Traffic Incident Management (TIM)

Gap Analysis

Outreach Briefing

Executive Decision Makers

(Credit: FHWA)
Outline

• Briefing Objective and Overview
• Primer Objectives and Outline
• TIM Gap Analysis
• Successful TIM Program
• Implementation Strategies and Action Plan
Briefing Objective and Overview
Briefing Objective

• To provide executive leadership and decision makers with guidance to help agencies as they design, operate, and maintain a sustainable traffic incident management program
Overview of Traffic Incident Management (TIM)

• Timeline of Stages in the TIM Process:

Source: FHWA Traffic Incident Management Handbook 2010

National Averages

<table>
<thead>
<tr>
<th>Year</th>
<th>Roadway Clearance Time</th>
<th>Incident Clearance Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>70.29 min.</td>
<td>55.66 min.</td>
</tr>
<tr>
<td>2013</td>
<td>68.90 min.</td>
<td>56.34 min.</td>
</tr>
</tbody>
</table>

Source: 2013 FHWA Traffic Incident Management Self-Assessment Executive Summary
Overview of Traffic Incident Management (TIM)

• Effective TIM programs reduce the duration and impacts of traffic incidents and improves the safety of motorists, crash victims, and emergency responders
Impact of Incidents

• Account for about 25% of all non-recurring congestion

• Significant threat to life safety and influence travel time, economic productivity, and transportation system performance

• Requires proactive planning to achieve quick incident clearance
# Overview of TIM Stakeholder Involvement

<table>
<thead>
<tr>
<th>Traditional Responders</th>
<th>Special/Extreme Circumstance Responders</th>
<th>Incident Information Providers</th>
<th>Transportation System Providers and Users</th>
</tr>
</thead>
<tbody>
<tr>
<td>Law Enforcement</td>
<td>HazMat Contractors</td>
<td>Public Safety Communications</td>
<td>Traveling Public</td>
</tr>
<tr>
<td>Fire and Rescue</td>
<td>Coroner and Medical Examiners</td>
<td>Traffic Media</td>
<td>Trucking Industry</td>
</tr>
<tr>
<td>Emergency Medical Services (EMS)</td>
<td>Emergency Management Agencies</td>
<td>Traveler Information Services</td>
<td>Insurance Industry</td>
</tr>
<tr>
<td>Towing and Recovery</td>
<td>Environmental/Natural Resources/Departments of Health (DOH)</td>
<td>Transportation Agencies</td>
<td>Public Transportation Providers</td>
</tr>
<tr>
<td>Transportation Agencies</td>
<td>Utilities</td>
<td></td>
<td>Motorist Organizations</td>
</tr>
</tbody>
</table>

Source: FHWA Traffic Incident Management Handbook 2010
Primer Objectives and Outline
Statement of the Problem

• Policies and operating procedures for TIM programs not only vary from state to state, but vary regionally within each state and between rural, suburban, and urban areas.
Primer Objectives

• Identify and summarize the current state of TIM practice and activities
• Identify and summarize gaps found in TIM activities/information
• Identify and outline a framework for achieving a complete TIM program utilizing national guidelines
• Outline the key elements that are contained in successful TIM programs
Primer Organization

- Introduction
- TIM Gap Analysis Summary
- Components of Successful TIM Program
Primer Organization

• Roles and Responsibilities of TIM Stakeholders
• TIM Program with Transportation Operations Program
• Conclusions and Recommendations
TIM Gap Analysis

• Inventory of institutional, technical, and financial capabilities of current TIM programs at different government levels

• Two-tier Analysis
  • Federal and National
  • State and Local
Current TIM Gaps

• Represent focus areas for national level TIM agencies in order to most effectively support state/local programs in achieving their TIM goals

• Examples of Program/Institutional Gaps:
  • Multiagency involvement from all TIM partners
  • Formal documentation of the TIM agreements (e.g., MOUs)
  • Multidisciplinary TIM training
Current TIM Gaps

- **Examples of Operational Gaps:**
  - Responder safety procedures and practices
  - Equipment staging and scene management
  - Accident reconstruction and investigations

- **Examples of Communication/Technology Gaps:**
  - Emergency communications systems during incident response
  - Prompt incident detection and notification
TIM Gap Analysis Results

• A key role of the national multidisciplinary TIM efforts and agencies is to develop and promote TIM policies and procedures at a national policy level that enhance and advance TIM training and practices at the state/local operations level
TIM Gap Analysis Results

• The ability to efficiently achieve the 18 strategies of the National Unified Goal (NUG), represents the key framework for a successful complete TIM program
  • Cross-Cutting Strategies
  • Responder Safety
  • Safe, Quick Clearance
  • Prompt, reliable Incident Communications
The Nation Unified Goal (NUG) Gap Analysis Framework

• Document the identified challenges and barriers (i.e. gaps) in the current TIM practice

• Develop a means to bridge these challenges and barriers

• Propose the components of a complete TIM program
## The NUG Gap Analysis Framework (Examples)

<table>
<thead>
<tr>
<th>National Unified Goal (NUG) Strategy</th>
<th>Key Elements</th>
<th>Challenges &amp; Barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td>TIM Partnerships and Programs</td>
<td>Synchronized TIM programs at the state, multistate, regional, and local levels</td>
<td>Departments of Transportation (DOTs) often are not included in emergency planning and preparedness organizations’ activities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Agency executive/senior leader engagement and buy-in</td>
</tr>
<tr>
<td>Multidisciplinary NIMS and TIM Training</td>
<td>Cross training of the incident scene roles and responsibilities</td>
<td>Volunteer agencies do not have the same time available for training that full-time agencies have</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Availability of multidisciplinary TIM training courses and delivery processes appropriate for full-time and volunteer agencies</td>
</tr>
<tr>
<td>Goals for Performance and Progress</td>
<td>Having a systematic approach for measuring TIM program performance across national and state/local levels.</td>
<td>Performance metrics vary across agencies, making it difficult to compare results</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Development of performance measures (PM) and data collection methods including those for each stage of an incident</td>
</tr>
<tr>
<td>TIM Technology</td>
<td>Sustainable and interoperable ITS technologies for TIM</td>
<td>Consistent use of existing technologies by all disciplines</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Establishment and implementation of standard and efficient use of technology</td>
</tr>
<tr>
<td>Effective TIM Policies</td>
<td>Formal strategic plans and written interagency operational policies.</td>
<td>Lack of interagency coordination at all levels including the senior executive level.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>TIM Task Force representatives with information to educate their agencies, senior leaders.</td>
</tr>
<tr>
<td>Awareness and Education Partnerships</td>
<td>Develop partnerships to educate responders and motorists on responsibilities of the safe, quick clearance of incidents.</td>
<td>Lack of awareness and education regarding the public’s role.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Identification of the best ways of getting information out to the public.</td>
</tr>
</tbody>
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<th>Strategies to Overcome Challenges &amp; Barriers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Recommended Practices for Responder Safety</strong></td>
<td>Promote practices to protect responders on-scene.</td>
<td>Lack of coordinated safety practices for TIM responders.</td>
<td>Developing and adopting coordinated safety practices.</td>
</tr>
<tr>
<td><strong>Move Over/Slow Down Laws</strong></td>
<td>Ensure that motorists provide a safety buffer for responders when possible.</td>
<td>Lack of and challenges related to legislation and enforcement.</td>
<td>Coordination with the advancement of legislation with multi-organization support.</td>
</tr>
<tr>
<td><strong>Driver Training and Awareness</strong></td>
<td>Teach drivers how to prevent secondary incidents from behaviors such as incident scene curiosity.</td>
<td>Driver understanding of what to do in an incident scene.</td>
<td>Use technology to help drivers respond properly to diversions as well as awareness.</td>
</tr>
<tr>
<td><strong>Multidisciplinary TIM Procedures</strong></td>
<td>Encourage widespread adoption of procedures for quickly clearing incident scenes.</td>
<td>Coordination of TIM operations.</td>
<td>Active participation of TIM stakeholder agencies.</td>
</tr>
<tr>
<td><strong>Response and Clearance Time Goals</strong></td>
<td>Establish benchmarks, or time goals for incident response and clearance.</td>
<td>Lack of data consistency.</td>
<td>Establishment of metrics based on obtainable data.</td>
</tr>
<tr>
<td><strong>24/7 Availability</strong></td>
<td>Encourage 24 hours a day, 7 days per week availability of traffic incident responders and equipment.</td>
<td>Organizational capabilities on a 24/7 basis.</td>
<td>Identification of availability of TIM resources on a 24/7 basis.</td>
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<td><strong>Multidisciplinary Communications Practices and Procedures</strong></td>
<td>Develop guidelines for standardized communications practices and procedures.</td>
<td>Communication capabilities of TIM organizations.</td>
<td>Common language, operational channels.</td>
</tr>
<tr>
<td><strong>Prompt, Reliable Responder Notification</strong></td>
<td>Develop systems and procedures to ensure prompt and reliable notification of incident information to incident responders.</td>
<td>Lack of understanding of information needs of other agencies.</td>
<td>Provide timely notification of incidents to responders.</td>
</tr>
<tr>
<td><strong>Interoperable Voice and Data Networks</strong></td>
<td>Create links between incident responder information and communications systems.</td>
<td>Incompatibility of current voice and protocol data networks.</td>
<td>Determine how interoperable communications equipment could improve TIM and promote implementation.</td>
</tr>
<tr>
<td><strong>Broadband Emergency Communications Systems</strong></td>
<td>Promote integrated broadband networks linking emergency service providers.</td>
<td>Integration between broadband emergency communication systems.</td>
<td>Promote integration of TMC and law enforcement CAD systems.</td>
</tr>
<tr>
<td><strong>Prompt, Reliable Traveler Information Systems</strong></td>
<td>Encourage the development and deployment of traveler information systems to deliver real-time traveler information.</td>
<td>Timely and relevant information to the motorists to avoid additional incidents.</td>
<td>Examine additional outlet mechanisms for traveler information.</td>
</tr>
<tr>
<td><strong>Partnerships with News Media and Information Providers</strong></td>
<td>Develop recommended practices for working with news media and ISP to deliver timely and reliable traveler information.</td>
<td>Conflicting priorities and unfamiliarity with the media’s TIM role.</td>
<td>Educate media of their TIM role.</td>
</tr>
</tbody>
</table>
Successful TIM Program
TIM Program Framework

**Strategic**
Form a framework for TIM activities; as well as how to plan, prepare for, and measure performance of the program

**Tactical**
Provide the tools and technologies for traffic management and interagency communications for on-scene operations

**Support**
Provide for the operational, tactical, and institutional support for effective communication and information exchange
Key TIM Program Elements

Strategic (Institutional)

- Have a TIM multiagency team or task force which meets regularly to discuss and plan for TIM activities
- Conduct multiagency training held at least once a year on TIM-specific topics:
  - NIMS/ICS 100
  - TIM SHRP2 Training
  - Training of mid-level managers from primary agencies on the NUG
  - Traffic control
  - Work zone safety
  - Safe on-scene parking
- Conduct multiagency post-incident debriefings
- Develop and distribute summaries of after action reports
- Conduct planning for special events:
  - Construction and maintenance
  - Sporting events, concerts, conventions, among others
  - Weather-related events
  - Catastrophic events
Key TIM Program Elements

Strategic (Institutional) – Cont’d

- Have multiagency agreements/MOUs including:
  - Agreements/MOUs signed by top officials from participating agencies
  - Clearly defined incident scene roles and responsibilities for each participating agency
  - Clearly defined agency roles and responsibilities for planning and funding the TIM program
  - Safe, quick clearance goals stated as time goals for incident clearance (e.g., 90 minutes) in the agreement/MOU

- Conduct planning to support the TIM activities across and among participating agencies including the MPO

- Have someone from at least one of the participating agencies responsible for coordinating the TIM program as their primary job function

- Have multiagency agreement on the two PM being tracked:
  - Roadway clearance time
  - Incident clearance time

- Have established methods to collect and analyze the data necessary to measure performance in reduced roadway clearance time and reduced incident clearance time

- Have targets (e.g., time goals) for performance of the two measures
Key TIM Program Elements

Strategic (Institutional) – Cont’d

- Routinely review whether progress is made in achieving the targets
- Track performance in reducing secondary incidents
- Deploy effective and affordable TIM technology to support TIM activities including:
  - Incident detection
  - Prompt and reliable responder notification
- Have 24/7 availability of key responders and equipment
- Develop and perform efficient and effective multiagency resource management based on the utilization of:
  - Appropriate personnel who are best qualified (i.e., capable but not over-qualified) for the various tasks
  - Appropriate equipment by function (i.e., use of the least costly equipment capable of performing the function)
  - Appropriate technology capable of supporting various onsite resource tasks
- Have a multiagency commitment and approach to the establishment of effective budgeting to provide stable funding for TIM within the processes and capabilities of the individual and/or collective agencies as appropriate to the activity
- Education and Awareness Partnerships including driver training and awareness
Key TIM Program Elements

Tactical (Technical/Operational)

- Have “authority removal” laws allowing pre-designated responders to remove disabled or wrecked vehicles and spilled cargo
- Have “driver removal” laws that require drivers involved in minor crashes (i.e., not involving injuries) to move vehicles out of the travel lanes
- Use a safety service patrol for incident and emergency response
- Utilize the ICS on-scene
- Have response equipment pre-staged for timely response
- Identify and document resources so that a list of towing and recovery operators (including operator capabilities and special equipment) is available for incident response and clearance
- Identify and document resources so that a list of HazMat contractors (including capabilities and equipment) is available for incident response
- Give at least one responding agency the authority to override the decision to utilize the responsible party’s HazMat contractor and call in other resources
- Have the medical examiner response clearly defined and understood for incidents involving fatalities
Key TIM Program Elements

Tactical (Technical/Operational) – Cont’d

- Have the electric utility companies’ role clearly defined for incidents involving downed electrical wires
- Have procedures in place for expedited accident reconstruction/investigation
- Have a policy in place for removal of abandoned vehicles
- Have “Move Over” laws that require drivers to slow down and if possible move over to the adjacent lane when approaching workers or responders and equipment in the roadway
- Train all responders in traffic control following MUTCD guidelines
- Routinely utilize transportation resources to conduct traffic control procedures for various levels of incidents in compliance with the MUTCD
- Routinely utilize traffic control procedures for the end of the incident traffic queue
- Have mutually understood equipment staging and emergency lighting procedures onsite to maximize traffic flow past an incident while providing responder safety
- Pre-established, signed accident investigation sites
- Have procedures in place for prompt responder notification
Key TIM Program Elements

Support (Financial/Technological)

- Use a TMC/TOC to coordinate incident detection, notification and response
- Share data/video between agencies
- Have specific policies and procedures for traffic management during incident response:
  - Signal timing changes
  - Pre-planned detour and alternate routes identified and shared between agencies
- Provide for interoperable, interagency communications onsite between incident responders
- Have a real-time motorist information system providing incident-specific information:
  - Traveler information delivered via 511/website
  - Traveler information delivered via mobile applications
  - Traveler information delivered through traffic/news media partnerships/access to TMC/TOC data/information
- Provide motorists with travel time estimates for route segments
- Develop and implement Cost Recovery and Management systems including:
  - Costs recovery for the reimbursement for services from sources outside of the direct budget that funds the program seeking reimbursement
  - Cost management includes efforts to maximize the cost-benefit relationship of program activities via a cyclical loop of cost planning, tracking, analysis, and evaluation and reprogramming
Success Story
New York State TIM Program

- Established in 2010
- TIM Components
  - A statewide strategic plan.
  - NYS Emergency Traffic Control and Scene Management Guidelines.
  - A “Move Over” law.
  - Numerous well developed regional TIM programs.

(Credit: VHB)

(Credit: NYSDOT)
Success Story
New York State TIM Program

• TIM Components
  • An active statewide TIM task force.
  • Model partnerships with the state police.
  • A statewide service patrol.
  • TMCs operational for 24 hours and 7 days a week in most regions.
Implementation Strategies and Action Plan
Steps for Establishing a TIM Program

- Identify Stakeholders
- Define the Problem
- Set Goals and Objectives
- Develop Alternatives
- Evaluate and Select Alternatives
- Implement Alternatives
- Reevaluate Alternatives
- Refine the System
Implementation Strategies

• Regular TIM meetings
• Multidisciplinary training
• Tracking of performance goals
• Develop and promote TIM procedures and policies
• Coordinate the available resources
• Strategic collaboration

(Credit: FHWA)
Action Plan

• Establish and formalize a TIM program with the following components:
  • Incident management policies and plans
  • Interagency relationships
  • Organizational structure
  • Staffing and training
  • Performance goals
  • Reporting channels
  • Budget
Key Roles for Executive Management

- Make TIM a Core Program
- Provide leadership at all levels
- Support adequate resources (staff & funding)
- Organize the agency for an effective program
- Require program support at all levels of the organization
Key Roles for Executive Management

- Engage executives from other agencies
- Participate in statewide committees and conferences
- Work to remove jurisdictional barriers
- Support needed policy development and training
For national level questions, please contact:

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Thank You!