Traffic Incident Management (TIM)

Gap Analysis Outreach Briefing

TIM Program Managers

(Credit: FHWA)

(Credit: FHWA)

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Outline

- Briefing Objective and Overview

- Primer Objectives and Outline

- TIM Gap Analysis

- Successful TIM Program

- Steps to Establish a TIM Program and Action Plan

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Traffic Incident Management Gap Analysis Outreach Briefing - TIM Program Managers

Briefing Objective and Overview

Briefing Objective

- To provide traffic incident management practitioners and technical staff with guidance to design, operate, and maintain a sustainable traffic incident management program

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Background

- Traffic incident – "Any non-recurrent event, such as a vehicle crash, vehicle breakdown, or other special event, that causes a reduction in highway capacity and/or an increase in demand"

Source: I-95 Corridor Coalition "Coordinated Incident Management Toolkit for Quick Clearance" 2007

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Background

- Non-recurring incidents dramatically reduce the available capacity and reliability of the entire transportation system and when an incident occurs, congestion quickly builds up and chances of a *secondary incident increase.*

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Impact of Incidents

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

- Requires pre-planning to achieve quick incident clearance

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Overview of Traffic Incident Management (TIM)

- Timeline of Stages in the TIM Process:
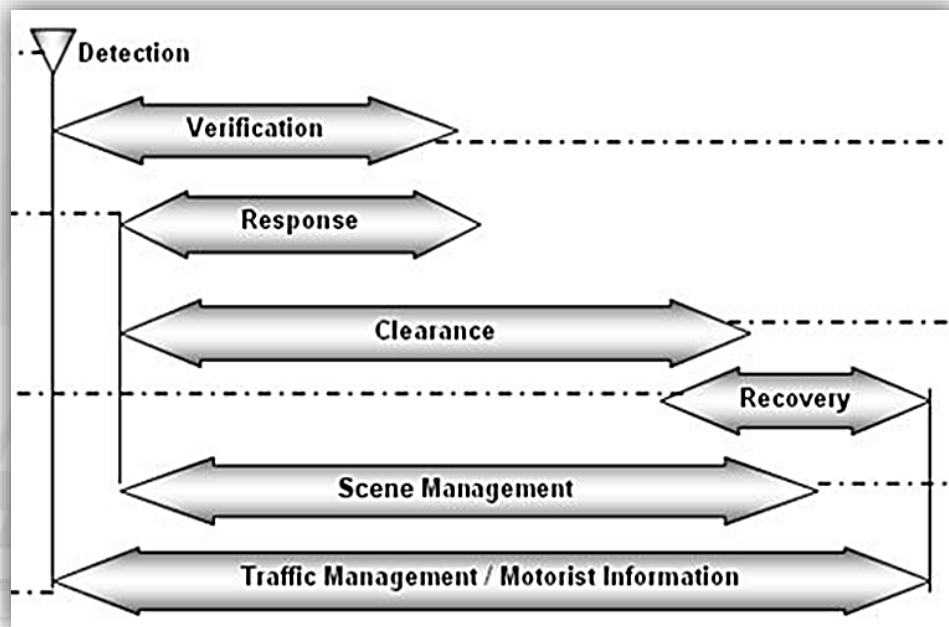
Source: FHWA Traffic Incident Management Handbook 2010

National Averages		
	Roadway Clearance Time	Incident Clearance Time
2012	70.29 min.	55.66 min.
2013	68.90 min.	56.34 min.

Source: 2013 FHWA Traffic Incident Management Self-Assessment Executive Summary

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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

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TIM Goals

- Promote the safety of motorists, crash victims, and incident responders

- Reduce the time for incident detection and verification

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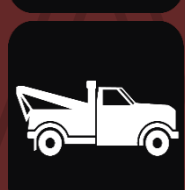
TIM Goals

- Exercise proper and safe on-scene management of personnel and equipment, while keeping as many lanes, as possible, open to traffic

- Conduct an appropriate response, investigation, and safe clearing of an incident

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Overview of TIM Stakeholder Involvement

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

Source: FHWA Traffic Incident Management Handbook 2010

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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

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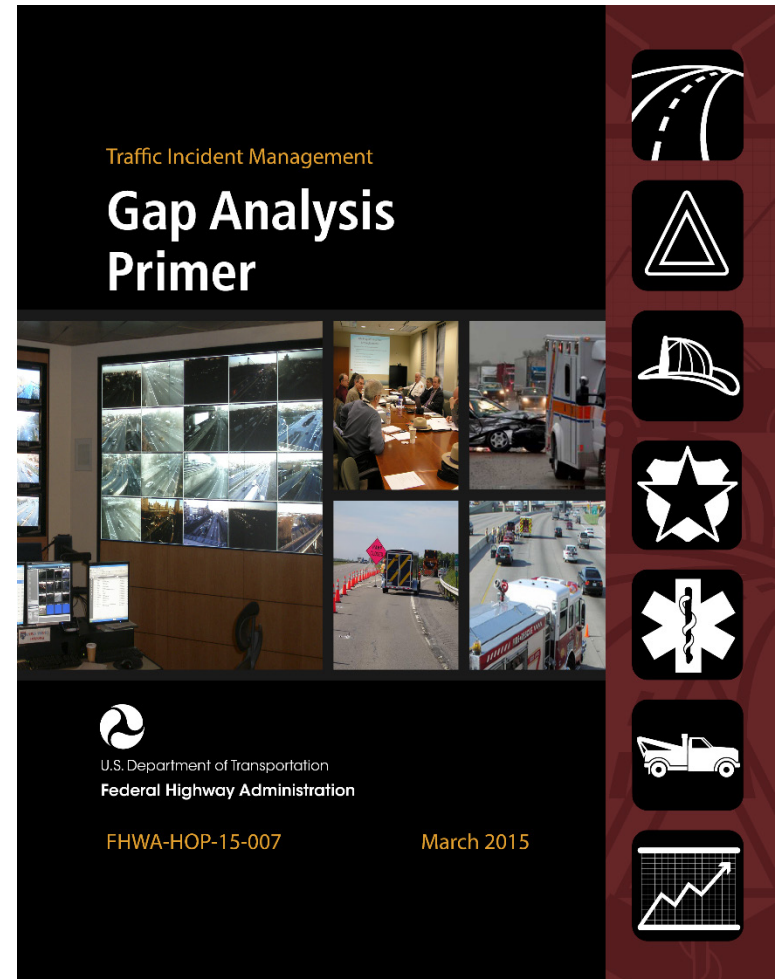**Federal Highway Administration**
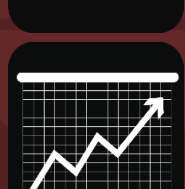
Primer Objectives

- Identify and summarize the current state of TIM practice and activities
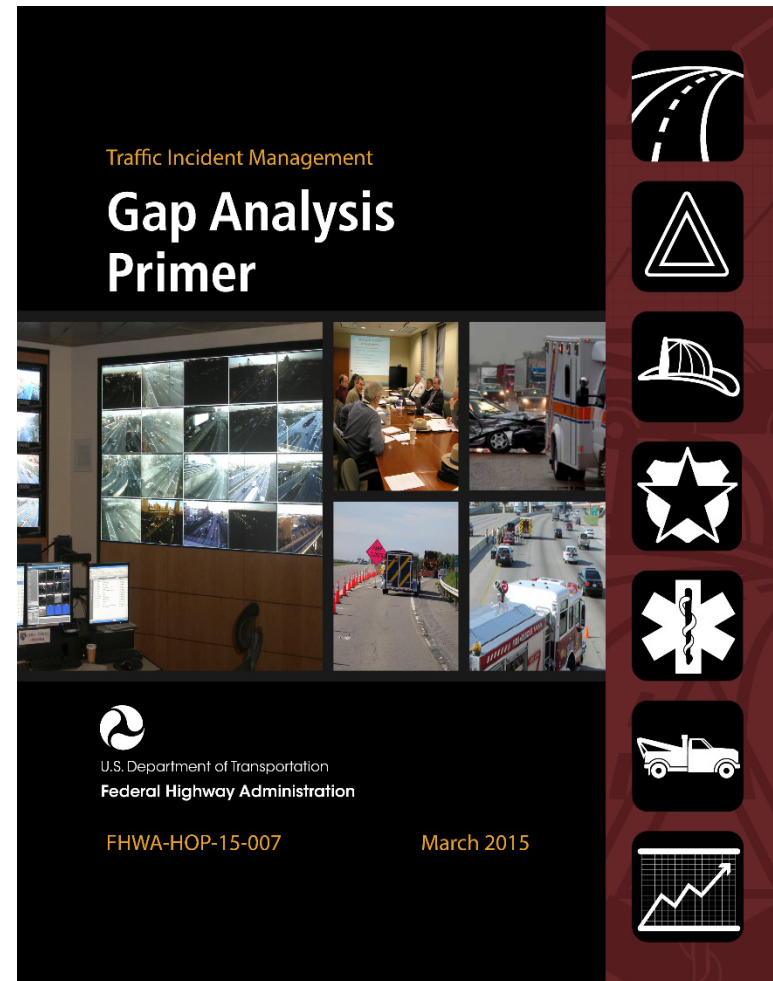- Identify and summarize gaps found in TIM activities/information

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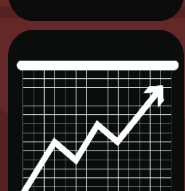
Primer Organization

- 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

Traffic Incident Management
Gap Analysis Primer

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TIM Gap Analysis

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

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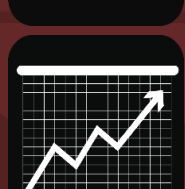
Current TIM Gaps

- 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

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Current TIM Gaps

- Examples of Operational Gaps:
  - Responder safety procedures and practices
  - Equipment staging and scene management
  - Accident reconstruction and investigations
  - 24/7 responder availability
  - Safety service patrol (SSP) availability

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Current TIM Gaps

- Examples of Communication/Technology Gaps:
  - Emergency communications systems during incident response
  - Prompt incident detection and notification
  - Interoperable data sharing

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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

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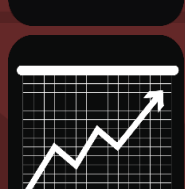
TIM Gap Analysis Results

- 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

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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

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The NUG Gap Analysis Framework (Examples)

National Unified Goal (NUG) Strategy	Key Elements	Challenges & Barriers	Strategies to Overcome Challenges & Barriers
TIM Partnerships and Programs	Synchronized TIM programs at the state, multistate, regional, and local levels	Departments of Transportation (DOTs) often are not included in emergency planning and preparedness organizations' activities	Agency executive/senior leader engagement and buy-in
Multidisciplinary NIMS and TIM Training	Cross training of the incident scene roles and responsibilities	Volunteer agencies do not have the same time available for training that full-time agencies have	Availability of multidisciplinary TIM training courses and delivery processes appropriate for full-time and volunteer agencies
Goals for Performance and Progress	Having a systematic approach for measuring TIM program performance across national and state/local levels.	Performance metrics vary across agencies, making it difficult to compare results	Development of performance measures (PM) and data collection methods including those for each stage of an incident
TIM Technology	Sustainable and interoperable ITS technologies for TIM	Consistent use of existing technologies by all disciplines	Establishment and implementation of standard and efficient use of technology
Effective TIM Policies	Formal strategic plans and written interagency operational policies.	Lack of interagency coordination at all levels including the senior executive level.	TIM Task Force representatives with information to educate their agencies, senior leaders.
Awareness and Education Partnerships	Develop partnerships to educate responders and motorists on responsibilities of the safe, quick clearance of incidents.	Lack of awareness and education regarding the public's role.	Identification of the best ways of getting information out to the public.

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The NUG Gap Analysis Framework (Examples)

National Unified Goal (NUG) Strategy	Key Elements	Challenges & Barriers	Strategies to Overcome Challenges & Barriers
Recommended Practices for Responder Safety	Promote practices to protect responders on-scene.	Lack of coordinated safety practices for TIM responders.	Developing and adopting coordinated safety practices.
Move Over/Slow Down Laws	Ensure that motorists provide a safety buffer for responders when possible.	Lack of and challenges related to legislation and enforcement.	Coordination with the advancement of legislation with multi-organization support.
Driver Training and Awareness	Teach drivers how to prevent secondary incidents from behaviors such as incident scene curiosity.	Driver understanding of what to do in an incident scene.	Use technology to help drivers respond properly to diversions as well as awareness.
Multidisciplinary TIM Procedures	Encourage widespread adoption of procedures for quickly clearing incident scenes.	Coordination of TIM operations.	Active participation of TIM stakeholder agencies.
Response and Clearance Time Goals	Establish benchmarks, or time goals for incident response and clearance.	Lack of data consistency.	Establishment of metrics based on obtainable data.
24/7 Availability	Encourage 24 hours a day, 7 days per week availability of traffic incident responders and equipment.	Organizational capabilities on a 24/7 basis.	Identification of availability of TIM resources on a 24/7 basis.

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The NUG Gap Analysis Framework (Examples)

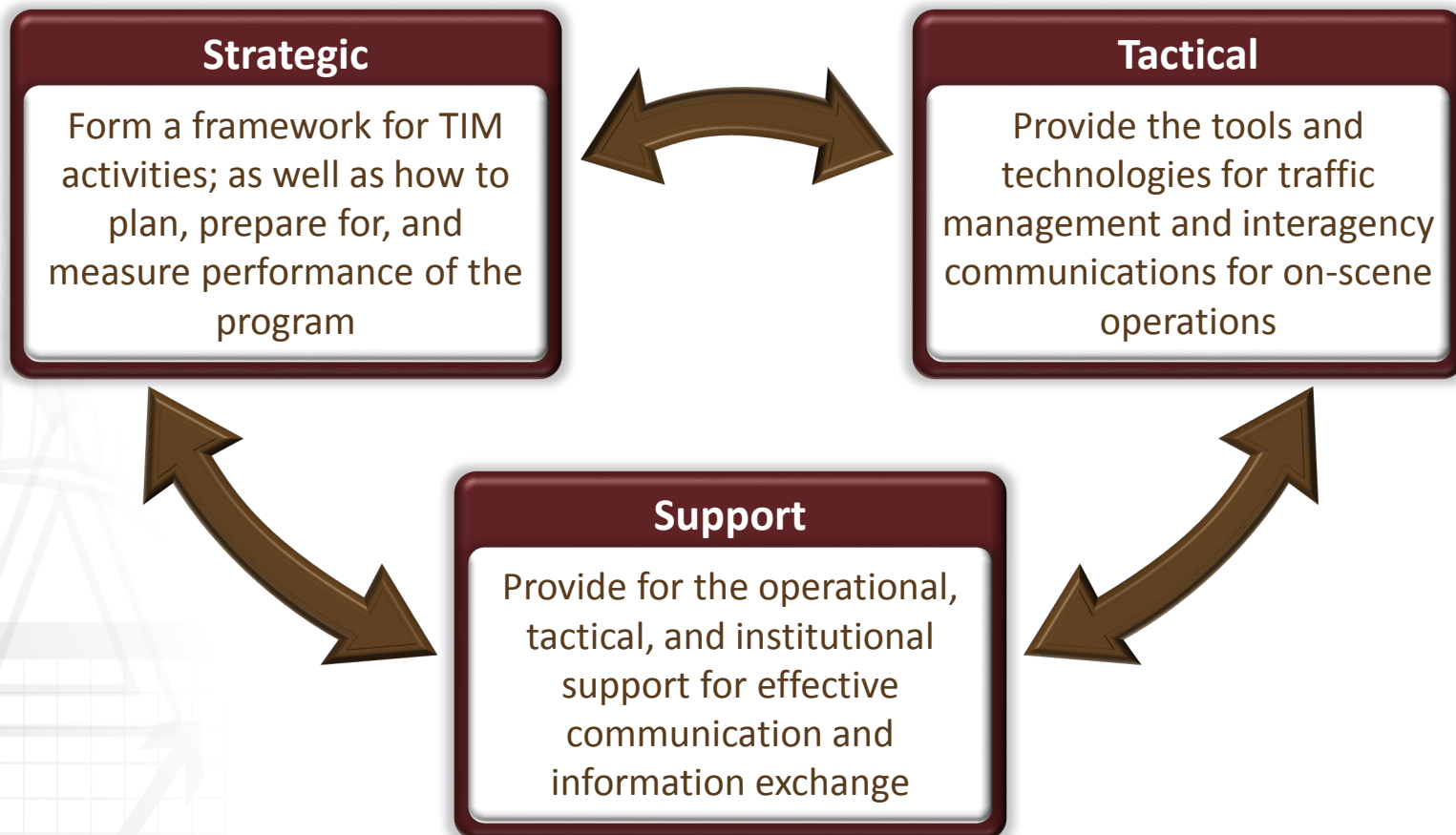| National Unified Goal (NUG) Strategy	Key Elements	Challenges & Barriers	Strategies to Overcome Challenges & Barriers
Multidisciplinary Communications Practices and Procedures	Develop guidelines for standardized communications practices and procedures.	Communication capabilities of TIM organizations.	Common language, operational channels.
Prompt, Reliable Responder Notification	Develop systems and procedures to ensure prompt and reliable notification of incident information to incident responders.	Lack of understanding of information needs of other agencies.	Provide timely notification of incidents to responders.
Interoperable Voice and Data Networks	Create links between incident responder information and communications systems.	Incompatibility of current voice and protocol data networks.	Determine how interoperable communications equipment could improve TIM and promote implementation.
Broadband Emergency Communications Systems	Promote integrated broadband networks linking emergency service providers.	Integration between broadband emergency communication systems.	Promote integration of TMC and law enforcement CAD systems.
Prompt, Reliable Traveler Information Systems	Encourage the development and deployment of traveler information systems to deliver real-time traveler information.	Timely and relevant information to the motorists to avoid additional incidents.	Examine additional outlet mechanisms for traveler information.
Partnerships with News Media and Information Providers	Develop recommended practices for working with news media and ISP to deliver timely and reliable traveler information.	Conflicting priorities and unfamiliarity with the media's TIM role.	Educate media of their TIM role.

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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

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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
➢ Conduct multiagency post-incident debriefings
➢ Develop and distribute summaries of after action reports
➢ Conduct planning for special events
➢ Have multiagency agreements/MOUs
➢ 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

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Key TIM Program Elements

Strategic (Institutional) – Cont'd

- ➢ 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
- ➢ 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
- ➢ Have 24/7 availability of key responders and equipment
- ➢ Develop and perform efficient and effective multiagency resource management
- ➢ 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

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Key TIM Program Elements

Tactical (Technical/Operational)

- Have "authority removal" laws allowing pre-designated responders to remove disabled or wrecked vehicles and spilled cargo:
  - "Authority removal" law in place
  - Understood and utilized by responders
- Have "driver removal" laws that require drivers involved in minor crashes (i.e., not involving injuries) to move vehicles out of the travel lanes:
  - "Driver removal" law in place
  - Adequately communicated to motorists
- Use a safety service patrol for incident and emergency response
- Utilize the ICS onscene
- 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

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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:
  - ○ "Move Over" law in place
  - ○ Adequately communicated to drivers
- ➤ 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:
  - ○ Vehicle and equipment staging procedures
  - ○ Light-shedding procedures
  - ○ Personal protective equipment used by responders
  - ○ Pre-established, signed accident investigation sites
- ➤ Have procedures in place for prompt responder notification

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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:
  o Signal timing changes
  o 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:
  o Traveler information delivered via 511/ website
  o Traveler information delivered via mobile applications
  o 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:
  o Costs recovery for the reimbursement for services from sources outside of the direct budget that funds the program seeking reimbursement
  o 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

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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)

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Success Story
NYS 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.

(Credit: VHB)

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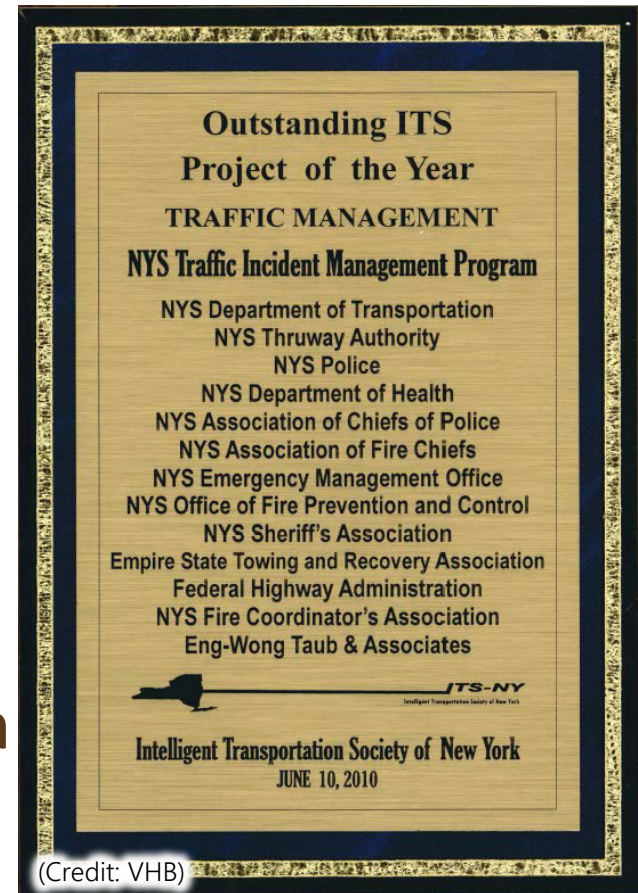
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Steps for Establishing a TIM Program and Action Plan

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

(Credit: VHB)

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Steps for Establishing a TIM Program

- **<u>Identify Stakeholders</u>**
  - Identifying relevant stakeholders is a critical first step to the success of a TIM program
  - Once these stakeholders commit to establishing a TIM program, they can sponsor a TIM Task Force that meets periodically to enhance and guide the program

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Steps for Establishing a TIM Program

- **Define the Problem**
  - Defining the problem can be accomplished through a combination of data collection, data compilation, brainstorming, and a constructive assessment of existing practices

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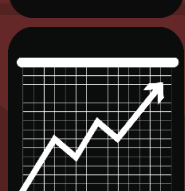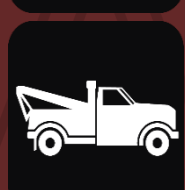
Steps for Establishing a TIM Program

- **Set Goals and Objectives**
  - These "guiding principles" usually consist of a mission statement with goals and objectives based on the identified problems. These goals and objectives describe what the program is designed to accomplish and are meant to reflect multiagency efforts and not those of individual agencies

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Steps for Establishing a TIM Program
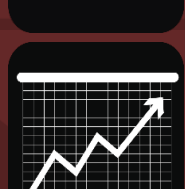
- **<u>Develop Alternatives</u>**
  - TIM programs consist of numerous individual practices, tools and infrastructure elements
  - Based on the goals and objectives developed previously, alternatives should be determined to combine available TIM tools and techniques into program packages for evaluation

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Steps for Establishing a TIM Program

- **Evaluate and Select Alternatives**
  - The developed alternatives should be evaluated based on:
    - Prioritization
    - High-level cost estimates
    - Expected benefits

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Steps for Establishing a TIM Program

- **Implement Alternatives**
  - As alternatives are being implemented, mechanisms for resolving the issues associated with incident management must be developed
  - Example issues include:
    - Jurisdictional boundaries
    - Operational responsibilities
    - Funding sources

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Action Plan

- Establish the baseline of where your jurisdiction is regarding statutes, policies, and procedures

- Identify counterparts in each pertinent local/state discipline and contact them

- Hold a kick-off team meeting to start establishing relationships

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Action Plan

- Develop key policies and documents
  - Create an Open Roads policy
  - Develop a Concept of Operations
  - Execute operational MOUs

- Implement multi-disciplinary TIM teams

- Implement a multi-disciplinary training program

- Enable interagency communications and info exchange

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For national level questions, please contact:

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Thank You!