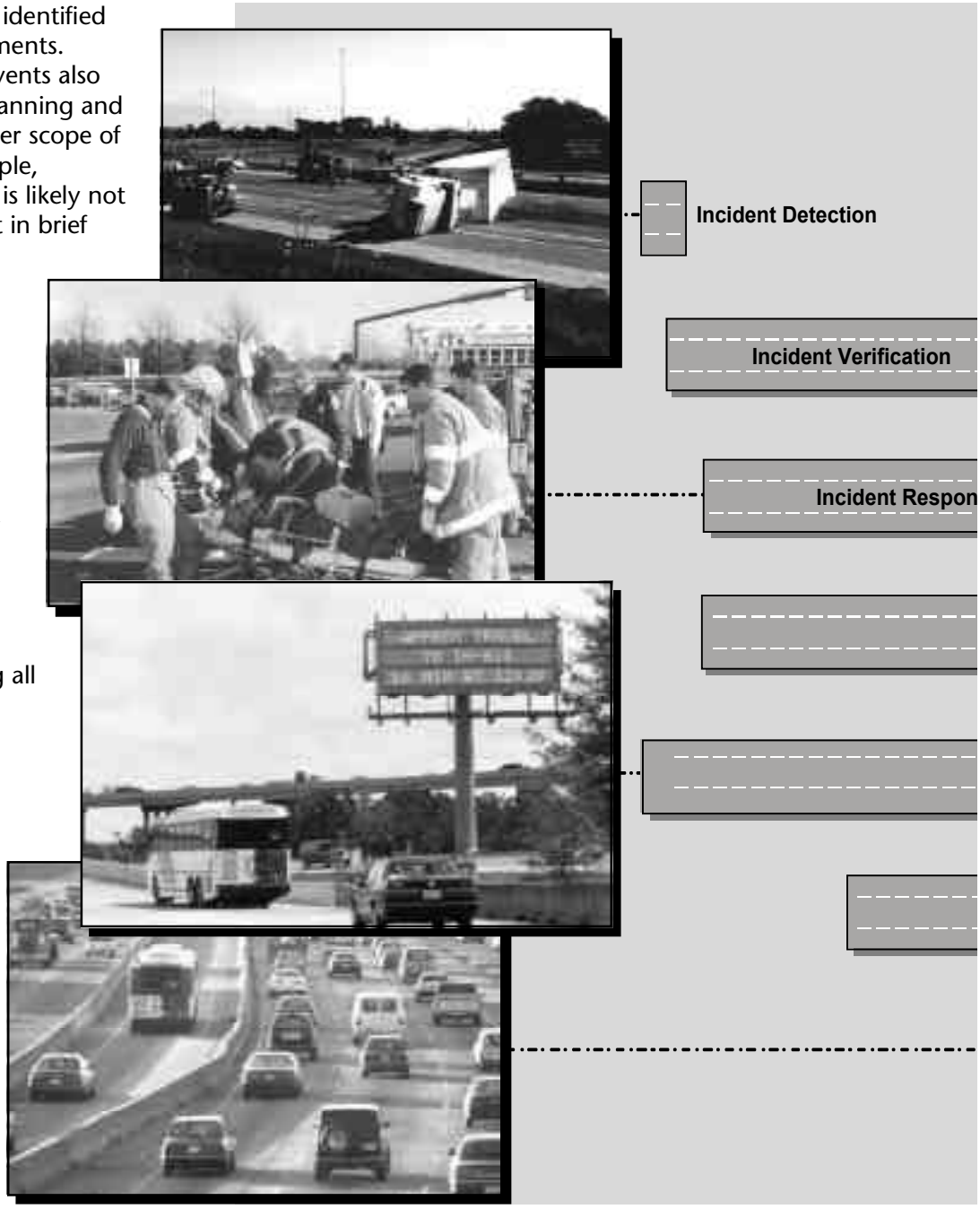
What Is Incident Management?

Incident management is the process of managing multi-agency, multi-jurisdictional responses to highway traffic disruptions. Efficient and coordinated management of incidents reduces their adverse impacts on public safety, traffic conditions, and the local economy.

This document focuses on managing the majority of traffic incidents, averaging less than two hours in duration, through the daily coordination described in the following pages. Incidents of longer duration, special events, such as a Super Bowl or the Summer Olympics, and natural disasters, such as hurricanes or earthquakes, have significant impact on traffic and demand resources from the organizations identified in this and other documents. These types of major events also require considerable planning and preparation from a wider scope of participants. For example, although public transit is likely not a significant participant in brief traffic incidents, it is a critical component in addressing a major regional event.

While this document focuses on managing typical traffic incidents, these same factors are essential to successfully managing both small and large scale incidents: having a plan, and executing it with full cooperation among all of the organizations involved.

What Are the Steps Involved?



"The North Carolina incident management program does a very effective job of responding to incidents on our highways…it greatly reduces the negative impact of incidents on the free flow of traffic."

—Frank Emory, Jr., Member of the North Carolina Board of Transportation

Incident Site Management

Traffic Management

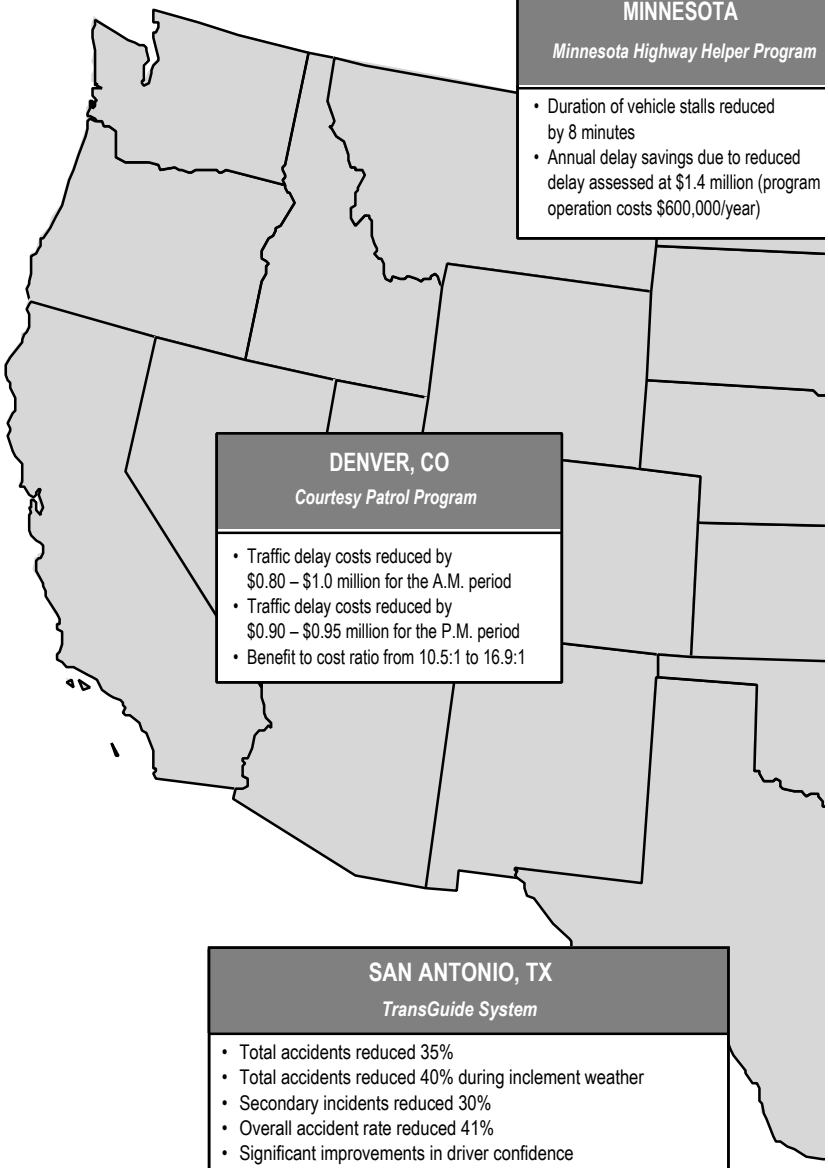
Incident Clearance

Recovery

Timeline of Typical Incident Management

Why Is Incident Management for You?

Incident management yields significant benefits through reduced vehicle delays and enhanced safety to motorists through the reduction of incident frequency and improved response and clearance times. These delay savings and the consequent increased travel speeds considerably reduce vehicle emissions. Across the nation, incident management programs have delivered significant and measurable benefits



MINNESOTA

Minnesota Highway Helper Program

- Duration of vehicle stalls reduced by 8 minutes
- Annual delay savings due to reduced delay assessed at $1.4 million (program operation costs $600,000/year)

SAN FRANCISCO, CA

Freeway Service Patrol (Since August 1992)

- Assisted more than 90,000 drivers (as of January 1997)
- Hydrocarbon emissions reduced by 32 kg/day
- Carbon monoxide (CO) emissions reduced by 322 kg/day
- Nitrous oxides (NOx) emissions reduced by 798 kg/day

DENVER, CO

Courtesy Patrol Program

- Traffic delay costs reduced by $0.80 – $1.0 million for the A.M. period
- Traffic delay costs reduced by $0.90 – $0.95 million for the P.M. period
- Benefit to cost ratio from 10.5:1 to 16.9:1

SAN ANTONIO, TX

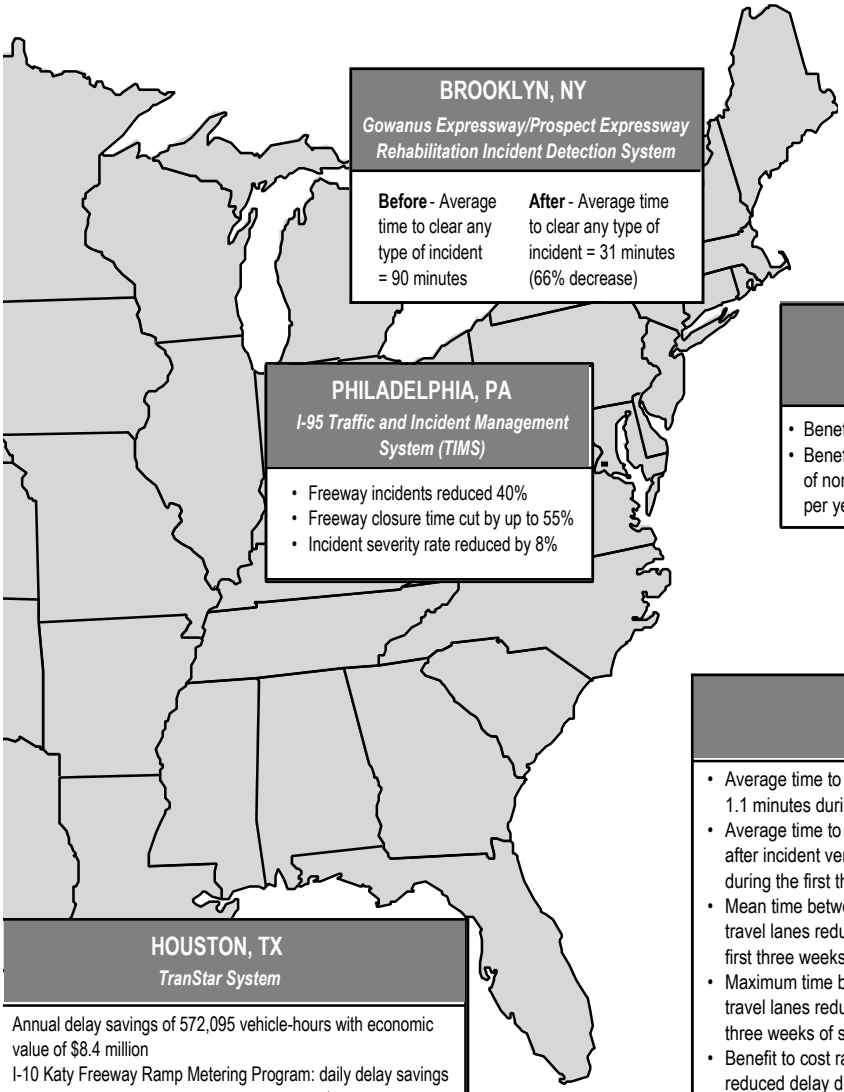
TransGuide System

- Total accidents reduced 35%
- Total accidents reduced 40% during inclement weather
- Secondary incidents reduced 30%
- Overall accident rate reduced 41%
- Significant improvements in driver confidence
- Average response time reduced 20%
- Average delay savings per incident: 700 vehicle-hours
- Average reduction in fuel consumption per incident: 2600 gallons
- Benefits translate to annual savings of $1.65 Million

that justify existing programs and the initiation of new programs. The benefits illustrated here are a snapshot of experiences from across the country. Each location has unique features as part of its incident management system and hence the benefits presented must be considered in the appropriate context.

Want more benefits and cost information?

Intelligent Transportation Systems Benefits: 1999 Update (28 May 1999). Electronic Document Library Number 8323.
http://www.its.fhwa.dot.gov/cyberdocs/welcom.htm
and
ITS Benefits and Cost Data Base
http://www.mitretek.org/its/benecost.nsf



BROOKLYN, NY

Gowanus Expressway/Prospect Expressway Rehabilitation Incident Detection System

Before - Average time to clear any type of incident = 90 minutes

After - Average time to clear any type of incident = 31 minutes (66% decrease)

PHILADELPHIA, PA

I-95 Traffic and Incident Management System (TIMS)

- Freeway incidents reduced 40%
- Freeway closure time cut by up to 55%
- Incident severity rate reduced by 8%

MARYLAND

Maryland CHART Program

- Benefit to cost ratio of CHART Program = 5.6:1
- Benefits amount to 2 million vehicle-hours of non-recurrent congestion delay savings per year

ATLANTA, GA

GDOT NaviGAtor System

- Average time to verify incidents reduced from 4.2 minutes to 1.1 minutes during the first three weeks of system operation
- Average time to generate an automated incident response after incident verification reduced from 9.5 minutes to 4.7 minutes during the first three weeks of system operation
- Mean time between incident verification and the clearance of travel lanes reduced from 40.5 minutes to 24.9 minutes during the first three weeks of system operation
- Maximum time between incident verification and the clearance of travel lanes reduced from 6.25 hours to 1.5 hours during the first three weeks of system operation
- Benefit to cost ratio in 1997: 2.3:1 (calculated as a result of reduced delay due to accidents on the freeway)

HOUSTON, TX

TranStar System

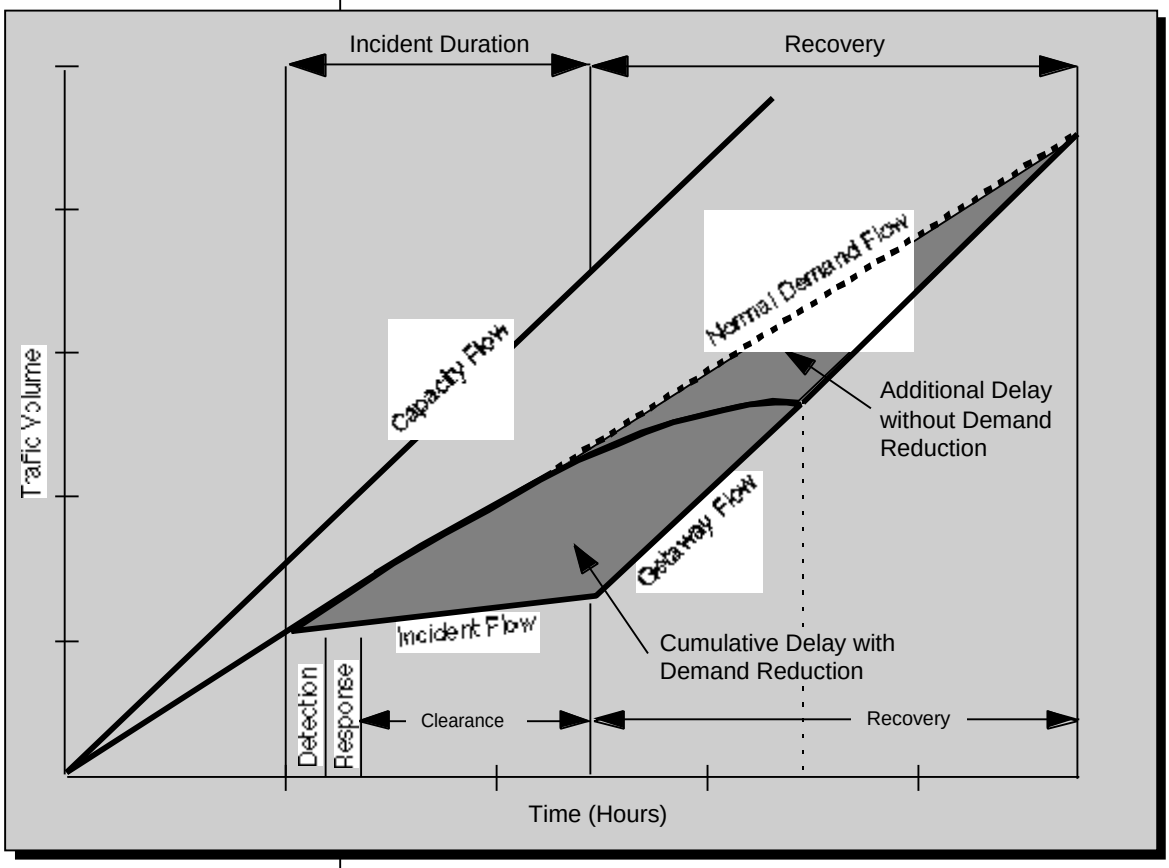
Annual delay savings of 572,095 vehicle-hours with economic value of $8.4 million
I-10 Katy Freeway Ramp Metering Program: daily delay savings of 2875 vehicle-hours with economic value of $37,030
An aggregate of seven example situations of lifting HOV restrictions resulted in savings of between 13.5 and 27 minutes for 12,910 vehicles (over other vehicles remaining in the queue) amounting to total cost savings from $42,500 to $85,100
Reduced incident detection & response times cut hydrocarbon emissions by 91 kg/day

Incident Congestion and Impacts

Traffic incidents are a major cause of congestion on the nation's highway network. More than half of all freeway traffic congestion in the United States is caused by incidents. This incident-related congestion problem is expected to worsen in the near future.

"Incident" refers to any event that degrades safety and slows traffic, including disabled vehicles, crashes, maintenance activities, adverse weather conditions, special events, and debris on the roadway. Incident-related traffic congestion (including secondary impacts) detrimentally affects public safety, the local economy, and the environment. It is estimated that this congestion will cost the U.S. public $75 billion in lost productivity and 8.4 billion gallons of wasted fuel in the year 2005 (Lindley, 1989).

Delay Caused by Incidents



When incidents occur, lanes are blocked, thereby reducing roadway capacity. As illustrated above, the difference between the traffic demand and available capacity at the incident location determines the delay caused by the incident. By disseminating information about the incident to the public, motorists can make alternative travel plans and delays can be reduced.

Who Is Involved?

State and Local Transportation Agencies —include state departments of transportation and highway agencies that operate and maintain the road network in the region.

State and Local Law Enforcement Agencies—include state, county, and city police departments that are responsible for public safety and enforcement.

Fire and Rescue Agencies—include county and city fire, ambulance, and support response agencies; these also include volunteer and private fire and rescue organizations.

HAZMAT Clean-up Services—include private companies that provide cleanup services for HAZMAT incidents; fire departments have HAZMAT containment capability, but rely upon private companies for HAZMAT cleanup.

Towing and Recovery Companies—include private companies that provide towing and recovery services for highway incidents.

Public and Private Traveler Information Providers—include public agencies and private companies that collect, process, and disseminate traffic and transport-related information to benefit travelers using methods such as commercial and cable television, radio, Internet, and changeable message signs.

"Incident management just makes sense. We, as transportation professionals, are responsible for providing the public with an efficiently operated and safe transportation system. The impact of not doing so is significant—personal injuries, time loss, fuel consumption, delays in critical goods reaching their destination, and other economic impacts."

—Thomas Brahms, Executive Director, Institute of Transportation Engineers

Transportation Agencies

Summary

- Transportation agencies typically focus their response priorities on the restoration of normal traffic flow and minimization of delays
- State transportation agency incident management operations are predominately focused on freeways, and as a result, very few employ integrated arterial signal control for traffic management during incidents
- The primary traveler information devices operated by transportation agencies are changeable message signs and lane control signals, which, at present, seldom provide motorists sufficient information to alter travel plans.

Lessons Learned

- Traffic operations centers can function as information management centers in support of multiagency operations
- Because route diversion has been proven to be an effective incident management tool, state and local transportation agencies should develop a combined strategy and implementation plan for coordinated arterial signal control during incidents
- Using changeable message signs to provide additional incident information to motorists, such as estimated travel times, improves the value of the information and motorist compliance.

Law Enforcement

Summary

- Typically, law enforcement agencies are more closely coordinated with transportation agencies than are fire and rescue agencies
- Few law enforcement officers continue to coordinate with the local traffic management center once they are at the scene of an incident
- In several study areas, law enforcement assets are dispatched to every incident, including disabled vehicles
- Crash investigations, especially for fatal crashes, frequently are very time consuming when using traditional investigation techniques.

"It can be awkward for police officers to have a traffic management center dispatch telling them how to do their job. We rotate officers to work in our transportation management center (TMC) and to experience the technology firsthand. Now when they are dispatched to a freeway incident, the police will radio the TMC for more detailed information on the location and severity of an incident."

—Police Captain Timothy Kelly, TMC Operations Supervisor, Houston Metro

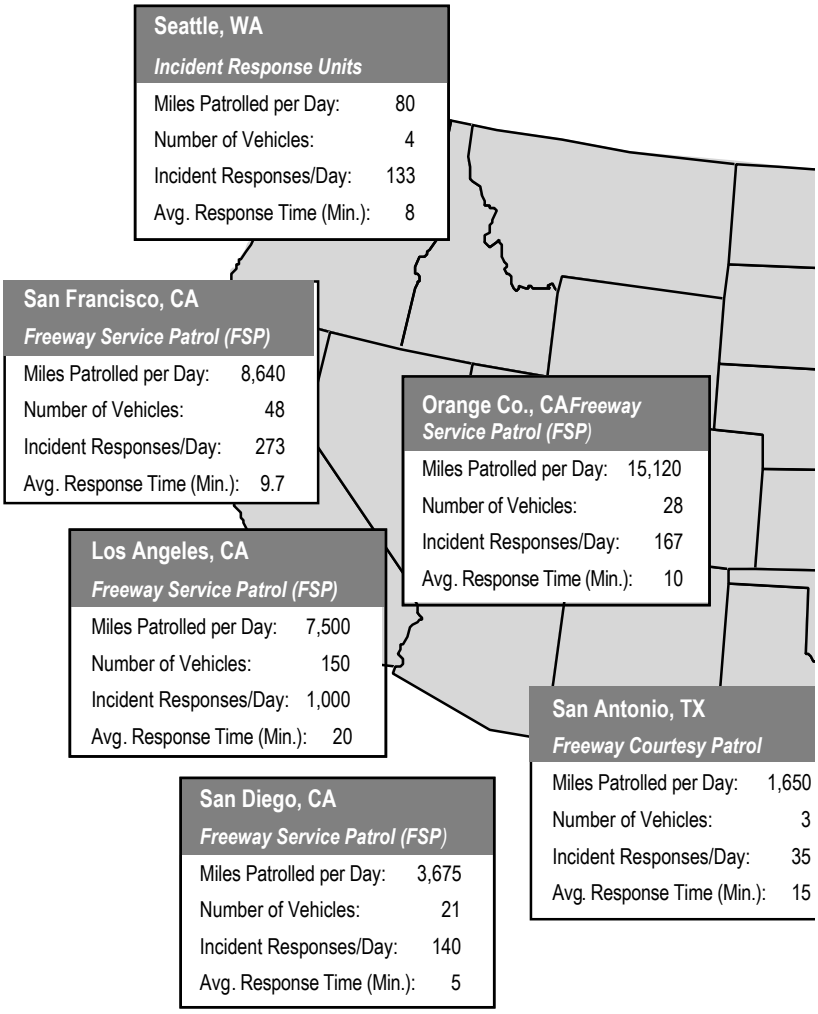
Lessons Learned

- Law enforcement and traffic management center personnel must be coordinated, not simply collocated
- Law enforcement resources will be available to respond to more urgent concerns by drawing on resources, such as closed-circuit television (CCTV) for incident verification and service patrols to respond to disabled vehicles
- By closely coordinating with traffic management center personnel after arriving at the scene of an incident, law enforcement personnel can improve on-scene command and control
- Use of law enforcement personnel on motorcycles for incidents occurring during peak travel periods can improve response times.

Service Patrols

Summary

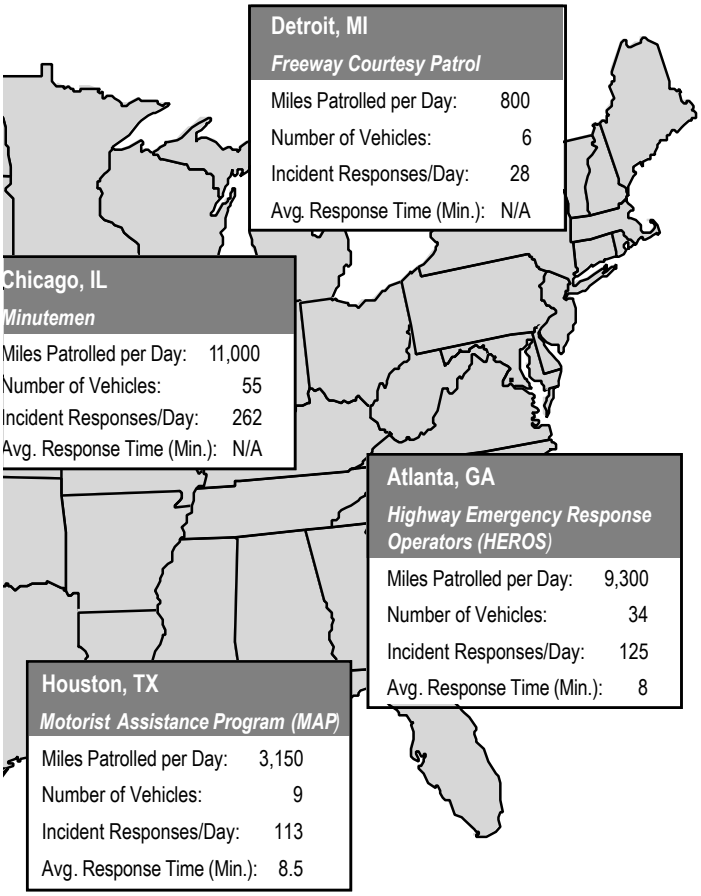
- Service patrols typically offer a broad range of services:
  - All offer basic motorist assistance, debris removal, and vehicle clearance
  - In addition, some offer first aid, basic field repairs, and traffic control assistance
- Motorists have responded very favorably to service patrols, particularly regarding the—
  - Timeliness of assistance
  - Feeling of safety and security derived from uniformed personnel assistance
  - Free services
- In the study areas, service patrols operated only on parts of the local freeway network, bridges, and other controlled-access facilities.



"Our safety service patrol trucks have been a tremendous benefit to us. I consider them as building blocks of our incident management system because the success of our four trucks has won us political support both internally in the DOT and externally with elected officials. We have now been given a budget towards cameras, variable message signs, and other new technologies."

—Patricia Harrison, Safety Director, South Carolina DOT

State of the Practice



Lessons Learned

- To be fully effective, service patrols must communicate and coordinate activities with other responding agencies, and should have access to the proper radio frequencies
- Outsourcing of service patrol operations is beneficial because it—
  - Is easier to allocate and adjust resources according to needs
  - Minimizes unit costs due to competition among providers
- Service patrols on bridges and in tunnels (where access is severely constrained) are critical to restoring the normal traffic flow.

Fire and Rescue

Summary

- In some study areas, fire and rescue agencies draw information from CCTV feeds broadcast by local transportation agencies, allowing for timely and accurate dispatch of assets
- Fire and rescue personnel's first priority is the safety of motorists, victims, other responders, and the public; a secondary emphasis is placed on resuming the flow of traffic
- Traffic incident response represents only a small portion of the responsibilities of fire and rescue agencies
- Fire and rescue agencies often are not deeply involved in coordinated multiagency traffic incident management programs.

"During the Olympic Games in Atlanta, as part of our joint response efforts with the GDOT, the state patrol, and the city police, we saw how beneficial the video surveillance cameras were. Being able to view the scene of a freeway incident using the surveillance cameras helped us to better decide the type and number of units to send to the incident."

—Tony Davidson, Chief of Communications, Atlanta Fire Department

Lessons Learned

- Fire and rescue operations are critical to the development of a cross-functional operations plan
- Fire and rescue agencies have considered modification of their operations procedures to better accommodate traffic management during incidents
- Aggressively seeking and maintaining the involvement of fire and rescue in multiagency planning and coordination will help ensure their full cooperation in traffic incident management activities and programs.

"Effective first response is critical in successful HAZMAT incident handling. Though HAZMAT incidents are usually handled by fire departments, it is typically the law enforcement or DOT patrols that perform the 'first verification' role. Training these crews to accurately identify the presence and nature of the HAZMAT will greatly alleviate the HAZMAT incident response process. In GDOT, our HEROs are trained not only to identify the HAZMAT involved, but also to contain certain types of spillage using equipment onboard their trucks until the fire department arrives. This alone has saved us hundreds of hours of delay and environmental damages due to spillage on Atlanta highways."

—Joe Stapleton, Assistant State Traffic Operations Engineer, Georgia Department of Transportation

Summary

- Both state transportation agencies and local fire and rescue agencies respond to HAZMAT incidents
- All study areas employ private HAZMAT clean-up services:
  - A portion of the costs are financed by clean-up charges assessed to the party responsible for the incident
  - Clean-up costs for large spills are very high and are normally recouped
  - Small spills are also costly because of their high frequency, but efforts to recoup costs for cleanups are largely unsuccessful.

Lessons Learned

- Service patrol vehicles equipped with basic HAZMAT response equipment can more effectively manage the containment of minor spills and protect the incident scene.
- Standard incident management procedures may need to be modified in order to accommodate the risks involved in working with and around hazardous materials at HAZMAT incidents. Specialized techniques and specially qualified personnel are often necessary for safe and effective HAZMAT incident management.
- Providing incentives for HAZMAT contractors based on timeliness and efficiency of response and cleanup can minimize costs while maintaining performance.

Towing and Recovery

Summary

- Several arrangements for towing are used across the country. The primary types are—
  - **Franchise-based towing:** Services are contracted in several subarea franchises to individual tow operators; this arrangement eliminates situations in which several tow operators compete to service the same incident on a first-come/first-serve basis
  - **City- or region-based towing:** The towing contract for the entire city or region goes to the lowest bidder; this arrangement reduces the transportation agency's administrative support and monitoring requirements
  - **Rotation:** The first responder (typically the police) calls a tow truck from the next eligible firm in sequence on a rotating list of pre-qualified tow operators. Pre-qualification helps to prevent overcharging of the owner of the disabled vehicle.

What Are Towing and Recovery Operations?

Towing and recovery are the operations by which a tow truck or other response vehicle clears the roadway of disabled vehicles or accidents and assists in restoring the roadway to full capacity. Public agencies do not provide towing and recovery services; the private sector enters into contracts with the government to provide these services on freeways.

Equipment	Services Provided
Light Tow Trucks	Clear disabled and wreck as cars and vans
Service Patrol Trucks	Provide relocation of dis drop-off sites; provide m
Heavy Tow Trucks and Rotators	Clear disabled and wreck trailers)
Earthmoving Equipment	Used for restoring paven in case of pavement dan
Inflatable Air Bag Systems	Used to upright overturn
HAZMAT Response Equipment	Used to handle hazardou

senger vehicles such
ehicles to designated assistance
vy vehicles (e.g., tractor
safe driving conditions
cles
nical spills

Lessons Learned

- Because they are critical to rapidly restoring normal traffic flow, towing operators should be involved in interagency incident management training
- A hybrid of traditional and performance-based contracting that requires operators to meet specific requirements (e.g., number of vehicles, response rates and times, storage space, insurance and licensing) can improve responsiveness and reduce cost.

Incident Detection and Verification

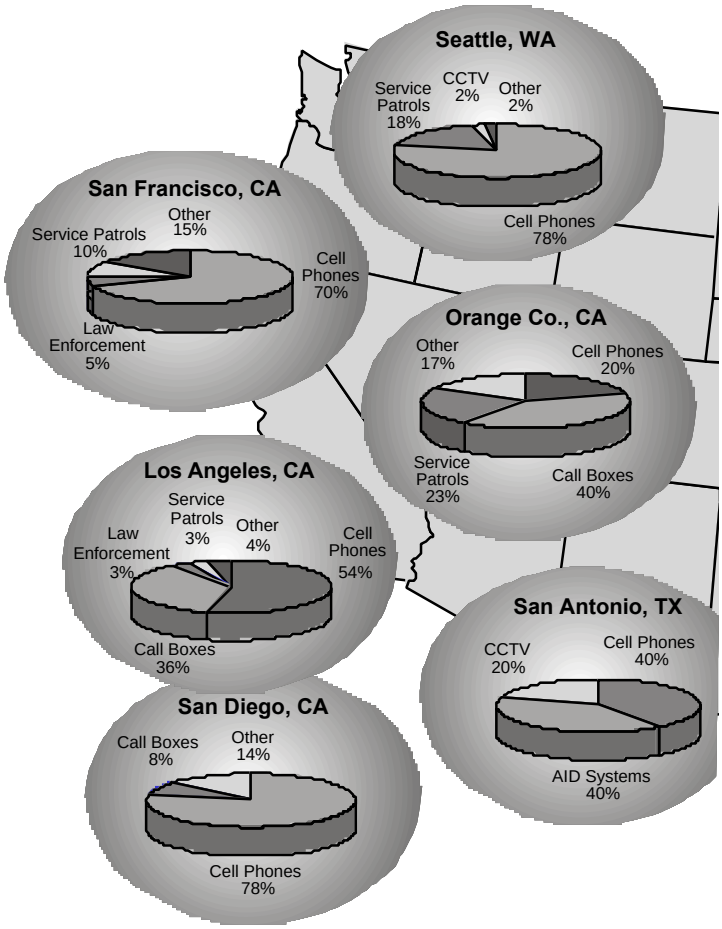
Summary

- First-responder reports are the most accurate and trustworthy method for incident verification
- Cellular phones are the most common method for incident detection in metropolitan areas:
  - Cellular phone-based incident detection has inherently high detection rates and low cost
  - Incident detection times for cellular phones are generally short—usually less than one minute during peak travel periods
  - The accuracy of incident information from motorists' cellular calls is often insufficient for initiating an early optimal response
- Where available, closed-circuit television (CCTV) is the most cost-effective and efficient method for incident verification
  - Typical CCTV deployment practice has been to provide blanket coverage on selected portions of the freeway network
- Automated incident detection systems are available but not widely used:
  - False alarm rates are typically higher than other detection methods
  - System data requirements demand significant equipment investment and maintenance.

What Is Incident Detection?

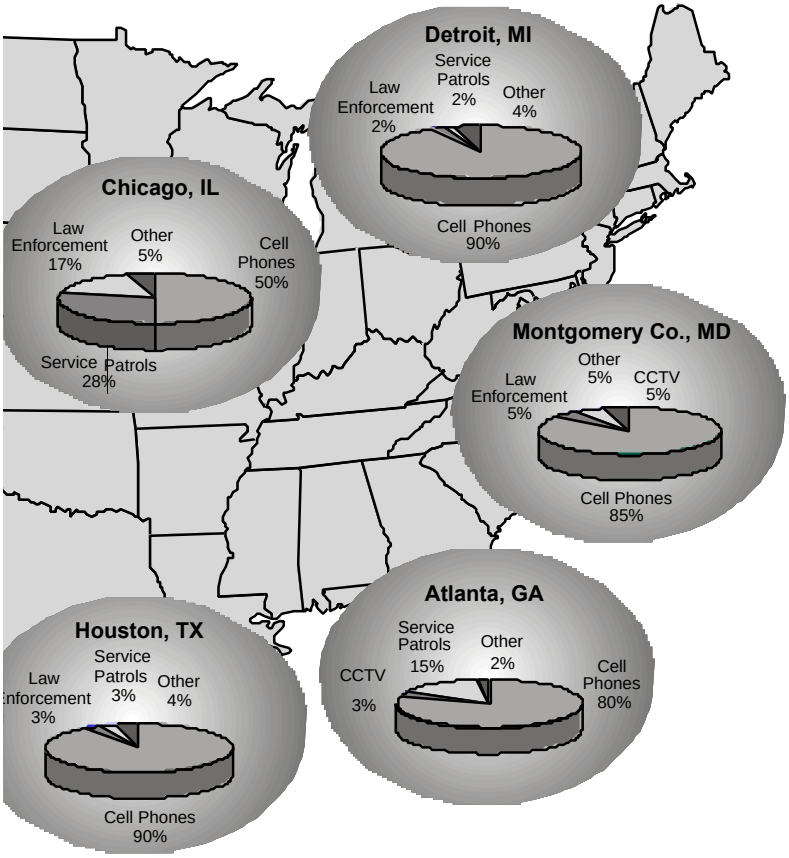
Incident detection is the determination by a responding authority that an incident has occurred. Detection initiates verification and response activities. Incident detection methods include cellular phone calls from motorists, call boxes located along highways, automated incident detection based on traffic surveillance, CCTV cameras, aerial surveillance, service patrols, and land phones.

Detection Methods Used
(as percentage of total incidents)



What Is Incident Verification?

Incident verification is the determination of the precise location and nature of the incident. Accurate and detailed information about the incident enable the dispatch of the most appropriate personnel and resources to the scene. Verification methods include in-person verification by dispatched personnel, synthesis of accumulated information from multiple cellular phone calls, and the use of CCTV cameras. Verification is needed to prevent deploying resources to false incident reports.



Lessons Learned

- Resources allocated to improving incident detection times are best directed at—
  - Providing and promoting toll-free cellular phone numbers to report incidents
  - Training operators to elicit useful information about the incident from motorists
- A centralized system for gathering and disseminating incident detection information facilitates the timely and appropriate dispatch of personnel to the scene
- When funding for CCTV installation is limited, strategic camera placement directed at high-incident locations can be used in place of blanket coverage
- Compressed video offers a cost-effective alternative to full-motion video for most incident verification needs.

Incident Response

Summary

- Greater interagency coordination, increased incident management awareness, and technological advancements have resulted in significant improvements to the efficiency of incident response
- In most of the study areas, incident response components from different agencies continue to be dispatched independently, and on-scene coordination is sporadic
- Incident response priorities vary by responding agency—some focus on minimizing traffic delays, some on scene security
- Advances in communications technology have outpaced coordination efforts among responding agencies.

What Is Incident Response?

Incident response is the activation of a planned strategy for the safe and rapid deployment of the most appropriate personnel and resources to the scene. Information management plays an important role in response by providing the necessary details to the appropriate response personnel.

Incident Response Resources

- Computer-Aided Dispatch (CAD)
- Service Patrol Fleets
- Towing and Recovery Vehicles
- Law Enforcement Fleets
- Fire Engines
- Rescue Units/Ambulances
- Major Incident Response Teams
- Changeable Message Signs (CMS)
- HAZMAT Response Units
- Arterial Signal Control

Lessons Learned

- Joint training among incident response agencies is critical to improving response times
- Incident response performance can be dramatically enhanced—and costs can be decreased—by institutionalizing information sharing among agencies
- A standard set of interagency response action plans, tailored for various incident scenarios and supported by shared data, will improve the speed of the incident response process
- Optimum response is sending the right equipment and personnel to the incident scene quickly; overresponding to incidents (dispatching more resources than is necessary) or under-responding (not sending enough resources) result in increased cost and degrade effectiveness of the response
- Optimum response depends on accurate and rapid verification, as well as coordinated agency planning and communication.

Site Management

What Is Site Management?

Site management is the management of resources to remove the incident and reduce the impact on traffic flow. It involves coordination of activities by various responding agency personnel—usually under an incident command system—and provides for safety and security at the incident scene.

The incident command system (ICS) approach is followed nationwide for incident clearance. The ICS consists of a hierarchy of predefined roles and responsibilities for incident management command, operations, and communications. The purpose of establishing a predefined structure is to ensure a coordinated and decisive reaction to the clearance of an incident.

Summary

- In large incidents, site management is unified with police or fire being "in charge" of the scene
- The use of common terminology and technology (e.g., radio systems) facilitates effective and clear communications among the different responding agency personnel
  - Unified command structures and procedures, such as the designation of a command post, are adopted to centralize incident communications and make incident management operations more efficient.

Lessons Learned

- Site management training should include all agencies involved in incident management to build a *cross-agency team* working together to accomplish *individual agency goals*
- Formalizing incident command protocols ensures the optimization of time and resources by avoiding redundancy in roles
- Post-incident debriefings should be conducted regularly (and soon after major incidents) to evaluate and refine existing protocols and procedures
- Major incident response teams are effective in managing multiagency resources and facilitating unified command under the incident command system.

Incident Clearance

Summary

- Incident clearance is typically the most time-consuming step in the incident management process—at least twice the duration of other steps in the process
- Incident clearance is a multiagency process with a single objective under the incident command structure approach—to safely remove roadway obstructions and restore the flow of traffic
- Actual clearance times typically are not documented in a comprehensive fashion, making it difficult to assess and improve agency performance.

What Is Incident Clearance?

Incident clearance is the safe and timely removal of any stalled vehicles, wreckage, debris, or spilled material from the roadway and its shoulders and the restoration of the roadway to its full capacity.

Lessons Learned

- Reducing clearance times has the greatest potential effect (benefit) on improving overall incident management times
- Clearance times can decrease when the proper resources are dispatched to the scene
- Interagency cooperation among fire and rescue, service patrols, law enforcement, and towing and recovery is critical to improving incident clearance performance
- Through inter-jurisdictional training, incident management personnel gain a better understanding of other agencies' concerns and missions and facilitate communications, thereby improving clearance times
- Documentation of incident clearance times will enable better understanding of incident clearance performance and allow for improvements in the future.

Interagency Coordination and Cooperation

Summary

- *Collocation* of incident management personnel in a TMC does not imply *cooperation* among them
- All best-practice locations have some form of documented interagency agreements, but frequently they do not include all agencies involved in incident management
- Interagency relationships require constant attention to keep agencies focused on shared incident management objectives
- Coordinated incident management action plans among agencies are lacking in most study areas
- Interagency coordination has reduced clearance times significantly—between 5 and 50 percent for various incident types (the average reduction is 15%)
- Noninstitutionalized interagency coordination efforts depend highly on a select group of individuals and are susceptible to failure when these people vacate their positions
- Without a high degree of interagency coordination, the full benefits of technology cannot be realized (e.g., shared CCTV signals can provide benefits to multiple agencies).

What Is the Role of Interagency Coordination and Cooperation?

Interagency coordination and cooperation facilitate efficiency in incident management operations. This is accomplished by improving working relationships among incident management agencies responsible for transportation, law enforcement, fire and rescue, and environmental monitoring and safety from several jurisdictions (city, county, and state).

Benefits of Interagency Coordination for Incident Management

Features of Interagency Coordination

- Conduct of joint interagency training
- Development of interagency incident management handbooks
- Creation of interagency memoranda of understanding
- Resource sharing among participating agencies
- Collocation of core incident management personnel (combined with joint training and education)
- Frequent interaction among partner agencies
- Prior joint planning for on-scene staging and traffic management
- Incident data collection and dissemination of incident information
- Conduct of periodic incident management program reviews and regular evaluation

"Without question, interagency cooperation can make a tremendous difference. Conservatively, we have seen a 25% improvement in incident response times through better interagency cooperation."

—Marion Waters, Georgia Department of Transportation

"Interagency cooperation has been our biggest ally in putting together our incident management and response program. It has improved cooperation among agencies by 100%. Response times have decreased by 40% with cooperation among agencies."

—Jerry Althauser, Washington State Department of Transportation, Seattle

Benefits of Interagency Coordination

- Promote better understanding, trust, respect, and communication among incident management agencies, leading to improved clearance times
- Improve detection, response, and clearance times
- Promote the sharing of resources (equipment and personnel) among agencies
- Allow for better on-site management of incidents
- Promote better (more efficient) management policies
- Allow for improved sensitivity to each other's organizational needs and extended faith in each other's abilities
- Allow agencies to gauge expectations
- Allow for improved safety resulting from more efficient response/incident clearance processes
- Allow for improved public awareness through better communication and real-time updates about incidents to the public (lowers number of secondary incidents)

Lessons Learned

- Interagency cross-training promotes improved coordination and cooperation among personnel by fostering a better understanding regarding different agency priorities and procedures
- Cross-agency coordination is institutionalized when personnel at all levels of the organizations—not just leaders and managers—buy in to the program
- Increased exposure to field-based on-the-job training and exercises builds credibility and trust among agency personnel, resulting in—
  - Enhanced on-scene safety
  - Lower incident clearance times
  - Faster restoration of normal traffic flow
- Interagency programs need to be structured, yet flexible enough to evolve as expectations change and knowledge is acquired
- Regular team debriefings and evaluation of incident management programs are needed to sustain and improve high levels of coordination.

Incident Management Training and Leadership

Summary

Training

- Time constraints create difficulties in scheduling joint agency training
- Interagency training fosters working relationships and trust among incident management personnel
- Few regions conduct formal, interagency training programs on a regular basis
- Incident management training budgets are typically combined with other incident management program budgets
- All best practice locations conduct internal incident management training for their employees

Leadership

- Many regions lack a defined leadership program
- Leadership succession models are not well developed
- Leaders are usually self-evolving—not elected or appointed.

What Is Incident Management Training?

Incident management training refers to the interagency, multi-disciplinary training required to enable a high degree of coordination and the efficient use of resources available for incident management. Incident management training includes classroom, field, and on-the-job training.

State of the Practice

- Classroom Training
  - CPR
  - Incident Response Tabletops
  - HAZMAT First Responder Activities
  - Vehicle Mechanical Courses
  - TMC traffic control and software training
- Field Training
  - Interagency Incident Response Exercises
  - HAZMAT Response Exercises
  - Service Patrol Operations Training
  - Traffic Control Training
  - Emergency Response Training

What Is Incident Management Leadership?

Incident management leadership is the group of high-level and mid-level personnel from one or more agencies that champion interagency cooperation and coordination to achieve high efficiency of incident management operations.

Strong leadership is critical to the success of any incident management program. Successful leadership requires buy-in and dedication from both policymakers and managers, who must devote resources to devise plans and execute them in the field.

Leadership Practices

- State transportation agencies often serve as facilitators in incident management
- In a few locations, senior staff are groomed to take leadership positions
- Roles and responsibilities are not clearly defined

Lessons Learned

- Training programs must encompass large segments of incident management personnel and be ongoing to maintain their quality
- Training methods and approaches must be documented and widely circulated
- Monitoring and continuous improvement of training programs are critical to long-term success of incident management operations
- Joint field training among agencies performing incident management is key to building credibility and trust, resulting in faster response and clearance times
- Training programs must receive high priority from all agencies during the incident management budgeting process
- Agencies should pool resources to stretch training budgets
- Sharing experiences and ideas from other incident management programs will advance program objectives more rapidly
- Incident management leadership must be based on a formal program
- To avoid a leadership vacuum, a well-defined leadership succession model must be employed
- Training and leadership programs require top management attention and support.

Strategic Planning for Incident Management

Incident management is an important operations function of state and local DOTs, law enforcement agencies, fire companies, rescue agencies, tow operators, traveler information providers like the media, HAZMAT cleanup services, and a series of other agencies that support these major players. Since it involves coordinating the operations of many of these agencies to respond to incidents, incident management poses a significant institutional and management challenge. The human and material resources of these agencies have to be mobilized and leveraged collectively within a short span of time. Interagency relationships have to be developed and sustained to ensure high operational efficiency at the incident scene. Technology can help improve incident response times, clearance efficiency, and smooth communications among agencies, but technology alone cannot guarantee that the partners will be able to work well together when significant differences in ideology and approaches exist between them.

Technology alone cannot guarantee that the partners will be able to work well together.

Success under such conditions will come only with careful planning and efficient execution. This can be achieved through strategic planning for incident management. Each of the partner agencies is accountable to different elected and appointed bodies and source their budgets from taxes and other public revenue sources (except the private partners, whose services are paid for by the public agency partners). Each partner is also responsible for a wide range of services to be rendered on a daily basis. In this environment, incident management can become a victim of budget cuts, loss in focus, or the departure of champions. Such losses can lead to a deterioration of the public's mobility and safety levels on roadways.

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Today's best incident programs have developed from small beginnings under the leadership of self-styled champions (from one or two agencies) who have rallied the support of their peers in the partner agencies. These programs faced considerable difficulties in the beginning and consolidated their position later when the benefits to the community became clear. However, incident management is not a 'core function' considered during the budgeting process at most of the partner agencies, and the programs operate on small budgets and rarely enjoy visibility from top management at the partner agencies. These problems can threaten program sustainability.

These deficiencies can be addressed effectively by adopting a structured strategic planning process for incident management at the regional and even statewide levels. By discussing and agreeing upon common objectives and approaches to deal with incidents, agencies can participate in the program knowing that their needs are understood by their partners. Projecting the potential benefits and obtaining top management buy-in at each of the partner agencies will ensure the program's sustainability. A strategic plan must consider the needs of the program's 'customers'—the travelling public—and coordinate its efforts with the media and employers in the area to achieve high levels of information dissemination. A phased implementation plan with detailed analysis of the resources needed to deliver the objectives agreed upon, together with a resource sharing plan, will clarify the contribution of each partner and avoid surprises later. These, combined with a comprehensive program evaluation and benefits assessment, will establish the foundation for a long term sustainable incident management program.

A strategic plan must consider the needs of the program's 'customers' —the travelling public.

Programs such as maintenance management at DOTs and crime prevention and education at law enforcement agencies took several years to grow but have now become core components of the agencies' operations. Incident management programs deserve such 'core' status within partner agencies considering the benefits they deliver. This also can be achieved through interagency strategic planning for incident management.

Incident management programs deserve 'core' status within partner agencies.

An implementation guide, currently being developed, will address the issue of strategic planning for incident management. This document will present approaches to successfully plan and operate regional incident management programs in a sustainable fashion. The document will be based on experiences and lessons learned from leading programs around the nation.

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"One of our priorities on the I-70 Corridor is to get enough traveler information out to reduce the traveler and incident responder problems. With good information about an incident, travelers can either delay their trips or take an alternative route, and the incident responders have less congestion to manage."

— John Muscatell, Manager, Staff Traffic and Safety Branch, Colorado DOT

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