

**Guidelines for Safe and Efficient Operating
Procedures at the Scene of a Roadway Incident**

-Developed for Indiana Emergency Responders-

Goal: To secure and coordinate the resources necessary to restore a roadway's operation in a safe and timely manner.

The ability to quickly implement proper temporary traffic controls might greatly reduce the effects of a secondary incident, such as crashes, disabled vehicles or excessive traffic delays. An essential function for Emergency Response Personnel is the proper control of traffic through the incident scene in order to protect responders, victims, and other personnel while providing safe traffic flow.

The following guidelines reflect the commitment of State and Local Agency and Association heads that will lead and instruct their personnel to have an "Open Roads Philosophy."

The "Open Roads Philosophy" means; that all agency responders, after ensuring their own personal safety and the safety and security of any incident victims, should have as their top priority reducing congestion and the higher risks of secondary crashes for public/motorist safety. This can be initiated by clearing vehicles, victims, and debris from the travel portion of the roadways which will allow traffic to resume at the maximum possible capacity under the circumstances. All of this will be balanced with the need for accurate investigation. It is critical that every First Responder believes in and is guided by the "Open Roads Philosophy."

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DEFINITIONS

Incident Classification

Major- over 90 minutes expected duration
Intermediate- 30 -90 minutes expected duration
Minor- less than 30 minutes expected duration

Incident Command

A standardized, on-scene, all-hazards incident management approach that enables a coordinated response among various jurisdictions and functional agencies, both public and private.

Incident Scene

The area to be determined by Incident Command that encompasses all responders, affected parties, vehicles, debris and affected areas.

Lane numbering identification-

Lanes of traffic are identified numerically as “Lane 1”, “Lane 2”, etc., beginning from the left to the right based on the approaching motorist’s point of view. .



Shadow

An area that is created by placing vehicles around the Incident Scene in a manner that will shield all affected parties present in the Incident Scene.

Manual of Uniform Traffic Control Devices: 2009 Edition Chapter 6I. Control of Traffic through Traffic Incident Management Areas

Section 6I.01 General

Support:

01 The National Incident Management System (NIMS) requires the use of the Incident Command System (ICS) at traffic incident management scenes.

02 A traffic incident is an emergency road user occurrence, a natural disaster, or other unplanned event that affects or impedes the normal flow of traffic.

03 A traffic incident management area is an area of a highway where temporary traffic controls are installed, as authorized by a public authority or the official having jurisdiction of the roadway, in response to a road user incident, natural disaster, hazardous material spill, or other unplanned incident. It is a type of TTC zone and extends from the first warning device (such as a sign, light, or cone) to the last TTC device or to a point where vehicles return to the original lane alignment and are clear of the incident.

04 Traffic incidents can be divided into three general classes of duration, each of which has unique traffic control characteristics and needs. These classes are:

- A. Major—expected duration of more than 2 hours,
- B. Intermediate—expected duration of 30 minutes to 2 hours, and
- C. Minor—expected duration under 30 minutes.

05 The primary functions of TTC at a traffic incident management area are to inform road users of the incident and to provide guidance information on the path to follow through the incident area. Alerting road users and establishing a well defined path to guide road users through the incident area will serve to protect the incident responders and those involved in working at the incident scene and will aid in moving road users expeditiously past or around the traffic incident, will reduce the likelihood of secondary traffic crashes, and will preclude unnecessary use of the surrounding local road system. Examples include a stalled vehicle blocking a lane, a traffic crash blocking the traveled way, a hazardous material spill along a highway, and natural disasters such as floods and severe storm damage.

Guidance:

06 *In order to reduce response time for traffic incidents, highway agencies, appropriate public safety agencies (law enforcement, fire and rescue, emergency communications, emergency medical, and other emergency management), and private sector responders (towing and recovery and hazardous materials contractors) should mutually plan for occurrences of traffic incidents along the major and heavily traveled highway and street system.*

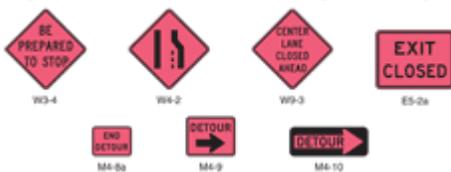
07 On-scene responder organizations should train their personnel in TTC practices for accomplishing their tasks in and near traffic and in the requirements for traffic incident management contained in this Manual. On-scene responders should take measures to move the incident off the traveled roadway or to provide for appropriate warning. All on-scene responders and news media personnel should constantly be aware of their visibility to oncoming traffic and wear high-visibility apparel.

08 Emergency vehicles should be safe-positioned (see definition in [Section 1A.13](#)) such that traffic flow through the incident scene is optimized. All emergency vehicles that subsequently arrive should be positioned in a manner that does not interfere with the established temporary traffic flow.

09 Responders arriving at a traffic incident should estimate the magnitude of the traffic incident, the expected time duration of the traffic incident, and the expected vehicle queue length, and then should set up the appropriate temporary traffic controls for these estimates.

Figure 6I-1 Examples of Traffic Incident Management Area Signs

Figure 6I-1. Examples of Traffic Incident Management Area Signs



Support:

11 While some traffic incidents might be anticipated and planned for, emergencies and disasters might pose more severe and unpredictable problems. The ability to quickly install proper temporary traffic controls might greatly reduce the effects of an incident, such as secondary crashes or excessive traffic delays. An essential part of fire, rescue, spill clean-up, highway agency, and enforcement activities is the proper control of road users through the traffic incident management area in order to protect responders, victims, and other personnel at the site. These operations might need corroborating legislative authority for the implementation and enforcement of appropriate road user regulations, parking controls, and speed zoning. It is desirable for these statutes to provide sufficient flexibility in the authority for, and implementation of, TTC to respond to the needs of changing conditions found in traffic incident management areas.

Option:

12 For traffic incidents, particularly those of an emergency nature, TTC devices on hand may be used for the initial response as long as they do not themselves create unnecessary additional hazards.

Section 6I.02 Major Traffic Incidents

Support:

01 Major traffic incidents are typically traffic incidents involving hazardous materials, fatal traffic crashes involving numerous vehicles, and other natural or man-made disasters. These traffic incidents typically involve closing all or part of a roadway facility for a period exceeding 2 hours.

Guidance:

02 If the traffic incident is anticipated to last more than 24 hours, applicable procedures and devices set forth in other Chapters of Part 6 should be used.

Support:

03 A road closure can be caused by a traffic incident such as a road user crash that blocks the traveled way. Road users are usually diverted through lane shifts or detoured around the traffic incident and back to the original roadway. A combination of traffic engineering and enforcement preparations is needed to determine the detour route, and to install, maintain or operate, and then to remove the necessary traffic control devices when the detour is terminated. Large trucks are a significant concern in such a detour, especially when detouring them from a controlled-access roadway onto local or arterial streets.

04 During traffic incidents, large trucks might need to follow a route separate from that of automobiles because of bridge, weight, clearance, or geometric restrictions. Also, vehicles carrying hazardous material might need to follow a different route from other vehicles.

05 Some traffic incidents such as hazardous material spills might require closure of an entire highway. Through road users must have adequate guidance around the traffic incident. Maintaining good public relations is desirable. The cooperation of the news media in publicizing the existence of, and reasons for, traffic incident management areas and their TTC can be of great assistance in keeping road users and the general public well informed.

06 The establishment, maintenance, and prompt removal of lane diversions can be effectively managed by interagency planning that includes representatives of highway and public safety agencies.

Guidance:

07 All traffic control devices needed to set up the TTC at a traffic incident should be available so that they can be readily deployed for all major traffic incidents. The TTC should include the proper traffic diversions, tapered lane closures, and upstream warning devices to alert traffic approaching the queue and to encourage early diversion to an appropriate alternative route.

08 Attention should be paid to the upstream end of the traffic queue such that warning is given to road users approaching the back of the queue.

09 If manual traffic control is needed, it should be provided by qualified flaggers or uniformed law enforcement officers.

Option:

10 If flaggers are used to provide traffic control for an incident management situation, the flaggers may use appropriate traffic control devices that are readily available or that can be brought to the traffic incident scene on short notice.

Guidance:

11 *When light sticks or flares are used to establish the initial traffic control at incident scenes, channelizing devices (see Section 6F.63) should be installed as soon thereafter as practical.*

Option:

12 The light sticks or flares may remain in place if they are being used to supplement the channelizing devices.

Guidance:

13 *The light sticks, flares, and channelizing devices should be removed after the incident is terminated.*

Section 6I.03 Intermediate Traffic Incidents

Support:

01 Intermediate traffic incidents typically affect travel lanes for a time period of 30 minutes to 2 hours, and usually require traffic control on the scene to divert road users past the blockage. Full roadway closures might be needed for short periods during traffic incident clearance to allow traffic incident responders to accomplish their tasks.

02 The establishment, maintenance, and prompt removal of lane diversions can be effectively managed by interagency planning that includes representatives of highway and public safety agencies.

Guidance:

03 *All traffic control devices needed to set up the TTC at a traffic incident should be available so that they can be readily deployed for intermediate traffic incidents. The TTC should include the proper traffic diversions, tapered lane closures, and upstream warning devices to alert traffic approaching the queue and to encourage early diversion to an appropriate alternative route.*

04 *Attention should be paid to the upstream end of the traffic queue such that warning is given to road users approaching the back of the queue.*

05 *If manual traffic control is needed, it should be provided by qualified flaggers or uniformed law enforcement officers.*

Option:

06 If flaggers are used to provide traffic control for an incident management situation, the flaggers may use appropriate traffic control devices that are readily available or that can be brought to the traffic incident scene on short notice.

Guidance:

07 *When light sticks or flares are used to establish the initial traffic control at incident scenes, channelizing devices (see Section 6F.63) should be installed as soon thereafter as practical.*

Option:

08 The light sticks or flares may remain in place if they are being used to supplement the channelizing devices.

Guidance:

09 *The light sticks, flares, and channelizing devices should be removed after the incident is terminated.*

Section 6I.04 Minor Traffic Incidents

Support:

01 Minor traffic incidents are typically disabled vehicles and minor crashes that result in lane closures of less than 30 minutes. On-scene responders are typically law enforcement and towing companies, and occasionally highway agency service patrol vehicles.

02 Diversion of traffic into other lanes is often not needed or is needed only briefly. It is not generally possible or practical to set up a lane closure with traffic control devices for a minor traffic incident. Traffic control is the responsibility of on-scene responders.

Guidance:

03 *When a minor traffic incident blocks a travel lane, it should be removed from that lane to the shoulder as quickly as possible.*

Section 6I.05 Use of Emergency-Vehicle Lighting

Support:

01 The use of emergency-vehicle lighting (such as high-intensity rotating, flashing, oscillating, or strobe lights) is essential, especially in the initial stages of a traffic incident, for the safety of emergency responders and persons involved in the traffic incident, as well as road users approaching the traffic incident. Emergency-vehicle lighting, however, provides warning only and provides no effective traffic control. The use of too many lights at an incident scene can be distracting and can create confusion for approaching road users, especially at night. Road users approaching the traffic incident from the opposite direction on a divided facility are often distracted by emergency-vehicle lighting and slow their vehicles to look at the traffic incident posing a hazard to themselves and others traveling in their direction.

02 The use of emergency-vehicle lighting can be reduced if good traffic control has been established at a traffic incident scene. This is especially true for major traffic incidents that might involve a number of emergency vehicles. If good traffic control is established through placement of advanced warning signs and traffic control devices to divert or detour traffic, then public safety agencies can perform their tasks on scene with minimal emergency-vehicle lighting.

Guidance:

03 Public safety agencies should examine their policies on the use of emergency-vehicle lighting, especially after a traffic incident scene is secured, with the intent of reducing the use of this lighting as much as possible while not endangering those at the scene. Special consideration should be given to reducing or extinguishing forward facing emergency-vehicle lighting, especially on divided roadways, to reduce distractions to oncoming road users.

04 Because the glare from floodlights or vehicle headlights can impair the nighttime vision of approaching road users, any floodlights or vehicle headlights that are not needed for illumination, or to provide notice to other road users of an incident response vehicle being in an unexpected location, should be turned off at night.

All First Responder personnel are at great risk of injury or death while operating in or near moving traffic. There are several specific tactical procedures that should be taken to protect all responders at the incident scene including:

1. Never trust approaching traffic.
2. Avoid turning your back to approaching traffic.
3. Establish an initial "block" to create a physical barrier between the incident scene and approaching traffic with the first arriving emergency vehicle. The first emergency vehicle that motorists see should be angled away from the shoulder (or median, depending on the location of the incident) to channel traffic away from the incident.
4. Always look before opening doors and stepping out of an emergency vehicle into any moving traffic areas. When walking around vehicles or equipment, be alert to your proximity to moving traffic.
5. Always wear ANSI high visibility reflective vests during both daylight and nighttime operations according to approved standards.
6. Turn off all sources of vision impairment to approaching motorists at nighttime incidents including vehicle headlights and spotlights. Lighting may be needed to illuminate the work area, but care should be taken not to blind oncoming motorists.
7. Use appropriate first responder vehicles to initially redirect the flow of moving traffic.
8. Establish advance warning and transition area traffic control measures upstream of the incident to reduce travel speeds of approaching motorists.
9. Use available traffic cones, and/or flares where appropriate, for sustained highway incident traffic control and direction in accordance with MUTC Standards.
10. Incident Command should designate qualified first responder/responders to monitor approaching traffic and continuously direct that traffic past the scene. The traffic director should be ready to activate an emergency signal (whistle, horn, etc) if the actions of a motorist do not conform to established traffic control measures in place at the incident scene. The traffic director should be placed between the incident and the on-coming vehicles so as to direct attention away from the scene and toward the roadway ahead.
11. For large scale incidents Incident Command should cause information of closure or major incident information to be disseminated to appropriate media outlets, including other states. For every hour that the incident is expected to last, provide notice to motorists far enough away that they can avoid the closure.
12. Maintain an escape route for protection when a vehicle intrudes into or is pushed into your incident scene.
13. Spill Recovery during the Emergency part of the incident should be containment only with the final stages of spill recovery to be completed at non-peak traffic times and as much as possible completed off the travel portion of the roadway. A small cleanup (can be recovered before all other emergency responders leave) should be completed during the initial emergency time to minimize secondary closures for cleanup.

First Responder Vehicle Benchmarks

Listed below are benchmarks for safe parking of First Responder vehicles when operating in or near moving traffic.

1. If possible, position the first-arriving first responder vehicle to protect the scene, participants, and emergency personnel.
 - a. Initial vehicle placement should provide a work area protected from approaching traffic
 - b. The initial First Responder vehicle that motorists see should be angled to channel traffic away from the incident. Angle vehicles on the roadway with a “block to the left” or a “block to the right” position to create a physical barrier between the crash scene and approaching traffic.
 - c. First Responder vehicles and equipment should be parked on the same side of the roadway (on the same side as the incident, when practical) and in the same direction as the flow of traffic. Unnecessary emergency equipment should be relocated away from the incident scene.
 - d. Personal vehicles should be restricted or at least limited.
 - e. It is desirable to remove debris from the roadway as soon as approval is given by the investigating agency. Debris may be used as evidence and may need to be photographed or measured.
 - f. The “Open Roads Philosophy” is a priority. If an incident is blocking one lane, then first responders should attempt to use a linear placement method to form protection in the blocked lane only. Evaluation should be continual to give back traffic lanes as soon as possible.
 - g. If approaching vehicles are traveling at an unsafe speed for safe operation of response personnel, a First Responder vehicle may be used to block an additional traffic lane.
 - h. When practical, position fire apparatus in such a manner to protect the pump operator position from being exposed to approaching traffic.
 - i. Law enforcement vehicles should be first in sight to drivers in order to provide red/blue lights at eye-level. When applicable turn off forward facing lights to prevent “rubber-necking” on opposite lanes.
2. Positioning of responder vehicles should create a safe working area for Emergency Responders and their vehicles. All damaged vehicles, roadway debris, patient triage and treatment area, extrication work area, first responder personnel, tool staging area and the ambulance loading zone should be kept within the “shadow” created by the blocking vehicle/s at all times.
 - a. The Traffic Director vehicle should be spotted 100 to 250 feet upstream from the incident scene depending on the speed limit, wheels cut toward the shoulder. If used in the left lane and there is a median, wheels should be cut toward the median. If there is no median, then leave wheels straight and increase the distance from the incident scene.
 - b. The shadow vehicle should not be involved in the incident mitigation efforts and should not be occupied.
 - c. For major incidents consider requesting a cushion vehicle from the INDOT.

3. The fire engine should be placed as close to the incident as practical. If there is clearly no fire hazard, then the vehicle should not impede others responding to the incident. Law enforcement should stop prior to the incident to allow room for the fire engine and ambulance if necessary.
4. Ambulances should be positioned within the protected incident scene with the rear patient loading door area angled away from the nearest lanes of moving traffic.
5. Recovery vehicles should be parked ahead of the incident scene and out of open traffic lanes. Flashing lights should be extinguished if in a position to be protected by another response vehicle.
6. Where the incident requires two or more sides of the incident be protected First Responder vehicles should be strategically positioned to expand the initial safe incident scene for traffic approaching from opposing directions. The goal is to effectively block all exposed sides of the incident scene.
7. Traffic cones should be deployed from the blocking responder vehicle toward approaching traffic to increase the advance warning provided for motorists. Cones identify and suggest the transition and tapering actions that are required.
8. Personnel should face oncoming traffic when placing and retrieving cones and/or flares.
9. First Responders should report to the incident scene only when requested or when dispatched by Incident Command. Resources not requested must refrain from spontaneous deployment.

Incident Command Benchmarks

Command is dependent on the nature of the incident and may change as the incident changes.

Incident Command should complete critical benchmarks to assure that a safe and protected work environment for first responder personnel is established and maintained including:

1. The first Incident Command person should also operate as the Scene Safety Officer until this assignment is delegated.
2. Strive to assure that the first-arriving first responder vehicle establishes an initial block to create an initial safe incident scene.
3. Strive to assure that all first responder vehicles are placed within the protected incident scene. (shadow) Ambulances should “block to the right” or “block to the left” to position the rear patient loading area away from the closest lane of moving traffic.
4. Strive to assure lanes of traffic are identified numerically as “Lane 1”, “Lane 2”, etc., beginning from the left to the right based on the approaching motorist’s point of view. Typically, vehicles travel at a lower speed in the higher numbered lanes.



5. Strive to assure that all unnecessary vehicles leave the scene as soon as possible.
6. Strive to assure that proper emergency lighting is used.

First Responder Lighting Benchmarks

The use of First Responder vehicle lighting is essential especially in the initial stages of an incident. However, drivers may become confused or distracted by excessive amounts of flashing lights.

1. Special consideration should be given to reducing or extinguishing forward facing emergency vehicle lighting, especially on divided roadways, to reduce distractions to oncoming road users.
2. Consider that headlights may blind oncoming motorists.
3. Law enforcement vehicles should be first in sight to drivers in order to provide red/blue lights at eye-level.

Rush Hour / Inclement Weather Benchmark

1. During rush hour and/or inclement weather first responders should not remove vehicles or debris from an Incident unless it is necessary to remove them to open and clear the roadway and shoulder.
2. If a vehicle or debris is off the roadway and shoulder it is essential that Incident Command take all reasonable countermeasures to eliminate or reduce further traffic delays and determine an appropriate and safe time for removal at a later time.
3. If the vehicles or debris must be removed to clear traffic lanes then they should be removed safely and quickly to accomplish the "Open Roads Philosophy".

Traffic Management Benchmark

1. Make traffic control safety and temporary traffic control an integral and high-priority element of every incident.
2. Inhibit traffic movement as little as possible.
3. Provide clear and positive guidance to drivers and pedestrians as they approach and travel through the temporary traffic control zone.
4. Inspect traffic control elements routinely and make modifications when necessary
5. Pay increased attention to roadside safety in the vicinity of temporary traffic control zones.
6. Use trained personnel to select, place, and maintain traffic control devices.
7. If there is a side road intersection or ramps within the incident scene, additional traffic control may be needed on the side road approaches or ramp.

Signs

Warning or guide signs with a black legend and border on a fluorescent pink background can be used as temporary traffic control devices in areas where lane closures are occurring. “Emergency Scene Ahead” signs should be placed on the shoulder at the start of the cone taper before an incident scene.



Flares

Flare usage should be kept to a minimum. Power flares should be used in place of traditional flares whenever possible. Power flares are only to be used from dusk to dawn or when poor visibility conditions, such as rain or snow, exist. If any type of flare is placed on the pavement in conjunction with cones, the proper spacing should be one cone, then one flare.

Traditional flares should not be used during a hazardous material incident.

Pre-established Detour Routes

Law Enforcement and DOT personnel should establish Pre-determined Detour Routes to quickly implement during intermediate and major incident scenes that:

- Include temporary signage to assist motorists in maintaining the Detour Route.
- Determine extra traffic direction manpower to man the detour route.
- Disseminate detour routes to all stakeholders.

Initiating a Traffic Incident Analysis (TIA)

Any response agency that is part of the traffic incident management process may call for a Traffic Incident Analysis (TIA) to review an incident. Typically, an incident will not be reviewed unless the roadway clearance times exceed the 90 minute goal threshold set by the TIM. The agency representative may make the initial participant notifications or may enlist the aid of the TIM consulting team (when available) to assist.

If a specific issue arises between two member agencies at a particular incident, it may not be necessary to convene a full TIM meeting to debrief. In this case, on-scene representatives of the two agencies and a facilitator may hold a review to resolve the issue. In this circumstance, the agencies would make recommendations for the TIM executive committee to consider changes to incident management procedures, if any are identified during the resolution of the disagreement.

Criteria

Various criteria to initiate a TIA have been considered. General agreement has been reached that TIA debriefings will be initiated:

- Automatically when an incident has taken more than 90 minutes to clear from the time the incident commander has arrived on the scene. The time will be documented by the Nevada Highway Patrol Computer Aided Dispatch (CAD) data. NHP will notify the TIM that an incident needs a TIA.
- When travel lanes are fully closed in any single direction (within the TIM boundaries) for 2 hours or longer.
- When an incident results in a fatality or serious injury to an incident responder, or
- When any responding agency has an issue or concern that merits how specific incidents are/were being handled by another agency and, they have suggestions on how the process can be improved.

Rules and Format

Traffic incident analysis (TIA) of traffic incidents also known as after-action debriefings, provide significant benefits but only if they are held in a safe environment that has constructive yet critical discussions without finger pointing. It is important that the debriefings maintain a non-biased, non-confrontational tone and it is important that the meeting adjourns on some kind of a positive note. This will help to maintain civility among individuals and agencies the next time they need to work together in response to an incident or other emergency.

The process:

- 1) Recreate the traffic incident sequence of events. *Agencies may choose to use visual aids such as video, maps or other supplemental information.*
- 2) Each agency can offer input on the site safety, response actions and the appropriateness of those actions, clearance aspects that worked well or that didn't work, as well as opinions or other inputs. If an agency offers a negative concern about the management of, or response to an incident, it is suggested that they also offer suggestions on what could be done to improve a similar response in the future.
- 3) Identify incident response / management subject areas that need improvement and provide recommended solutions. Discuss suggestions and establish consensus as to corrective action for the future.
- 4) Reinforce the positive elements of the management of the incident.
- 5) Document the results of the TIA using TIA after action forms.
- 6) Set up a follow up time to report any changes if action items have been documented.

Timing

TIA reviews should be held as soon as possible following the incident but, at a minimum, they should be held at the TIM meetings which are scheduled regularly. If the TIA is held between all agencies involved outside of a regularly scheduled TIM meeting, the result of the TIA can be shared at the TIM meeting instead of repeating the TIA.

Attendees

Participants should be responders who were on the scene or otherwise directly involved with the incident. The on-scene responders have firsthand knowledge of the real issues to be reviewed. They can address the concerns of other responders, especially if they were serving as incident command on the scene. In addition, if deemed necessary and available, attendees can include dispatchers involved in an incident and informed agency representatives.

Contact Information

The TIM Coalition stakeholder lists are regularly updated and provide the most comprehensive listing of responder contact information available. The most up to date lists should always be consulted.

Summary

Traffic Incident Analysis (TIA) reviews provide a proven, no-fault means for multiple agencies to discuss a major incident – typically one that meets certain criteria – with positive actions that follow, often providing solutions and positive steps for cooperative correction that is multi-agency focused. Lessons learned from TIA reviews are used to improve safety and reduce the clearance times and build communications among agencies during subsequent incidents.