Emergency Traffic Control and Scene Management Guidelines

February 12, 2012 – Version 2.0

TIME
Traffic Incident Management Enhancement

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1. Introduction

1.1 Purpose

The impacts of traffic incidents on responder safety are well documented. Entities such as the National Traffic Incident Management Coalition (NTIMC), the Emergency Responder Safety Institute (ERSI) and the Towing and Recovery Association of America (TRAA) have all reported an alarming upward trend of incident responders being injured or killed while working on or near the nation's highways. The safety of all responders is of paramount importance. Here in Wisconsin, these *Emergency Traffic Control and Scene Management Guidelines* have been developed to enable and promote statewide consistency in establishing the safest possible work environment for incident responders.

These guidelines were developed with input and direction from a multi-discipline group and are intended for use by all incident responders. Furthermore, the majority of the information contained in these guidelines is applicable to any traffic incident that occurs on any highway. However, these guidelines are ***not*** a substitute for technical knowledge, experience or effective judgment, nor are they intended to be procedures. They are general, broad-based, and each traffic incident scene will require assessment by the Incident Commander and other responders for the specific conditions presented in the field. In practice, the assessment and corresponding actions will require constant reevaluation to ensure that vehicle positioning, and traffic control and warning device placement are adequate and safe.

These guidelines are consistent with the Manual on Uniform Traffic Control Devices (MUTCD). The MUTCD defines the standards used by road managers nationwide to install and maintain traffic control devices on all public streets, highways, bikeways and private roads open to public traffic. The MUTCD is published by the Federal Highway Administration (FHWA) under 23 Code of Federal Regulations (CFR), Part 655, Subpart F. The MUTCD is the law governing all traffic control devices. Non-compliance of the MUTCD ultimately can result in loss of federal-aid funds as well as significant increase in tort liability. Part 6 of the MUTCD specifically discusses *Temporary Traffic Control* and Chapter 6I focuses on *Control of Traffic Through Traffic Incident Management Areas*. The complete MUTCD can be accessed online at: mutcd.fhwa.dot.gov.

These guidelines are not the exclusive reference or mechanism for promoting responder safety. All incident responders are encouraged to contact their respective professional organizations and associations for additional information and training opportunities relating to safety. In addition, many states, including Wisconsin, have enacted a number of traffic incident management related laws, including "Move Over or Slow Down" and Incident Clearance, commonly referred to as "Steer It, Clear It." The supporting information and legal basis for traffic control and related statutes in Wisconsin is located in *Appendix A* of these guidelines.

1.2 Background

In the mid-1990s, Wisconsin began to take a serious look at the negative impacts traffic incidents have on the safety and efficiency of the state's highway system. Led by the Wisconsin Department of Transportation (WisDOT), the Traffic Incident Management Enhancement (TIME) Program began at that time as an on-going, sustained initiative for assessing needs, developing solutions and strategies, and fostering the transportation-public safety partnerships that are essential for effective traffic incident management (TIM). Since that time, the TIME Program has

evolved into one of the model TIM programs in the country. Through the efforts and participation of countless individuals and agencies throughout the state, the TIME Program has realized many successes in areas such as outreach, training, freeway service patrols, planned special events, emergency alternate routes, communications, legislation and many others.

In 2006, WisDOT hosted the inaugural Statewide Traffic Incident Management Conference. Conference participants included representatives from law enforcement, fire, emergency medical services, emergency management, towing and recovery, public safety communications, and transportation agencies from throughout the state. The purpose of the conference was to learn about national TIM best practices and engage in dialogue on TIM issues and needs in Wisconsin. One clearly identified need was for a document that provided a consistent approach to traffic control and scene management at traffic incidents.

After the 2006 conference, the TIME Program assembled a multi-discipline task force to develop guidelines for emergency traffic control and scene management. At about the same time, the NTIMC was drafting a National Unified Goal (NUG) for TIM, which was ultimately finalized to be:

- Responder safety
- Safe, quick clearance
- Prompt, reliable, interoperable communications

With the NUG as a guiding principle, the task force began drafting the *Emergency Traffic Control and Scene Management Guidelines*. After providing TIME Program participants the opportunity to review and comment, the guidelines were finalized in 2008.

WisDOT and the TIME Program recognized that this document would only provide value if it was promoted, widely distributed and used as a responder training tool. These objectives were clearly met with over 20,000 copies of the guidelines distributed and approximately 60 train-the-trainer training sessions conducted by the end of 2010. Early in the distribution and training process, WisDOT also recognized the importance of listening to responder's experience on the use of the guidelines and establishing a mechanism for integrating their input in future revisions.

In mid-2009, the task force was once again convened to synthesize the input received over the past two years and begin work on the first major revision of the guidelines. It is expected that these revised *Emergency Traffic Control and Scene Management Guidelines* will have continued success in promoting the safety of Wisconsin's incident responders and motorists.

2. National Incident Management System and Incident Command System

The National Incident Management System (NIMS) is a comprehensive, national approach to incident management that is applicable at all jurisdictional levels and across functional disciplines. The intent of NIMS is to:

- Be applicable across a full spectrum of potential incidents and hazard scenarios, regardless of size or complexity
- Improve coordination and cooperation between public and private entities in a variety of domestic incident management activities

One of the key features of NIMS is the Incident Command System (ICS). ICS is a standardized, on-scene, all-hazards incident management concept that allows its users to adopt an integrated organizational structure to match the complexities and demands of single or multiple incidents without being hindered by jurisdictional boundaries. ICS consists of procedures for controlling personnel, facilities, equipment and communications. It is also a system designed to be used or applied from the time an incident occurs until the requirement for management and operations no longer exists. ***ICS should be established and used for every incident.***

ICS under single command has an Incident Commander who has complete responsibility for incident management. The Incident Commander must account for all personnel working at the scene. This includes those that arrived on the scene initially (law enforcement, fire, emergency medical services, etc.) as well as those who arrive later to assist with the scene (highway department personnel, insurance investigators, engineers, etc.).

When incidents require a multi-jurisdictional or multi-agency response, the guidelines of Unified Command should be followed. Unified Command allows agencies with different legal, geographic, and functional authorities and responsibilities to work together effectively without affecting individual agency authority, responsibility or accountability. Unified Command enables all responsible agencies to manage an incident together by establishing a common set of incident objectives and strategies. Use of Unified Command helps minimize duplication of efforts and confusion on the scene.

It is recommended that when command is established or transferred from one person to another, this information, as well as the location of the command post, be communicated for all responders to hear. In many instances, and for a variety of reasons, there are challenges with on-scene responder communication. In such cases, it is necessary that the Incident Commander ensure that all parties have been made aware of any pertinent information.

Additionally, ambiguous codes and acronyms have proven to be a major obstacle in communications at incidents that involve multiple agencies. As such, ICS requires that all responders use plain English, or clear text, when responding to an incident, which means that radio codes, agency-specific codes or jargon should not be used.

The principles of ICS are carried through the remainder of this document.

2.1 Incident Response Priorities

Incident objectives should be established based on the following incident response priorities:

- Priority 1: Life safety
- Priority 2: Incident stabilization
- Priority 3: Preservation of property and the environment

3. Incident Classification

All traffic incidents will be classified based on the expected incident duration as outlined in Chapter 6I of the MUTCD. The three incident classes to be used are as follows:

- **Major** – expected duration of more than 2 hours
  - Major traffic incidents typically involve closing all or part of a roadway facility for a period exceeding two hours. During major incidents, motorists are usually diverted through lane shifts or directed around the incident using an emergency alternate route.
  - Examples include:
    - Fatal crashes or incidents that require a crash investigation
    - Incidents involving a hazardous materials spill
    - Overturned truck or tractor-trailer
    - Structural damage
    - Wildfires near the roadway

- **Intermediate** – expected duration of 30 minutes to 2 hours
  - Intermediate traffic incidents usually require traffic control on the scene to divert motorists past the blockage. Full roadway closures might be needed for short periods during incident clearance to allow responders to accomplish their tasks.
  - Examples include:
    - Rollover or multi-vehicle crashes
    - Crashes involving personal injury
    - Truck or tractor-trailer crashes

- **Minor** – expected duration under 30 minutes
  - For minor traffic incidents, it is not generally possible or practical to set up a lane closure with traffic control devices.
  - Examples include:
    - Disabled vehicles
    - Minor crashes (e.g., property damage only)
    - Roadway debris

4. Responder Safety Fundamentals

Maintaining the safety of all responders and personnel at traffic incident scenes is of paramount importance. Secondary incidents involving incident responders can take many forms but most often occur when responders are struck by passing vehicles while working at or near the scene of a traffic incident. Emergency response professions are high-risk, and generally have a safety culture that considers preventable injuries or deaths completely unacceptable. This section describes several fundamentals that are foundational to keeping incident responders safe.

4.1 Responder Visibility

As stated in MUTCD Section 6D.03, all workers, including incident responders, within the right-of-way of a roadway who are exposed either to traffic (vehicles using the highway for purposes of travel) or to work vehicles and construction equipment shall wear high-visibility safety apparel. This requirement applies to all incident responders, including, but not limited to: law enforcement, fire, emergency medical services, towing and recovery, medical examiner/coroner, county maintenance and transportation officials, insurance investigators, engineers, and media personnel.

Law enforcement personnel are exempt from this requirement when engaged in potentially confrontational law enforcement activities such as traffic stops and searches, but are required to wear high-visibility safety apparel when directing traffic, investigating crashes, or handling lane closures, obstructed roadways or disasters. Similarly, firefighters or other responders engaged in emergency operations that directly expose them to flame, fire, heat and/or hazardous materials may wear retroreflective turnout gear that is specified and regulated by other organizations (i.e., National Fire Protection Association).

The high-visibility safety apparel worn by incident responders must meet, and be labeled as meeting, one of two standards (or equivalent revisions):

- ANSI/ISEA 107-2004 Performance Class 2 or 3
- ANSI/ISEA 207-2006 Public Safety Vests

ANSI/ISEA 107-2004 is the *American National Standard for Highway Visibility Safety Apparel and Headwear*. This standard provides uniform guidelines for the design and use of high-visibility safety apparel such as safety vests, rainwear, outerwear, trousers and headwear to improve worker visibility during the day, in low-light conditions and at night. ANSI/ISEA 207-2006 is the *American National Standard for High-Visibility Public Safety Vests*. This standard establishes design and use criteria for highly visible vests that reflect the needs of public safety workers. Examples of high-visibility safety apparel are provided in Figure 4.1 below.

Figure 4.1 - High-Visibility Safety Apparel Examples (from left):
Class 2 Vest, Class 3 Vest, Pant and Public Safety Vest

4.2 On-Scene Situational Awareness

Responders must always be mindful and aware of the situation or environment they are working in. When working on or alongside active highways:

- Never trust approaching traffic
- Never turn your back to approaching traffic
- Look before you move
- Plan an escape route
- Do not allow yourself to get tunnel vision, always maintain a view of the "big picture" and remember to consider how your actions may be affecting motorists traveling in the opposite direction
- Maintain knowledge of current weather conditions and consider how they may affect driving or visibility abilities of the passing motorists

Additionally, once a scene is secure and the incident is under control, release personnel that no longer have an active role or specific duty related to the incident from the scene. This will help the Incident Commander maintain order on the scene and will minimize the unnecessary exposure of responders to potentially hazardous working conditions.

4.3 Emergency Vehicle Lighting

As discussed in Section 6I.05 of the MUTCD, the use of emergency vehicle lighting is essential, especially in the initial stages of a traffic incident, for the safety of incident responders, persons involved in the incident and motorists approaching the incident scene. 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 motorists, especially at night.

Emergency vehicle lighting can be reduced if proper traffic control has been established at a traffic incident scene. This is especially true for major traffic incidents that involve a number of emergency response vehicles. If proper traffic control is established through placement of advanced warning signs and traffic control devices to divert traffic, then incident responders can perform their tasks on scene with minimal vehicle lighting. In addition, because the glare from floodlights or vehicle headlights can impair the nighttime vision of approaching road users, it is recommended that any floodlights or vehicle headlights that are not needed for scene illumination or scene safety be turned off.

Section 6I.05 further recommends that public safety agencies review their policies on the use of emergency vehicle lighting and consider modifying them to minimize over-lighting, especially after a traffic incident scene is secured. Additionally, special consideration should be given to reducing or extinguishing forward facing emergency vehicle lighting, especially on divided highways, to reduce distractions to oncoming road users.

4.3.1 Incident Scene Illumination – While it is important to ensure proper illumination, or lighting, of the incident space, exercise care to ensure that scene lights are not blinding traffic. When available, use vehicles with special lighting capabilities. By

using vehicle mounted lighting that can be controlled remotely, the lights can be directed downward to minimize the amount of light that reaches the motorists.

4.4 Emergency Vehicle Markings

The use of reflective markings can increase the visibility of emergency vehicles parked in or near moving traffic, especially during nighttime conditions. Although there are no national standards associated with law enforcement vehicle markings, the 2009 Edition of the National Fire Protection Association (NFPA) *1901 Standard for Automotive Fire Apparatus* includes the following reflective striping and marking requirements for all fire apparatus:

- Any door of the apparatus designed to allow persons to enter or exit the apparatus shall have at least 96 square inches of retroreflective material affixed to the inside of the door.
- A retroreflective stripe(s), totaling a minimum of 4 inches in width, shall be affixed to at least 50 percent of the cab and body length on each side, excluding the pump panel areas, and at least 25 percent of the width of the front of the apparatus.
- At least 50 percent of the rear-facing vertical surfaces, visible from the rear of the apparatus, excluding any pump panel areas not covered by a door, shall be equipped with retroreflective striping in a chevron pattern sloping downward and away from the centerline of the vehicle at an angle of 45 degrees. Each stripe in the chevron shall be 6 inches in width and be a single color alternating between red and either yellow, fluorescent yellow or fluorescent yellow-green.

Examples of emergency vehicles with retroreflective chevron striping, during both daytime and nighttime conditions, are shown in Figure 4.2.

Figure 4.2 - Emergency Vehicles with Retroreflective Chevron Striping
(Source: City of Oak Creek Fire Department)

In 2009, the *Emergency Vehicle Visibility and Conspicuity Study* analyzed emergency vehicle visibility and conspicuity with an emphasis on expanding efforts to improve vehicle and roadway operations safety for all incident responders. The study was produced in partnership between the U.S. Fire Administration (USFA) and the International Fire Service Training Association (IFSTA), with support from the U.S. Department of Justice (DOJ), National Institute of Justice (NIJ). The study identified the following potential opportunities for improving the safety of emergency vehicles using readily available retroreflective products:

- Outline vehicle boundaries with "contour markings" using retroreflective material, especially on large vehicles
- Concentrate retroreflective material lower on emergency vehicles to optimize interaction with approaching vehicles' headlamps
- Consider (and allow) the use of fluorescent retroreflective materials in applications where a high degree of day-/night-time visibility is desired
- Using high-efficiency retroreflective material can improve conspicuity while reducing the amount of vehicle surface area requiring treatment
- For law enforcement vehicles, retroreflective material can be concentrated on the rear to maintain stealth when facing traffic or patrolling
- Applying distinctive logos or emblems made with retroreflective material can improve emergency vehicle visibility and recognition

5. Scene Size-Up and Communications

Responders that typically arrive first to the scene of a traffic incident have a multitude of responsibilities. One of the most important initial activities is communicating specifics about the incident (i.e., size-up) to the appropriate communications/dispatch center. An accurate incident or scene size-up is critical in that it serves as the basis for allocating the necessary resources to respond to and manage the incident. Improper or inadequate scene size-up leads to inefficiencies and may unnecessarily prolong the duration of the incident.

5.1 Scene Size-Up

As soon as practical upon arriving at the scene of a traffic incident, the responder should provide their communications/dispatch center with the information outlined below in Sections 5.1.1 through 5.1.10. Ideally, as much information as possible should be provided before initially exiting the response vehicle.

5.1.1 **Location** – It is critical to relay the exact location (including highway name, direction, cross street and/or mile marker, etc.) of the incident to the communications/dispatch center, as well as to all other responding units. This information will assist other responders in planning response routes and, if necessary, identifying emergency alternate routes.

Enhanced Reference Markers – Enhanced reference markers, also referred to as enhanced reference location signs, provide motorists and responders an additional tool for accurately identifying their location on the highway. Enhanced reference markers are signs posted along the highway that provide the name, direction and

mile marker of the highway. Enhanced reference markers are typically placed every one-tenth or two-tenths of a mile along the median of the highway. Currently, enhanced reference markers are primarily installed along urbanized freeways. An example of an enhanced reference marker can be found in Figure 5.1.

Figure 5.1 - Enhanced Reference Marker Example: I-94 EB at Mile Marker 301.2

System Interchanges – The term system interchange is typically used to denote the intersection of two or more freeways. When an incident occurs in a system interchange, correctly identifying the location of the incident is imperative. Examples of system interchanges in Wisconsin include the Marquette Interchange (between I-43, I-94 and I-794) in Milwaukee and the Badger Interchange (between WIS 30, I-39, I-90 and I-94) in Madison. When referring to ramps within a system interchange the nomenclature "from the direction to the direction" should be used. For example, if a motorist traveling on I-43 SB takes the ramp to I-94 WB this ramp should be identified as the ramp from the north to the west.

5.1.2 **Vehicles** – Relay the number and type of vehicles involved in the incident to the communications/dispatch center.

5.1.3 **Injured Persons** – Determine and communicate the estimated number of people injured, the extent of their injuries, and whether or not extrication will be necessary. This information is critical to responding fire and emergency medical services personnel and will allow them to begin planning for additional resources if necessary. Follow up will likely be required as additional information, such as victim condition and level of consciousness, becomes available.

5.1.4 **Incident Classification** – To facilitate resource allocation and planning, relay the incident classification, as described in Section 3, to the communications/dispatch center. An initial approximation is adequate, as it can always be upgraded or downgraded as necessary when more details are available. If the expected duration is bordering between two classifications, it is better to use the higher classification so that additional resources may be requested and mobilized.

- Major (2 hours or more)
- Intermediate (between 30 minutes and 2 hours)
- Minor (under 30 minutes)

5.1.5 Request for Public Works or Highway Department Support – For an intermediate or major incident, notify the public works or highway department as appropriate. Notify the county highway department when an incident occurs on a state or county facility and notify the municipal public works department when an incident occurs on a municipal road. The public works or highway department can assist by providing the additional traffic control devices necessary for proper temporary traffic control.

5.1.6 On-Scene Conditions – Relay any important information regarding other conditions present at the scene that may affect the safety of responders. For example, limited visibility due to smoke from a vehicle fire, downed wires, or adverse weather conditions such as ice or fog are important details to communicate.

5.1.7 Hazardous Materials – It is necessary to quickly identify the presence or potential presence of hazardous materials at an incident scene in order to maintain the safety of all responders and passing motorists. Hazardous material response is discussed in more detail in Section 9.

5.1.8 Towing and Recovery – If it appears that one or more of the vehicles involved in the incident are impacted such that they cannot be driven, notify towing and recovery personnel as early as possible. It is crucial that towing and recovery agencies are provided with accurate incident details to ensure that they are able to respond with the proper equipment. Additional information about communication and coordination with towing and recovery professionals is provided in Section 12.

5.1.9 Traffic Conditions – Traffic conditions, as well as potential alternate response routes for additional personnel, must be relayed to the communications/dispatch center. Traffic related information, such as the length of traffic backups or queues, will help responding units ensure they use an appropriate response route and can be used to identify locations where responders may need to set up additional traffic control. In addition, all impacted agencies should be notified when an emergency alternate route is activated. When the communications/dispatch center receives traffic condition information, they should in-turn relay this information to WisDOT's Statewide Traffic Operations Center (STOC) as outlined in Section 8.

5.1.10 Additional Resources – Relay any requests for additional resources to the communications/dispatch center. Some additional resource examples include: helicopter emergency medical services, crash investigation/reconstruction services, medical examiner/coroner, State Patrol or County Motor Carrier Inspector (for an incident involving a truck or tractor-trailer), and Department of Natural Resources (DNR).

5.2 Public Safety Communications/Dispatch Centers

Communications/dispatch centers serve a key role in traffic incident response. When an incident occurs, telecommunicators at communications/dispatch centers are often the first to receive notification and are responsible for providing a basic assessment of the situation and dispatching an appropriate response based on their expertise and knowledge of available resources.

Traffic incident information received by telecommunicators comes from many sources and is often received simultaneously via telephone, mobile data computer, two-way radio and, in some centers, from observing real-time video.

Effective and efficient dispatch of incident responders mandates that all communication between the field and the center be clear, concise and accurate. Furthermore, proper response requires that telecommunicators be educated as to what resources and assets are available and how and when they should be deployed. For example, to facilitate response to traffic incidents, telecommunicators should have easy access to items such as the Towing and Recovery Call-Out Checklist (discussed in Section 12), emergency alternate route guides (discussed in Section 13), and highway or public works department contact information.

6. Traffic Incident Management Area Establishment

A traffic incident management area (TIMA) is an area of highway where temporary traffic controls are imposed by authorized personnel in response to an incident. A TIMA extends from the first warning device (such as a sign or cone) to the last temporary traffic control device or to a point where vehicles return to the original lane alignment and are clear of the incident. A properly established TIMA helps to maintain a safe working area for responders at an incident scene. Incident responders should establish a TIMA as soon as possible upon arrival at an incident scene.

6.1 Manual on Uniform Traffic Control Devices Chapter 6I

Chapter 6I of the MUTCD specifically focuses on traffic control through a TIMA. The primary functions of traffic control devices at a TIMA, as stated in MUTCD Chapter 6I, are to inform road users of the incident and to provide guidance information on the path to follow through the incident area. The ability to quickly deploy proper temporary traffic controls can greatly reduce the effects of an incident, such as secondary crashes or excessive traffic delays. The MUTCD further states that an essential part of fire, rescue, spill clean-up, highway agency and enforcement activities is the proper control of road users through the TIMA in order to protect responders, victims and other personnel at the site. A copy of MUTCD Chapter 6I can be found in *Appendix B*.

A TIMA consists of four main components:

1. Advance Warning Area
2. Transition Area
3. Activity Area
4. Termination Area

Figure 6.1 illustrates the components of a TIMA, which are discussed in more detail in the following sections.

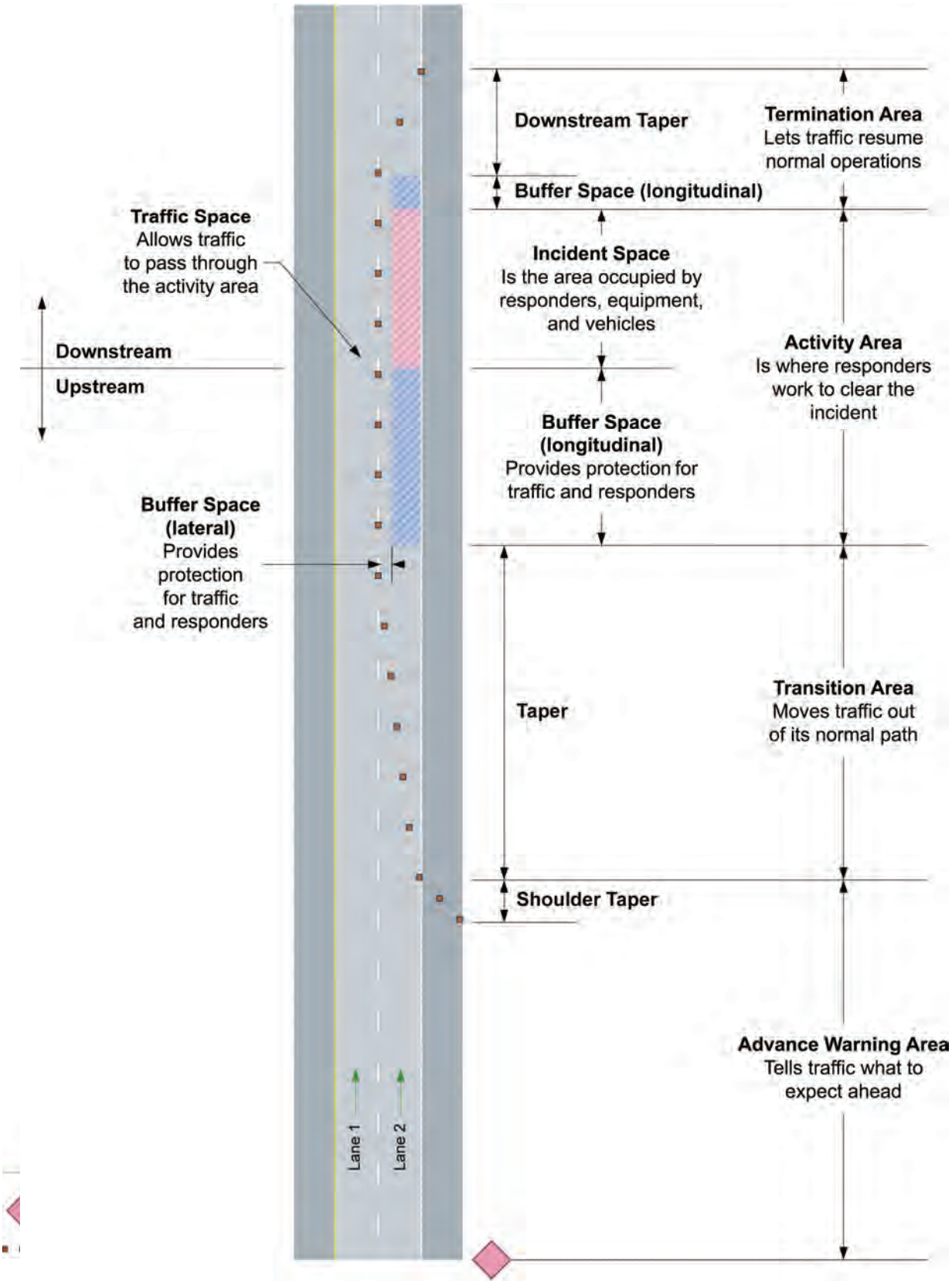


Figure 6.1 - TIMA Components (Source: Modified from 2009 MUTCD)

6.2 Advance Warning Area

The advance warning area is established upstream of the incident in order to warn motorists of the upcoming incident scene and to promote a reduction in travel speeds. Typically, advanced warning is provided using advance warning signs or electronic message signs as described below.

6.2.1 **Advance Warning Signs** – Warning and guide signs used for emergency traffic incident management situations have black lettering and a black border on a fluorescent pink background (per MUTCD Chapter 6I). Examples of these signs are shown below in Figure 6.2.

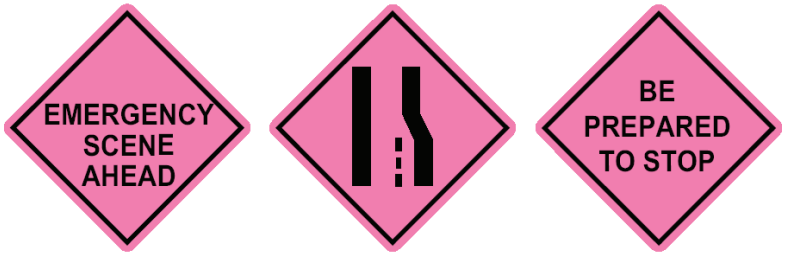


Figure 6.2 - Examples of TIMA Advance Warning Signs

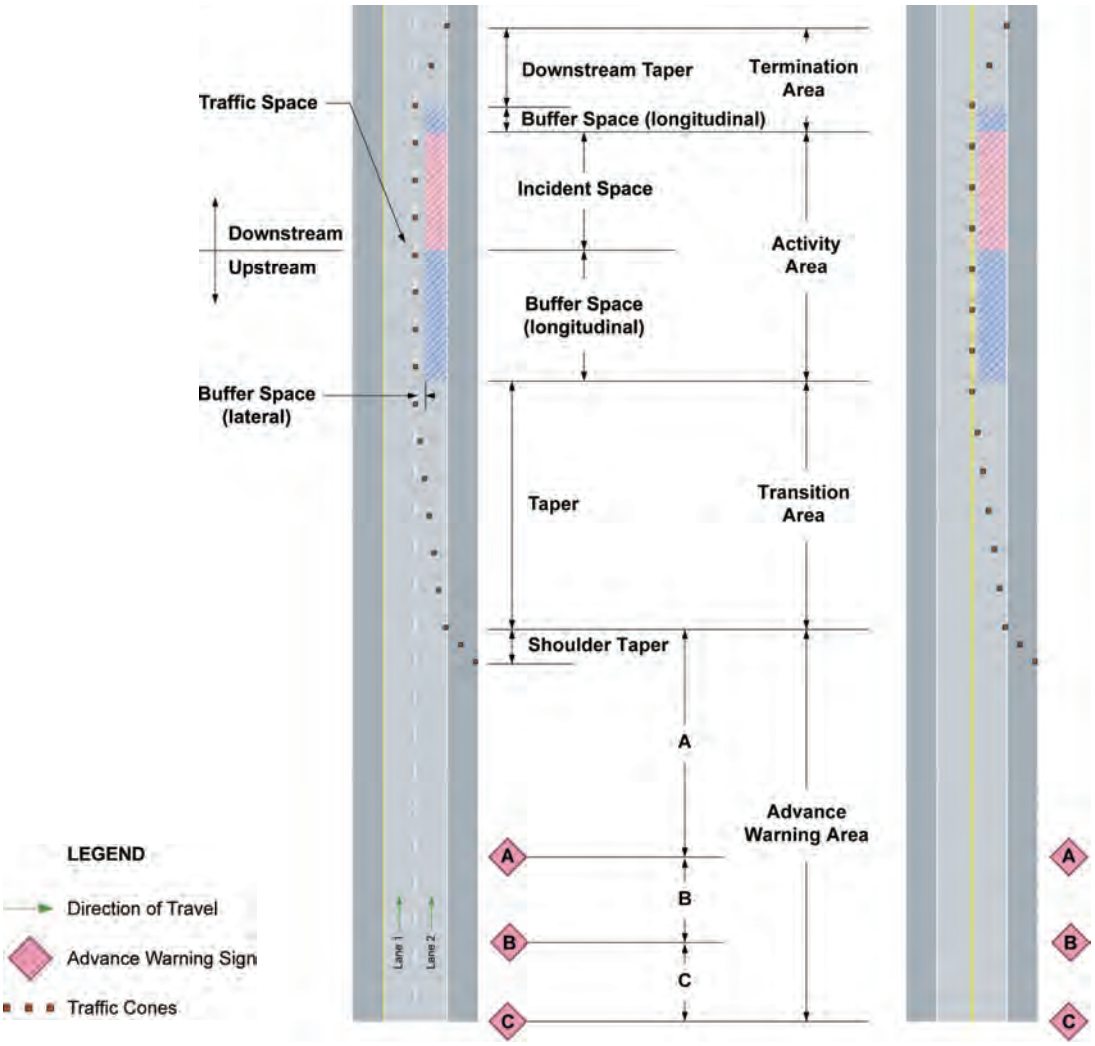
Recommended advance warning sign minimum spacing distances are provided in Figure 6.3. It should be noted that advance warning signs placed in urban areas may need to be placed at shorter distances to avoid sign clutter.

6.2.2 **Portable Changeable Message Signs** – Portable Changeable Message Signs (PCMS) are another tool for providing advance warning. PCMS can be used for intermediate incidents and are strongly recommended for use during major incidents. The county highway department is typically responsible for housing and deploying PCMS. In addition to messages being programmed in the field, the STOC has the ability to operate PCMS remotely.

6.2.3 **Dynamic Message Signs** – Dynamic Message Signs (DMS) are the permanent, structure-mounted, electronic signs located on some segments of the state's highways. WisDOT remotely operates these signs from the STOC and may be able to provide advance warning messages to motorists if an incident occurs near one or more DMS.

6.2.4 **Shoulder Taper** – The shoulder taper, set up using traffic cones or flares, should also be established as part of the advance warning area. The shoulder taper is used to advise motorists that the shoulder is closed ahead. Recommended shoulder taper lengths can be found in Figure 6.3 and additional information about properly setting up a taper is provided in Section 6.3.

All advance warning devices should be placed so that they provide enough warning for vehicles to slow before reaching the traffic backup. However, setting up a TIMA for traffic incident management situations near a corner, hill, or other reduced visibility situation may require adjusting the location of the advance warning device. In addition to on-scene advance warning, broad-based traveler information tools are discussed in more detail in Section 8.



	Advance Warning Area				Transition Area		Activity Area	Termination Area	
Speed (mph)	**Advance Warning Sign Minimum Distance (ft)**				**Recommended Lengths (ft)**				**Cone Spacing (ft)**
	A	**B**	**C**	**Cumulative Total[1]**	**Shoulder Taper[2]**	**Taper**	**Distance Between Tapers (longitudinal)[3]**	**Buffer (longitudinal)**	**Downstream Taper**	
25	200	200	200	600	45	125	250	155	50-100	25
35	350	350	350	1,050	85	245	490	250		35
45	500	500	500	1,500	180	540	1,080	360		45
55	1,000	1,500	2,640	5,140	220	660	1,320	495		55
65	1,000	1,500	2,640	5,140	260	780	1,560	645		65

Source: 2009 MUTCD

[1] Total distance measured from the Transition Area to Advance Warning Sign C

[2] Shoulder taper was rounded up to nearest 5 feet

[3] Used when multiple lanes are closed

Figure 6.3 - TIMA Components and Recommended Spacing (Source: 2009 MUTCD)

(Diagram Not to Scale)

6.3 Transition Area and Tapers

The transition area is the section of highway where road users are redirected out of their normal path. Proper transition areas usually involve the use of tapers.

A taper, using traffic cones or flares, should be set up as soon as possible any time there is a lane closure or traffic is transitioned from one lane to another. Establishing a straight-line taper can be both difficult and dangerous. Exposure to the traffic flow is almost certain. Whenever resources permit, a spotter should be present to assist in watching for traffic during taper set up. Furthermore, it is highly recommended that responders place and retrieve cones while facing oncoming traffic.

The speed of the roadway should be considered when determining the length of a taper. Typically, the higher the roadway speed the longer the taper. However, initial scene set up is dynamic in nature and it is recognized that a balance must be reached between the roadway speed and the number of available cones. For example, as illustrated in Figure 6.4, if the first responder on scene only has 5 cones available when responding to an incident on a high speed roadway, they will only be able to set up a short taper; however, ***any taper is better than no taper***. A short taper should be extended as soon as resources permit. Figure 6.3 includes recommended taper lengths as outlined in the MUTCD.

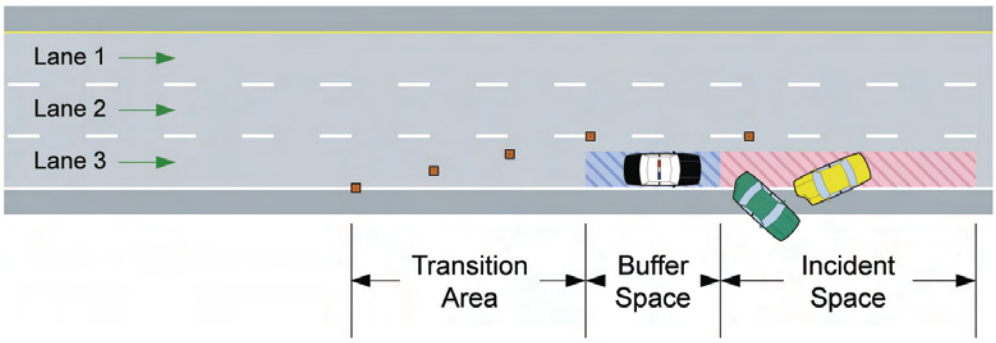


Figure 6.4 - Initial Scene Set Up

(Diagram Not to Scale)

Key points to remember when setting up a taper include:

- A taper should encompass as much equipment as is available on the scene
- Tapers should be set up to account for sight obstacles
- The taper should begin at the upstream end of the buffer space
- Try to maximize the spacing covered with the cones available
- Block as much of the roadway as needed and extend the taper out as far as possible to allow drivers adequate time to merge

Skip lines provide a useful guide for placing cones. Skip lines are the broken pavement markings used to separate two travel lanes. In Wisconsin, on most high-speed highways the distance from the beginning of one skip line to the beginning of the next skip line is approximately 50 feet. *Appendix C* contains a guide for taper set up using skip lines.

Cones used for the purpose of emergency traffic control and scene management should be consistent with the standards established in MUTCD Section 6F.64. Such cones should be orange, fluorescent orange or fluorescent red-orange in color, 28 inches or greater in height, and should be retroreflective for maximum visibility. Retroreflection of 28 inch or larger cones should be provided by a white band 6 inches in width, no more than 3 to 4 inches from the top of the cone, and an additional 4-inch-wide white band a minimum of 2 inches below the 6-inch band. Figure 6.5 illustrates the appropriate cone dimensions.

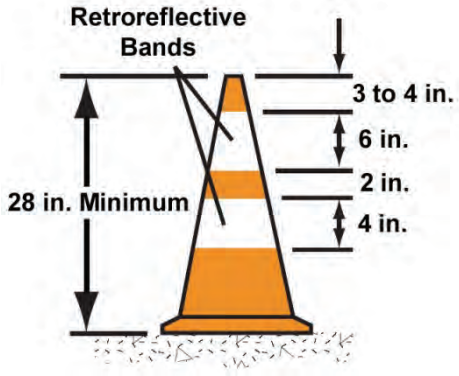


Figure 6.5 - Traffic Cone Dimensions (Source: Modified from 2009 MUTCD)

It is strongly recommended that all emergency response vehicles be equipped with, at a minimum, five MUTCD compliant traffic cones. This recommendation follows guidance set forth in the NFPA *1901 Standard for Automotive Fire Apparatus*. Collapsible traffic cones are also available and offer an alternative solution for response vehicles with limited storage space.

6.4 Activity Area

The activity area is the section of the highway where incident response activities take place. The activity area is comprised of the upstream buffer space and the incident space. Refer to Section 6.6.3 for discussion on the positioning of vehicles within the activity area.

Traffic cones should be placed along the edge of the activity area starting at the end of the transition area, following alongside the buffer space and the incident space. This will help define a clear boundary between the traffic space and the activity area.

6.4.1 Upstream Buffer Space – It is highly recommended that a longitudinal buffer space be established between the end of the transition area (taper) and the actual incident space. Since the majority of response activities take place in the incident space, the buffer will help provide additional protection for responders. Longitudinal buffer space is dependent on, but not limited to, the speed of passing traffic and sight distance when approaching the scene, as well as when passing the scene. Figure 6.3 provides suggested longitudinal buffer spaces as outlined in the MUTCD.

When needed, providing lateral buffer space is also possible. This is the area between the incident itself and the path of traveling vehicles. Lateral buffer space may be necessary to ensure responders have adequate room to work. The amount of lateral buffer space to be used is dependent upon many conditions including, but

not limited to, time of day, weather and road conditions. When the lateral buffer space needed to complete response activities encroaches or requires part of an adjacent lane, it is strongly recommended that the entire lane be closed. Partial lane closures can confuse drivers and decrease scene safety.

6.4.2 Incident Space – The incident space is the physical area of roadway within which responders perform their emergency medical services, fire, law enforcement and recovery tasks at a traffic incident.

6.5 Termination Area

The termination area is used to notify traffic that the TIMA is ending, and that they may resume normal driving. The termination area includes the downstream buffer space and the downstream taper.

6.5.1 Downstream Buffer Space – The need and length of the downstream buffer space is incident dependent. Similar to the activity area, cones should be extended the length of the downstream buffer space.

6.5.2 Downstream Taper – The downstream taper typically only needs to extend over a distance of approximately 50 to 100 feet, but is necessary to prevent motorists from entering the incident space or downstream buffer where responders may be working. Cones should extend from the downstream buffer space to the shoulder.

6.6 Vehicle Positioning

All incident responders must operate their vehicles with due regard when responding to and positioning their vehicle at an incident scene. The logical, orderly and careful placement of vehicles responding to an incident scene is critical to establishing an efficient and safe TIMA.

6.6.1 Blocking Vehicles – The positioning of an emergency vehicle to create a physical barrier between upstream traffic and the incident space is referred to as the block position. In order to provide the greatest protection from traffic, the block position is best fulfilled using larger vehicles, such as fire department ladder trucks and fire engines. When the circumstances allow, these vehicles may be replaced with public works or highway department vehicles equipped with impact attenuators, especially when the initial blocking vehicle is carrying equipment that is being utilized by on-scene responders. A blocking vehicle should be positioned at the start of the activity area buffer space.

When acting as the block, there are two ways a vehicle is commonly positioned on the roadway - at a 20-45 degree angle or “straight-on”. When determining how to properly position a vehicle, responders should evaluate current conditions, including roadway geometry, sight distance, weather, and the safety of other responders, crash victims and passing motorists. Consideration should also be given to how vehicle placement impacts vehicle visibility, including vehicle markings and vehicle emergency lighting. Regardless of roadway position, the blocking vehicle should park ensuring that wheels are turned away from the scene and that the vehicle is not unnecessarily sticking out into another lane of traffic.

6.6.2 Collective Vehicle Positioning – All vehicles responding to an incident scene should be located on the same side of the roadway and in the same direction as the incident. The side will be dictated by the nature of the event, and the initial responding unit will set the example for others to follow. Responders should avoid stopping their vehicles on the opposite side of a divided highway and crossing the median to access the scene.

Whenever possible, responding vehicles should park on the shoulder as far away from the roadway as possible. While initial vehicle placement may temporarily provide quick access to the scene, the choice of placement impacts other responders. Vehicle operators must be aware of surroundings and be cognizant of how their choices impact other responders. ***Vehicles should never unnecessarily be placed in the flow of traffic.***

6.6.3 Initial Emergency Vehicle Positioning – The following recommendations are intended for initial vehicle positioning at an incident scene. Vehicle positioning should be reviewed and adjusted as the incident progresses.

Law Enforcement – Vehicles can be used for early warning at the beginning of the transition area, or positioned in the upstream buffer space downstream of the blocking vehicle for access to equipment and communications needed to work at the scene.

Fire Service – Apparatus should either be positioned upstream at the start of the activity area buffer space and act as a blocking vehicle or in the incident space for fire response.

Rescue – Rescue squads should be positioned in the activity area to conduct extrication or in the downstream buffer space if the vehicle itself is not needed but the crew is.

EMS (Ambulance) – The ambulance should be positioned in the incident space downstream of the actual event. This allows for easy access and quick departure from the TIMA.

EMS (Emergency Medical Responders) – All vehicles transporting emergency medical responders should park well beyond the incident space into the downstream buffer space, as far onto the shoulder as possible.

Towing and Recovery – All towing and recovery vehicles should be positioned off of the roadway in the transition area prior to the start of the upstream buffer space. This allows the vehicle operator to see when they can advance forward to work and eliminates the need to back into traffic.

Traffic Incident Management (TIM) Team – If a TIM Team vehicle is available, it should be positioned where it can best affect the flow of traffic, and may initially need to be mobile to deploy early warning devices, including PCMS. This type of vehicle can also replace law enforcement at the beginning of the transition area.

Others – All other responders should position their vehicles beyond the incident space and into the downstream buffer space. This includes media, fire department command vehicles and other support units.

If response vehicles are no longer being utilized and are not serving as a blocking vehicle, but the crew is still needed on-scene, the vehicles should be repositioned to the downstream buffer space.

When responders need to position their vehicle downstream of the incident, it is important that they be aware of the potential need for a crash investigation, especially when a fatality has occurred, and avoid disturbing or destroying evidence. Crash investigation/reconstruction and evidence preservation is discussed in more detail in Section 11.

6.6.4 Staging

On-Scene (Level 1) – Only resources that have been assigned tasks should be present at the scene. Staging areas should be set up as close to the operation as possible, but in a safe location. The on-scene (Level 1) staging area should be upstream of the incident space if at all possible. However, the use of the activity area buffer space to store vehicles or equipment, other than the blocking vehicle, should be minimized.

Off-Scene (Level 2) – For multiple unit responses, the first unit approaching or entering a highway should continue to the scene to begin the scene size-up. All other approaching units should consider off-scene (Level 2) staging. This will help maintain safety on the scene as well as for passing motorists. If a vehicle is needed on the scene, then staging can be altered but until that is deemed necessary, it is best to have all unnecessary vehicles and personnel located somewhere nearby.

6.6.5 Personally Owned Vehicles – Due to the lack of vehicle markings and appropriate emergency lighting, and to reduce the number of vehicles at a scene, ***the use of personally owned vehicles (e.g. volunteer fire fighters, emergency medical responders, etc.) to respond to the scene of highway incidents is strongly discouraged***. When it is necessary for a privately owned vehicle to respond to a highway incident, the vehicle must be parked safely in the downstream buffer area or, if possible, off of the roadway (e.g. a nearby parking lot). Since they lack the appropriate vehicle markings and lighting, personally owned vehicles should never be used as a blocking vehicle.

6.6.6 Bystanders and Citizens – Oftentimes, passing motorists will stop at a scene to render assistance or to merely look on to satisfy their curiosity. These vehicles and their occupants pose a serious and substantial threat to themselves and everyone working at or passing through the TIMA. If not absolutely needed to render assistance or provide information to law enforcement, they should be directed to leave the scene as safely and expeditiously as possible.

If these people are needed at the scene, their vehicles should be safely moved to the downstream buffer space, or preferably off-site in a staging area where law enforcement investigators can contact them when they are ready.

6.7 Flagger and Spotter

In certain circumstances, such as incidents occurring on a two-lane, bi-directional roadway, flagging operations may be required for safe direction of traffic. MUTCD Section 6E outlines basic flagging procedures for emergency situations, which are described in further detail below.

First and foremost, incident responders performing flagging duties must be wearing high-visibility safety apparel. Flaggers should also use clear and distinct hand signals when directing traffic. The flagger should stand either on the shoulder adjacent to the road user being controlled or in the closed lane prior to stopping road users. A flagger should only stand in the lane being used by moving road users after road users have stopped. The flagger should be clearly visible to the first approaching road user at all times and should be visible to other road users. The flagger should be stationed sufficiently in advance of the responders to warn them (for example, with audible warning devices such as horns or whistles) of approaching danger by out-of-control vehicles. The flagger should stand alone, away from other responders, vehicles or equipment.

While STOP/SLOW paddles are preferred, a flag may be used at an emergency scene. The flag should be a minimum of 24 inches square, made of a red material, and securely fastened to a staff that is approximately 36 inches in length. Flags used at night should be retroreflectorized red. The free edge of the flag should be weighted so the flag will hang vertically, even in heavy winds. Figure 6.6 illustrates the appropriate methods of signaling with a flag as described below.

- To stop traffic, the flagger should stand on the shoulder of the road and extend the flag across the traffic lane. The flagger's free hand should be raised above shoulder height with the palm facing the approaching vehicle and eye contact should be made with the driver.
- To let traffic proceed, the flagger should lower the flag to their side and with their free arm motion traffic to proceed. Do not use the flag to motion traffic through.
- To alert and slow traffic, the flagger should extend the flag staff and slowly move the flag up and down in a sweeping motion between shoulder height and straight down. Their free hand should be kept down.

Figure 6.6 - Use of Hand Signaling Device by Flaggers

When working at night, a flagger may use a flashlight, which can be equipped with a small traffic direction cone, to supplement the STOP/SLOW paddle or flag. The flagger should hold the

flashlight in their left hand and hold the paddle or flag in their right hand. The flashlight should be used as described below and illustrated in Figure 6.7.

- To stop traffic, the flagger should hold the flashlight with the left arm extended and pointed down toward the ground, and then slowly wave the flashlight in front of the body in a slow arc from left to right.
- To let traffic proceed, the flagger should point the flashlight at the vehicle's bumper, slowly aim the flashlight toward the open lane, then hold the flashlight in that position. The flagger should not wave the flashlight.
- To alert or slow traffic, the flagger should point the flashlight toward oncoming traffic and quickly wave the flashlight in a figure eight motion.

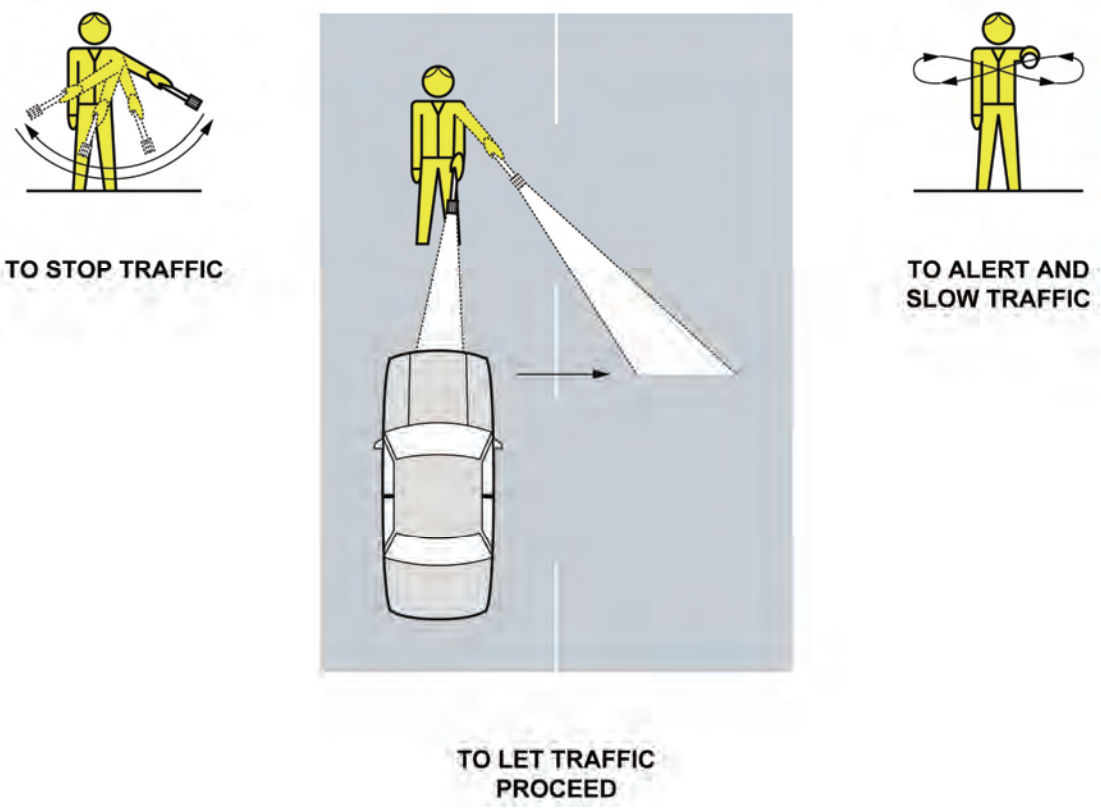


Figure 6.7 - Use of Flashlight by Flaggers

Typically, flagging operations will require using a flagger at each end of the TIMA. Communication between the flaggers is critical and it is recommended that two-way radios be used. A single flagger can be used, but only in situations where there is a low volume of traffic, the TIMA is relatively short and the roadway is straight.

It is also recommended that, when resources permit, a traffic spotter be utilized to monitor traffic and activate an emergency signal if the actions of a motorist do not conform to established traffic control measures in place at the incident scene. The use of a portable air horn or similar device is suggested for use as an emergency signal. A portable radio is not recommended for this purpose, as it is unlikely that all responders on the scene would be monitoring the same radio frequency.

6.8 Traffic Incident Management Area Examples

MUTCD Chapter 6I provides guidance on the types of temporary traffic control devices that should be used at a TIMA based on incident type. For major and intermediate incidents, Chapter 6I states that temporary traffic control should include proper traffic diversions, tapered lane closures and upstream warning devices to alert approaching traffic of the end of a queue. For minor incidents, Chapter 6I recognizes that it is not generally possible or practical to set up a lane closure with traffic control devices and recommends that when a minor incident blocks a travel lane, it should be removed from that lane to the shoulder as quickly as possible. In the early stages of an incident, responders should use all equipment on hand to set up traffic control, realizing that the TIMA will be expanded and enhanced as additional resources become available. The TIMA should evolve as the incident progresses and the number of closed lanes changes.

The following examples illustrate the ideal TIMA that responders should be working towards while on-scene. In addition, a TIMA example that highlights the progression of traffic control at a major incident can be found in *Appendix D*.

6.8.1 **Shoulder Closure** – Figure 6.8 provides a shoulder closure TIMA example. Even though a travel lane is not directly impacted/blocked, if response activities are expected to last more than a few minutes a TIMA should be established to ensure on-scene safety. Incident response activities, including provisions for lateral buffer space, should not encroach on the travel lanes. If additional lateral space is required for response or recovery activities, the adjacent lane should be closed.

6.8.2 **Divided Roadway** – Figure 6.9 provides an example of a TIMA on a divided roadway. When establishing traffic control for incidents on this type of roadway, it is important to consider motorists' sight distance due to various roadway geometry including hills and crests.

6.8.3 **Two-Way Roadway** – Figure 6.10 provides a TIMA example for a lane closure on a two-lane roadway. Flaggers and spotters should be positioned within the shoulder taper and adjacent to the downstream taper to direct motorists. Flaggers should be in radio communication with one another.

6.8.4 **Curved Roadway** – Figure 6.11 provides an example of a TIMA when the incident occurs on or near a curve. Due to reduced sight distances, additional advance warning is required to advise approaching motorists of the incident scene. When possible, it is recommended that the advance warning area, transition area and buffer space start upstream of the curve. Similar practices should be followed for incidents on or near hills.

6.8.5 **Full Freeway Closure** – Figure 6.12 provides a TIMA example for a full freeway closure. Shoulder, double or triple tapers with appropriate longitudinal spacing between each taper are implemented to transition traffic to the nearest off-ramp. It is recommended that all response vehicles be positioned on the same side of the roadway even though the freeway is closed. This will serve to facilitate quicker lane openings as the incident de-escalates. In addition, anytime a full freeway closure occurs, consideration must be given to managing and addressing traffic stuck between the incident and the closure point.

6.8.6 Freeway Off-Ramp Closure – In Figure 6.13, the incident is located on a one-lane freeway off-ramp requiring its closure. In situations where there is a dedicated exit only lane, the entire lane should be closed if the ramp is closed.

6.8.7 Multi-Lane Intersection – Figure 6.14 depicts a TIMA at a major intersection where multiple lanes are entering the intersection from each direction. This particular scenario is for an incident near the center of the roadway. For some incidents it may be possible to maintain at least one through movement. Other movements can be restricted to a right turn only. Vehicles should stage within the multiple buffer spaces around the incident and position such that they can easily maneuver away from the incident scene.

6.8.8 Four-Way Intersection – Figure 6.15 provides an example of a TIMA at a four-way intersection where one quadrant is blocked. It is preferred that motorists approaching the incident be restricted on which movements they can make. A flagger should be stationed within the intersection and spotters should be positioned within the advance warning and termination areas. In this example, motorists approaching from upstream are diverted around the incident scene.

6.8.9 Roundabouts – Establishing a TIMA in a roundabout can be challenging and largely depends on the location of the incident and the number of traffic movements required. Adding to this challenge is the relative lack of familiarity motorists have with roundabouts. As a reference, rules for driving roundabouts can be found in *Appendix E*. Special attention must be given to ensure motorists are channeled in the appropriate lane/direction to maintain scene safety. Figure 6.16 provides a single lane roundabout TIMA example and Figure 6.17 provides a multi-lane roundabout TIMA example.

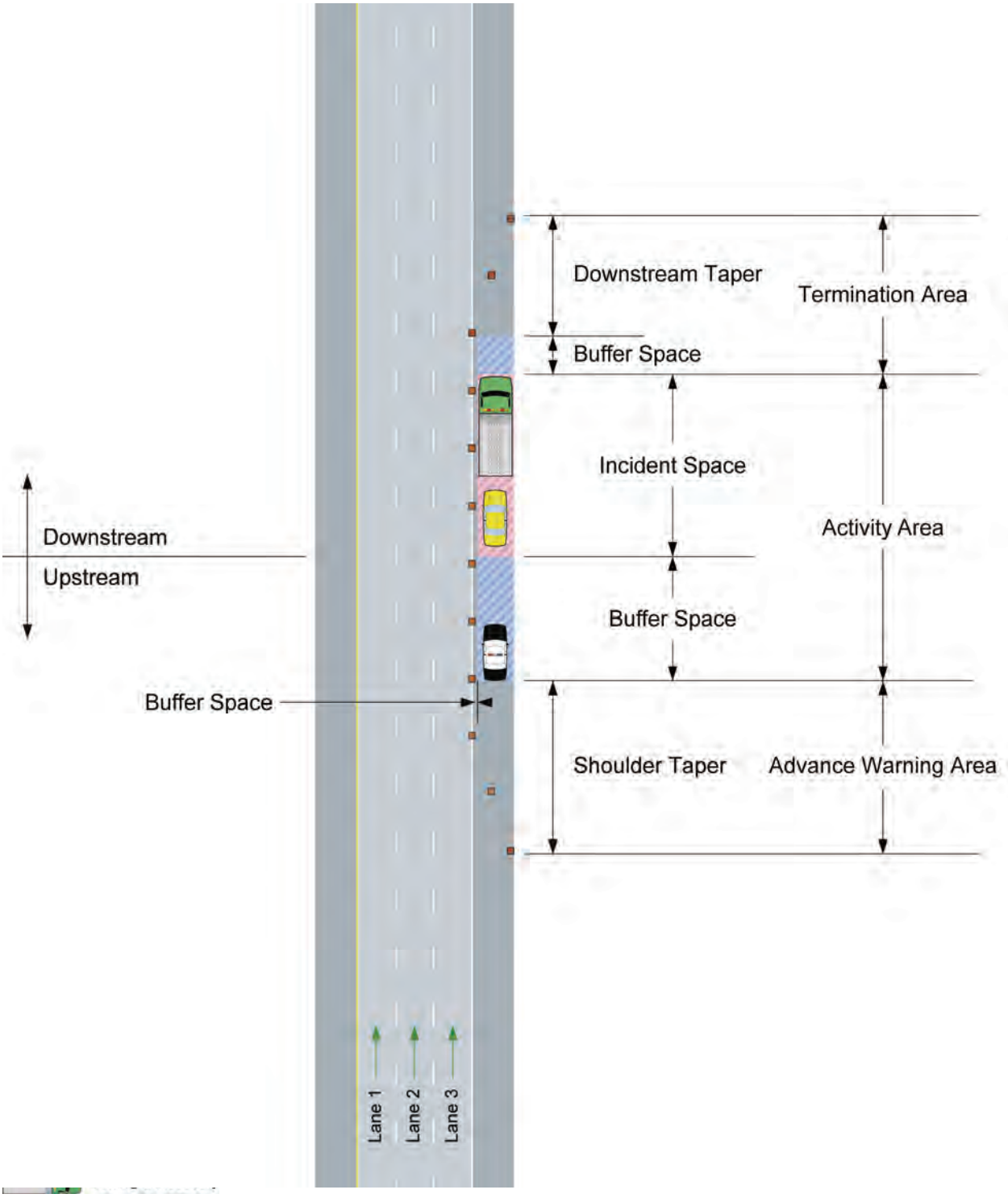


Figure 6.8 - Shoulder Closure TIMA Example

(Diagram Not to Scale)

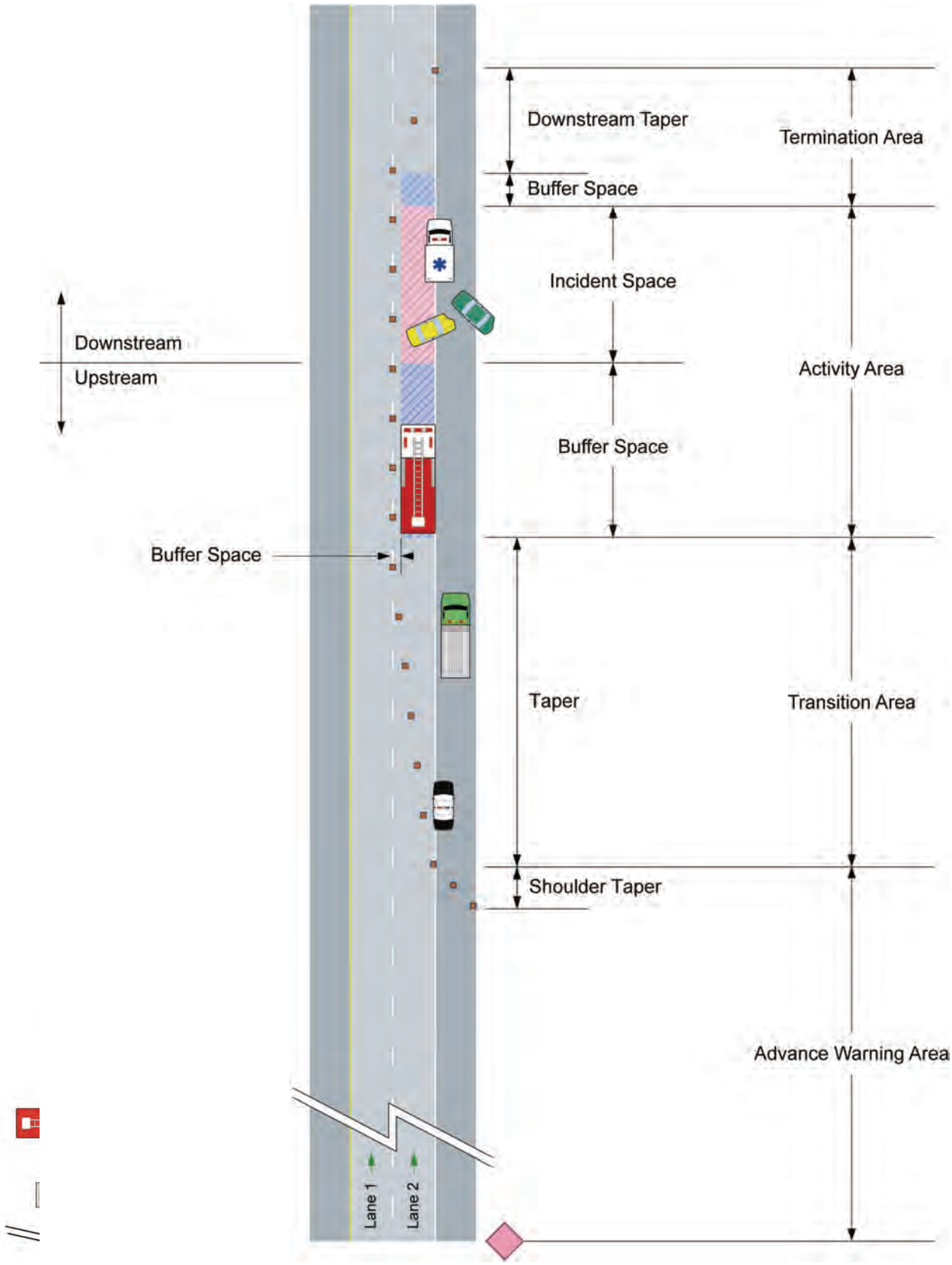


Figure 6.9 - Divided Roadway TIMA Example

(Diagram Not to Scale)

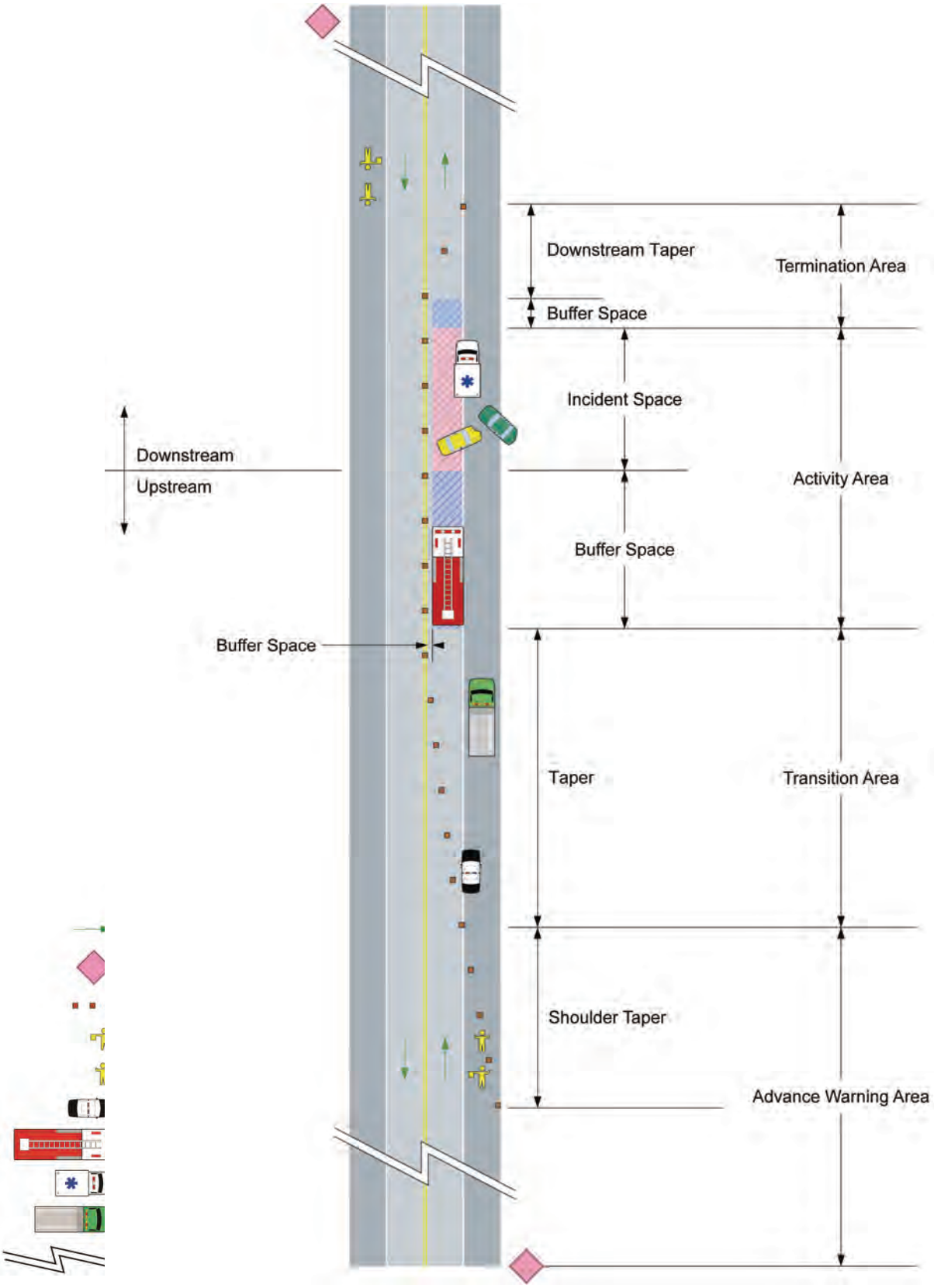


Figure 6.10 - Two-Way Roadway TIMA Example

(Diagram Not to Scale)

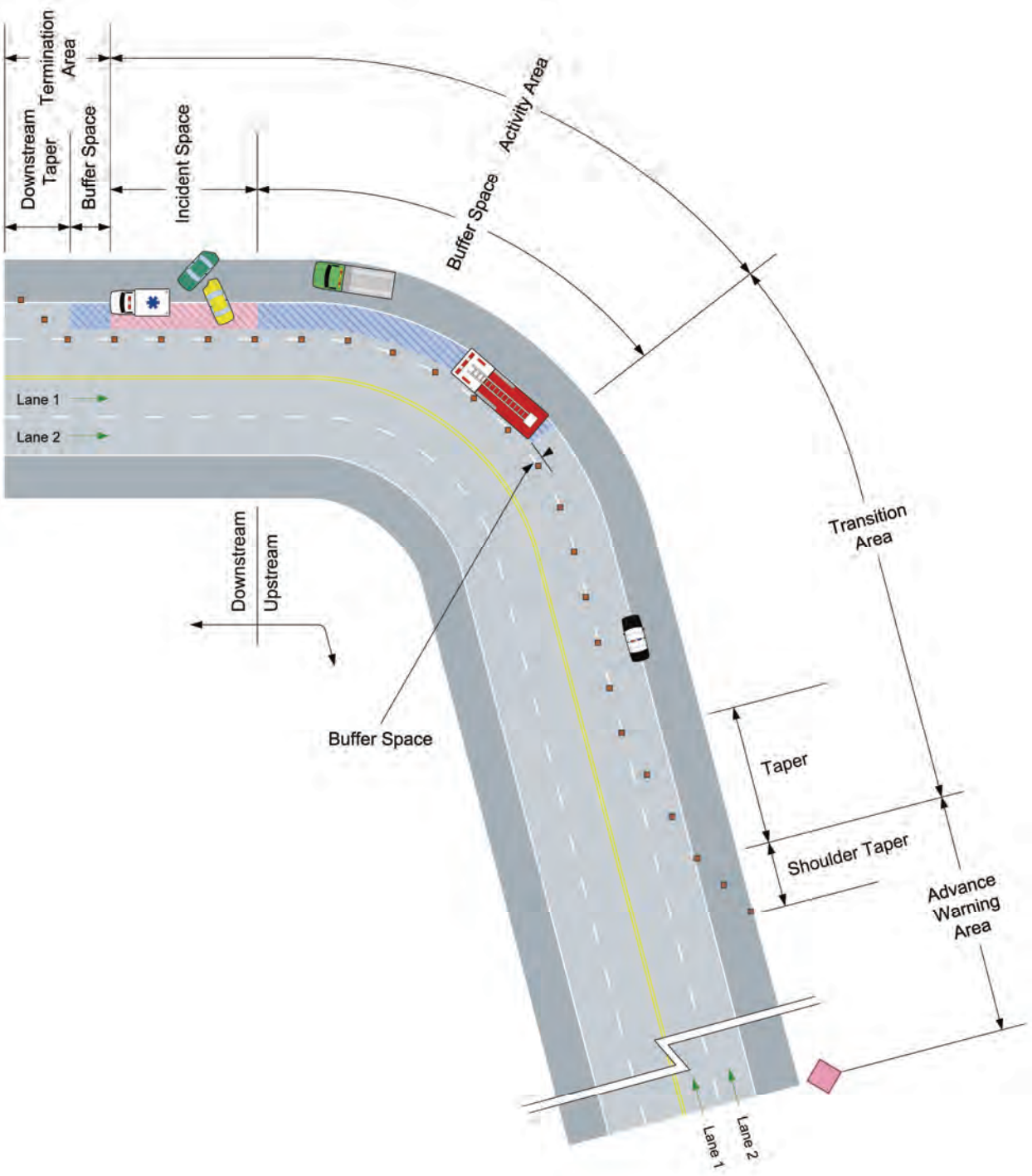


Figure 6.11 - Curved Roadway TIMA Example

(Diagram Not to Scale)

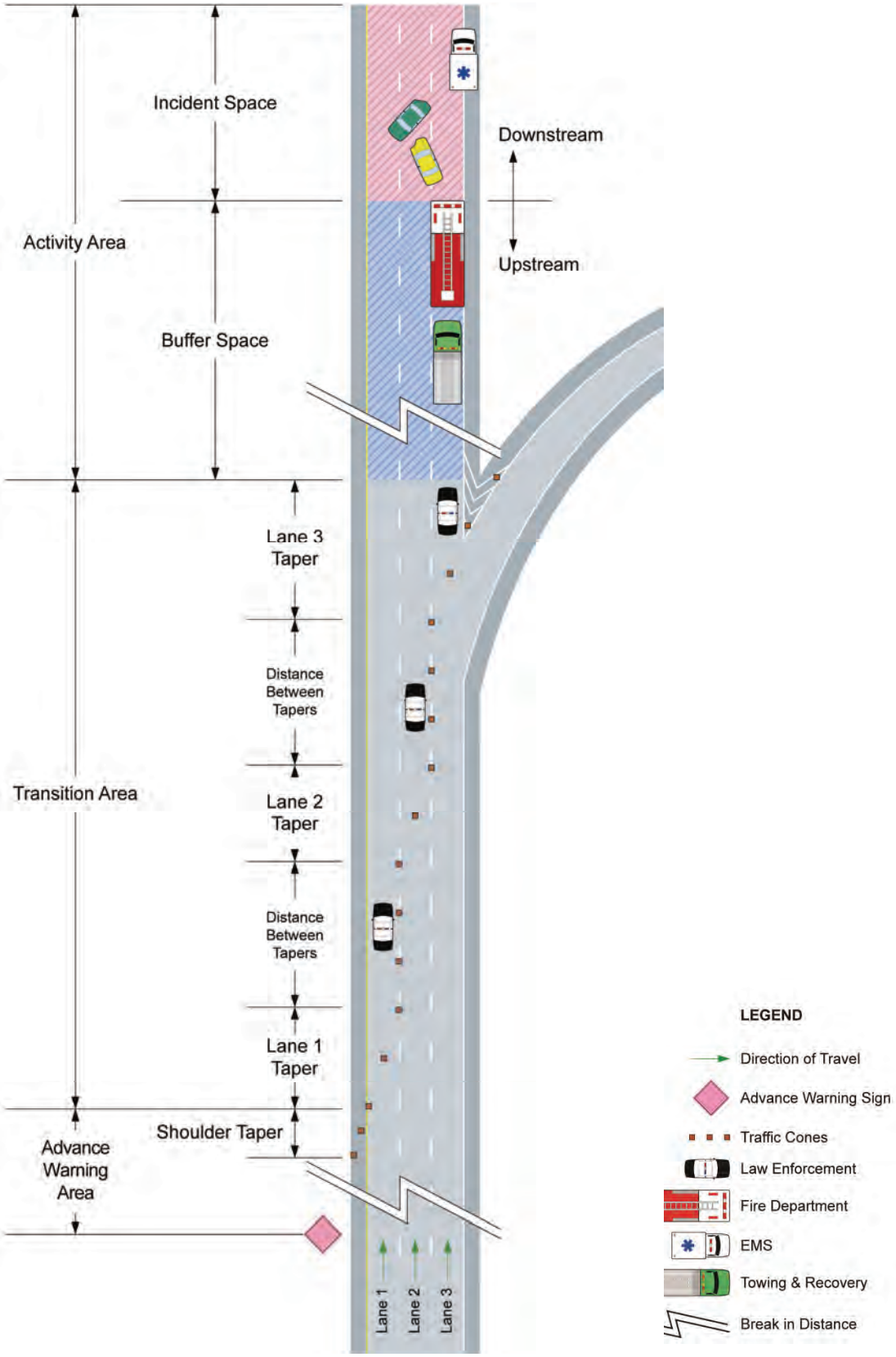


Figure 6.12 - Full Freeway Closure TIMA Example

(Diagram Not to Scale)

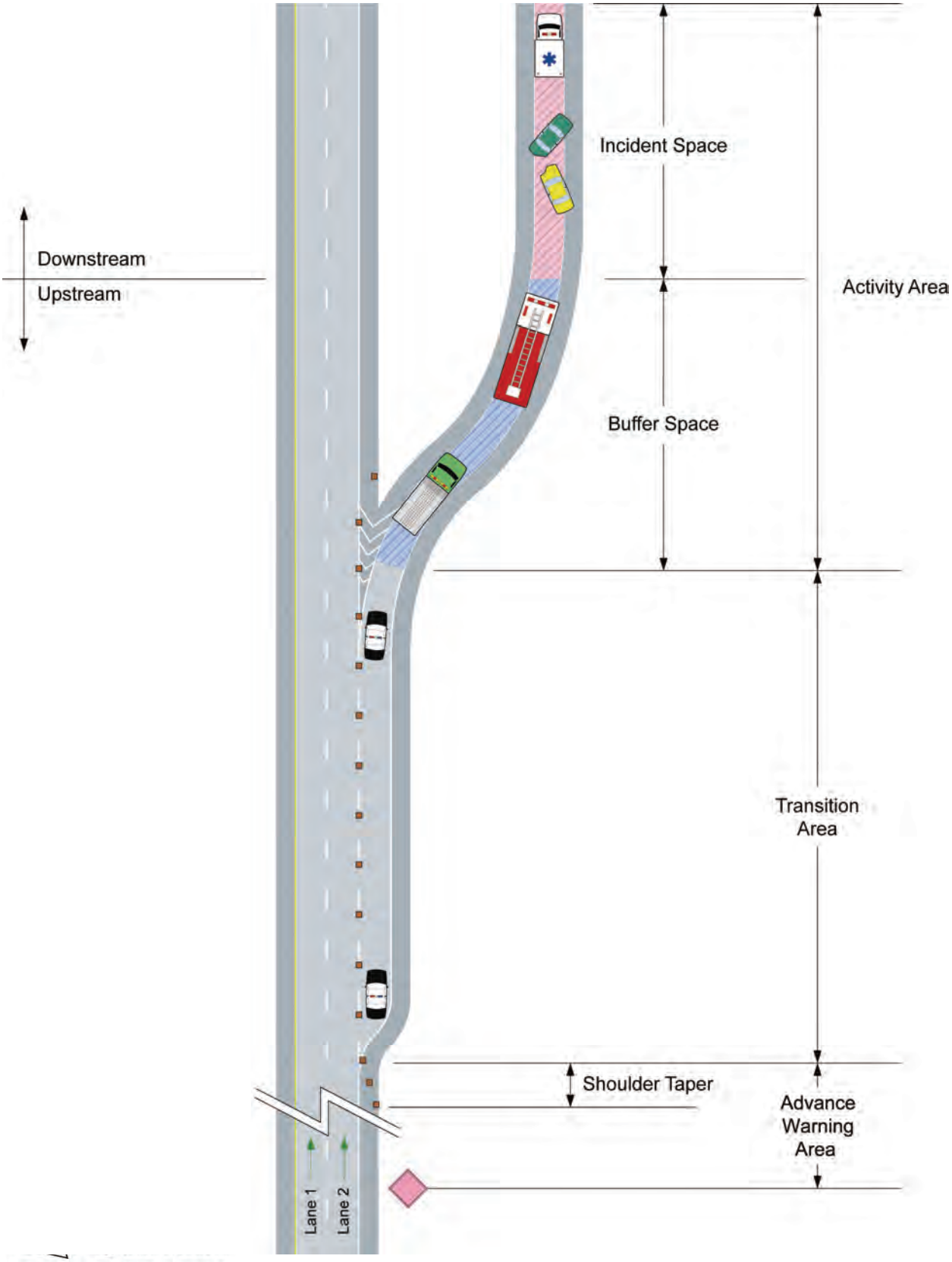


Figure 6.13 - Freeway Off-Ramp Closure TIMA Example

(Diagram Not to Scale)

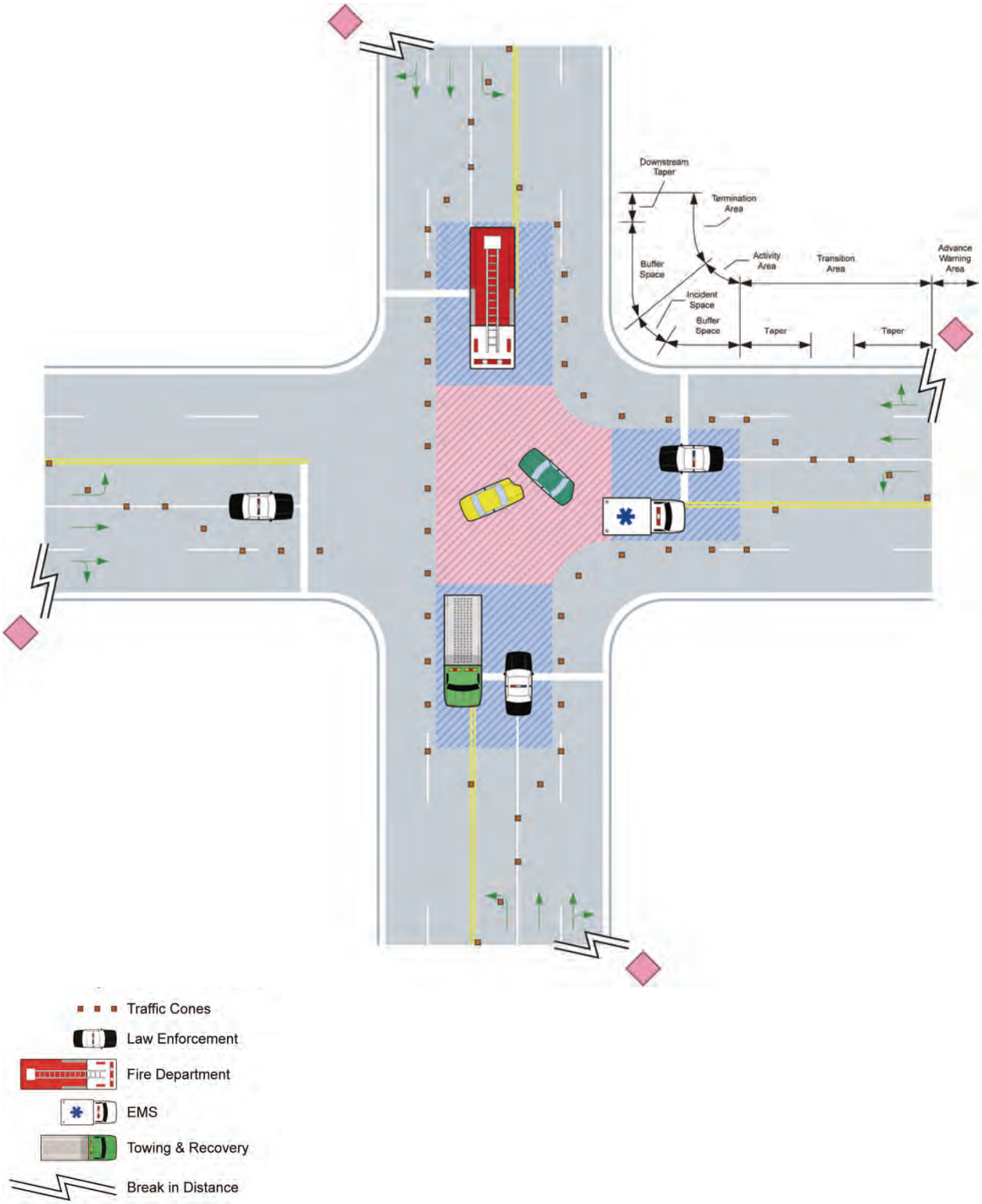


Figure 6.14 - Multi-Lane Intersection TIMA Example

(Diagram Not to Scale)

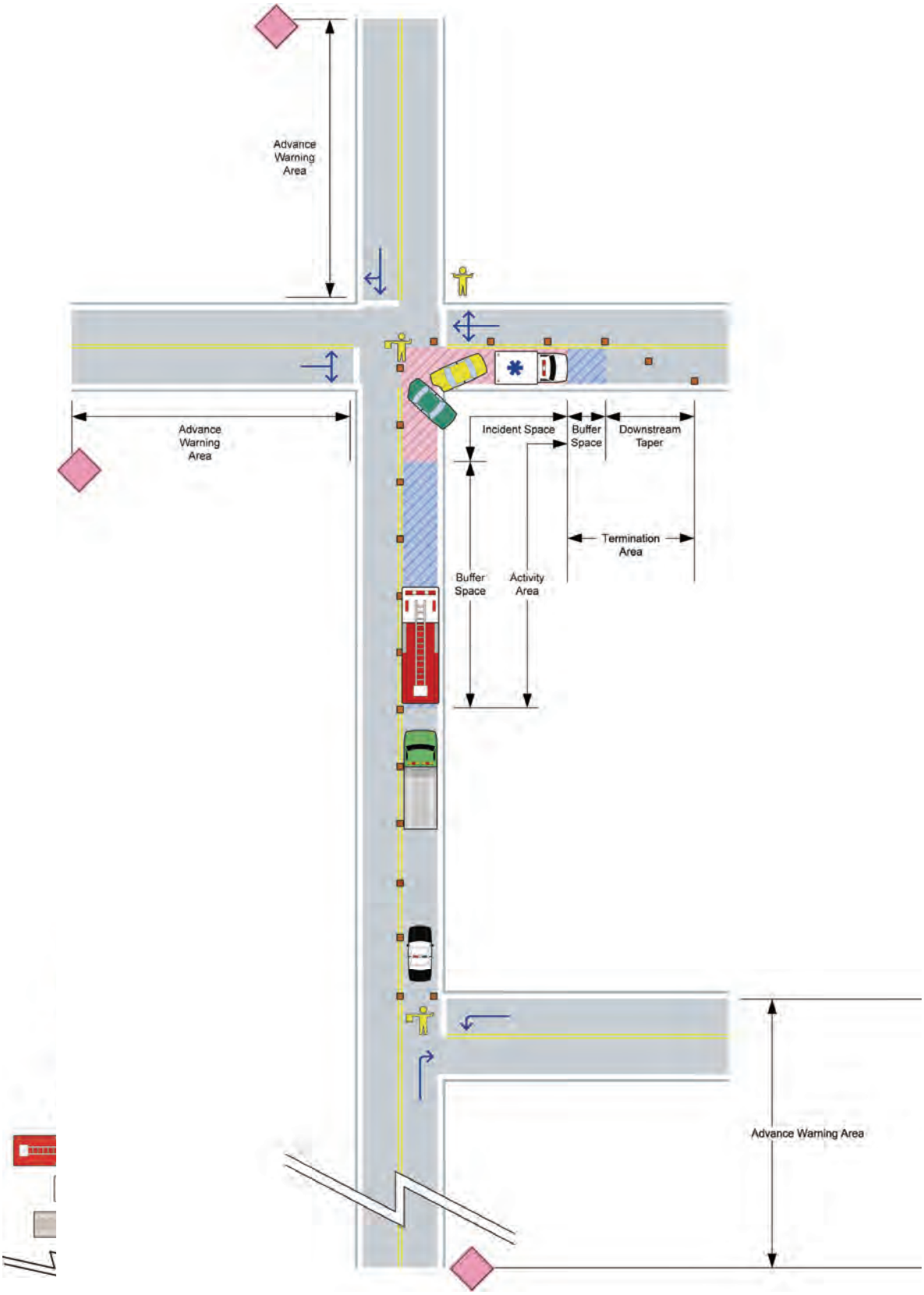


Figure 6.15 - Four-Way Intersection TIMA Example

(Diagram Not to Scale)

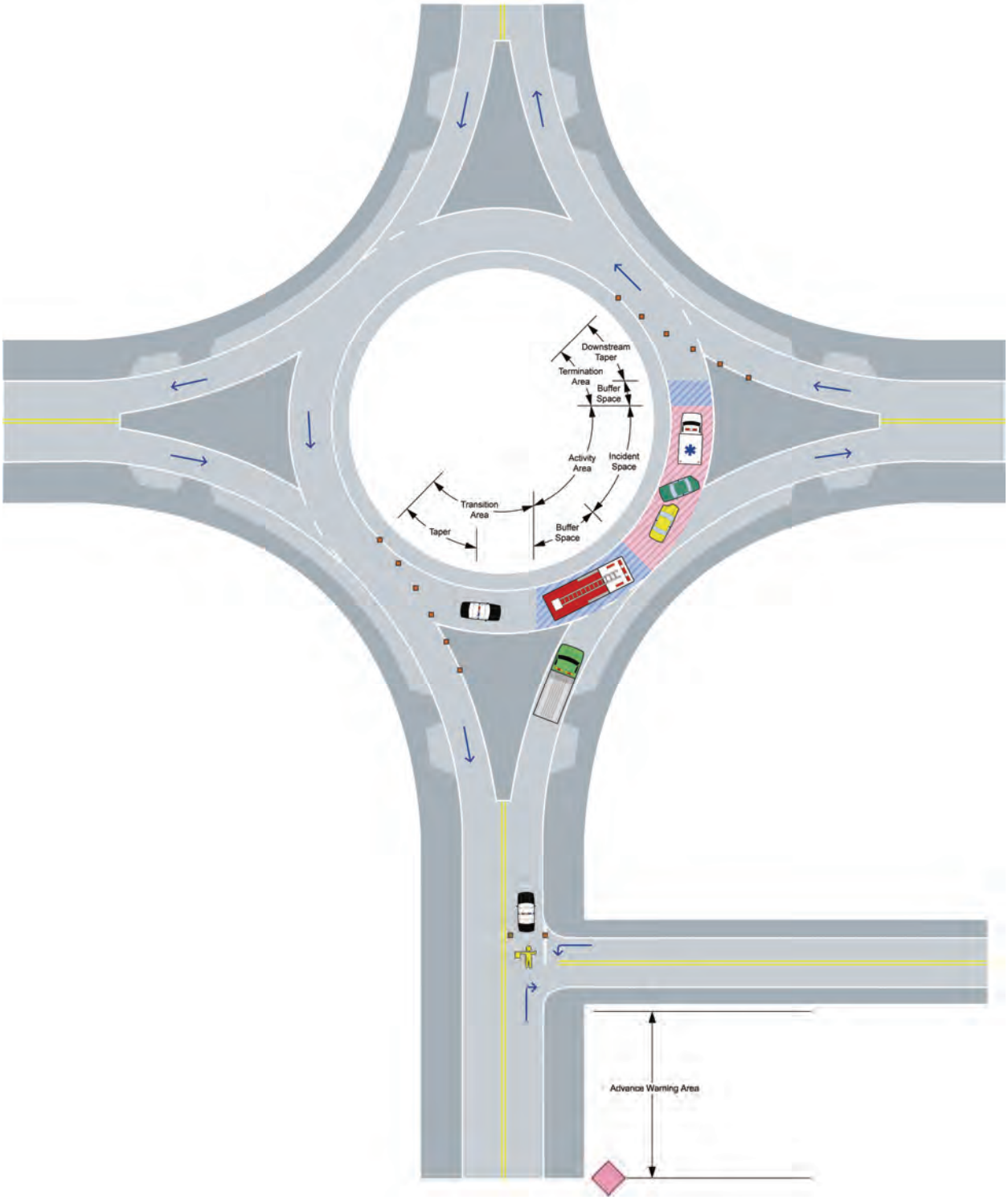


Figure 6.16 - Single Lane Roundabout TIMA Example

(Diagram Not to Scale)

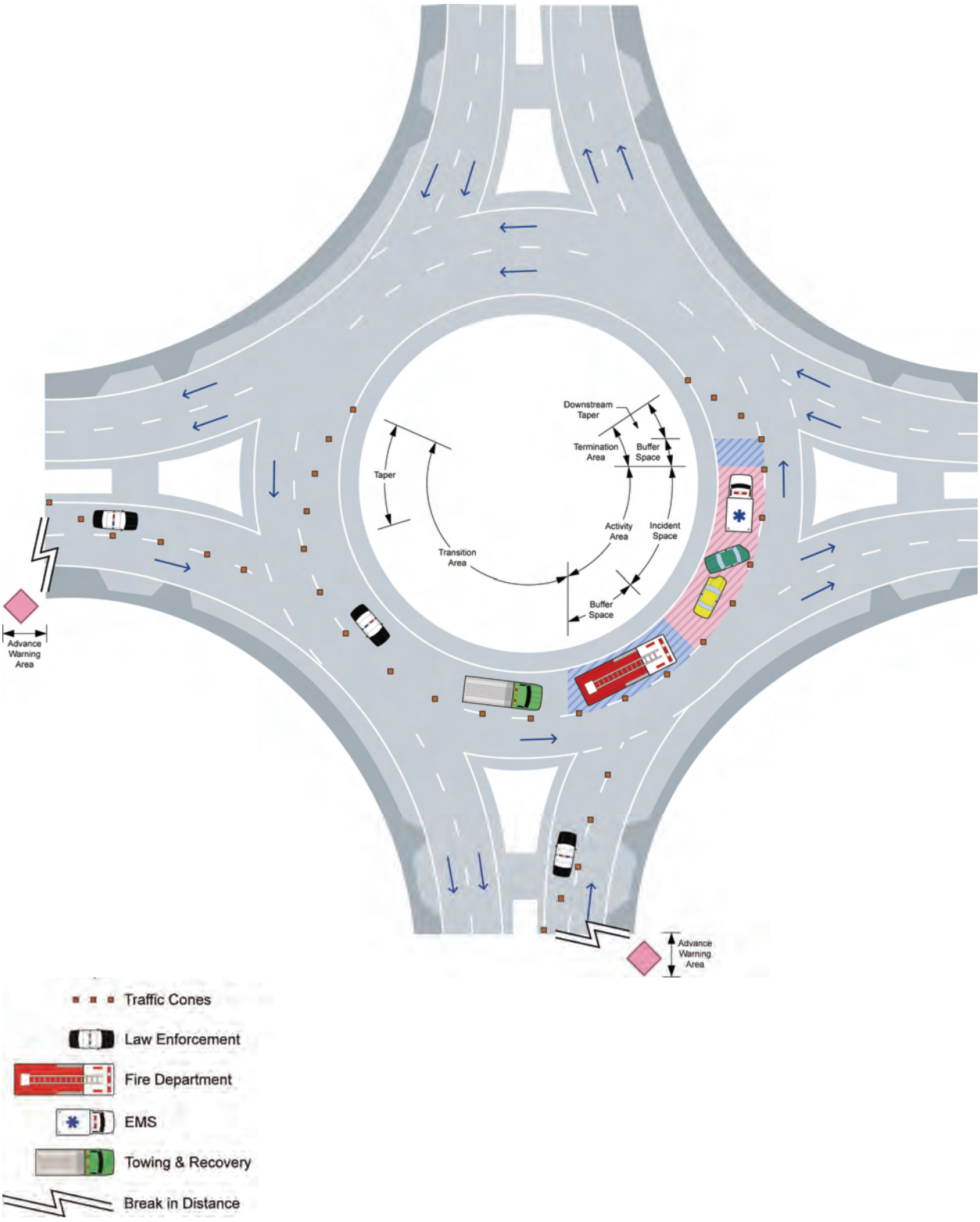


Figure 6.17 - Multi-Lane Roundabout TIMA Example

(Diagram Not to Scale)

7. Scene Breakdown and Demobilization

Equally important to properly establishing or setting up a TIMA, and associated traffic control, is safely breaking down or dismantling the scene. This activity includes demobilizing and removing equipment, personnel and response vehicles. All responders must exercise care when demobilizing, particularly if other responders remain present. In order to maintain safety, the Incident Commander must be notified of any responders departing the scene and the equipment or response vehicles that will be removed with them. Once victims, crashed vehicles, spills and associated debris have been removed, the Incident Commander must also monitor and control scene dismantling while recognizing the dangers of changing conditions and traffic returning to normal flow, oftentimes at high speeds. This is especially important for scene dismantling during nighttime or reduced visibility conditions. ***It is very important to dismantle the scene from the termination area backwards to the advance warning area***. Other important scene demobilizing/dismantling considerations:

- Temporary traffic control or blocking may be required for responder departure (e.g., ambulances, towing and recovery, etc.)
- As responders depart, be aware that other responders may still be present
- Blocking vehicles (e.g., fire apparatus, truck mounted attenuators, etc.) may no longer be present and the "safe" area may no longer be intact - never turn your back to traffic and always watch for errant vehicles entering the scene
- Frustrated motorists that have been delayed by the incident may be particularly aggressive and drive at higher speeds or weave into lanes that appear to be open
- If possible, position a vehicle with its emergency vehicle lighting activated upstream of responders that are removing traffic control devices

Finally, when an incident scene has been fully cleared and all on-scene response is complete, ensure that the appropriate agencies (including communications/dispatch centers and the STOC) have been notified that the roadway is open.

8. Traveler Information

8.1 WisDOT's Statewide Traffic Operations Center

WisDOT's Statewide Traffic Operations Center (STOC) functions to monitor, operate and maintain traffic management and traveler information/warning systems on Wisconsin's interstates, freeways, expressways and state highways. In general, the day-to-day responsibilities of the STOC are to:

1. Monitor traffic conditions using:
    - Closed-Circuit Television (CCTV) cameras
    - Roadway detectors and congestion maps
    - Public safety contacts via phone and Computer-Aided Dispatch (CAD)
    - Road weather conditions
    - Lane Closure System (LCS)

2. Provide real-time traveler information using:
    - 511 System - phone and website: www.511wi.gov
    - Dynamic Message Signs (DMS)
    - Portable Changeable Message Signs (PCMS)
    - Highway Advisory Radio (HAR)
3. Provide traffic and incident information notification to other traffic management and communication centers, public safety partners, and the news media
4. Control traffic management devices, including ramp meters
5. Monitor traffic management devices to ensure they are functioning properly

In addition, the STOC is responsible for answering calls received on WisDOT's statewide incident notification number, 1-800-375-7302, which was established to ensure incident responders and emergency personnel have a single, 24/7 number for reporting transportation infrastructure problems (e.g., traffic signal knockdowns, bridge hits, etc.) and traffic incidents that occur on state-maintained highways. It is important to note that this number is ***not*** to be distributed to the general public.

Based on the type and severity of the infrastructure problem or incident reported, the STOC will notify the appropriate WisDOT staff for response. WisDOT's on-scene responders for incidents that involve state-owned infrastructure (excluding traffic signals, which require response from an electrician) are referred to as Regional Incident Management Coordinators (RIMCs) and are on-call 24/7.

The STOC should be contacted for any incident anticipated to have at least one state highway lane or ramp blocked for greater than 30 minutes. The STOC uses the information they receive to update their traveler information systems, including the 511 system. Therefore, it is also essential that agencies provide the STOC with updates as an incident progresses (i.e., additional lanes are opened or closed) and when the incident has been cleared.

8.2 Media Considerations

The media's main goal is to cover newsworthy events and inform the public about news that shapes their communities and can affect their lives. It is important to build relationships with media personnel before an event occurs and understand that the media can, and should be considered an ally and not the enemy.

There are many events/issues that are considered newsworthy, but in the context of traffic incidents, it is important to recognize that the media can support TIM activities. Specifically, the media plays a key role in providing motorists information about the incident through mechanisms such as radio, television, the internet and smartphones.

Consider using the media to get information out as soon as possible, most simply by contacting them via phone or e-mail, or by issuing a news release. Radio, television and newspapers can provide details on their websites within minutes. This is especially beneficial when traffic is being diverted around the scene on an emergency alternate route. It also provides motorists with information that may help them to change their travel plans to avoid the area.

The media does not want every last detail at the beginning of an incident. Answer the basic who, what, where, why (if possible) and how (if possible) and then let them know additional information will be provided as it is made available.

8.2.1 Media Staging Areas – It is recommended, especially for large-scale incidents, that a media staging area be established in a safe location near the scene, but away from the incident command post. The establishment and use of a media staging area will ultimately assist in the management of the incident scene in the following ways:

- Media personnel will be kept together in one location, allowing information to be released as quickly and efficiently as possible. A Public Information Officer (PIO) should be assigned to the media staging area to disseminate the information. All information released by the PIO must be approved by the Incident Commander.
- Media personnel will be separated from the responders on scene, allowing the responders to concentrate on completing their tasks, and clearing the scene as quickly and efficiently as possible.
- Members of the media should be escorted to and from the scene for the purpose of obtaining photographs and video footage. Consider the use of a "pool" camera and video crew, reducing the amount of people that need to be escorted. This process will help ensure that the media is only allowed to access the portions of the scene that have been secured for their safety.
- Any media personnel not participating in the staging area should be denied access to the scene.
- Any member of the media that is allowed access to the incident scene must follow the same high-visibility safety apparel requirements as other responders. If media personnel are not following these requirements, they should be asked to leave the incident scene.

9. Hazardous Materials Response

9.1 Identification

Hazardous materials can be identified through labels, markings or placards. Labels are placed on the actual item or the individual package that the material is contained in. Markings are placed on the boxes that the materials are transported in. Placards are placed on the outside of the trucks that the material is being transported in. Placards, which should be placed on each side and each end of the transport vehicle, are typically the first reference responders use when trying to identify a hazardous material.

It is important for responders to note that if the amount of transported material is below a certain quantity, the truck is not required to be placarded. However, a 'dangerous' placard may be used if the shipment contains non-bulk packages of two or more classes of hazardous materials. If available, the vehicle's bill of lading, or shipping papers, should identify the type of material(s) being transported. It is important to always verify what material is being transported during an incident prior to initiating any recovery efforts.

Placards are color-coded based on the class of hazardous material being transported. As a reference, the USDOT Hazardous Materials Warning Placards quick reference guide has been included in *Appendix F*. The placard, or an orange panel placed below the placard, should include a four-digit number that can be referenced to identify the hazardous material using the Emergency Response Guidebook (ERG). The ERG is primarily a guide to aid incident responders in: 1) quickly identifying the specific or generic classification of the material(s) involved in the incident; and 2) protecting themselves and the general public during this initial response phase of the incident. The ERG can found online at: www.phmsa.dot.gov/hazmat/library/erg.

9.2 Notification

Any discharge of a hazardous substance that adversely impacts or threatens to adversely impact public health, welfare or the environment must be reported to the Wisconsin Department of Natural Resources (DNR) immediately. Responders should contact the DNR using their 24-hour spill emergency hotline, 1-800-943-0003. Even if the responding agency is licensed and able to handle a hazardous materials spill, they still must contact the DNR if it is a reportable spill.

As outlined in WI Administrative Code Chapter NR 706, not all hazardous material spills require notification of the DNR. If a hazardous spill involves discharges within the limits outlined in list 1) Discharge Type and Amount, and meets all the criteria outlined in list 2) Criteria, the spill does ***not*** need to be reported to the DNR.

1. Discharge Type and Amount
    - Discharge of gasoline or another petroleum product that is completely contained on an impervious surface
    - Less than 1 gallon of gasoline that is discharged onto a surface that is not impervious or runs off an impervious surface
    - Less than 5 gallons of a petroleum product other than gasoline (including diesel and airplane fuel) that is discharged onto a surface that is not impervious or runs off an impervious surface
    - Less than 250 pounds of a dry fertilizer
    - Less than 25 gallons of a liquid fertilizer
    - Discharge of pesticides that would cover less than 1 acre of land if diluted as stated on the instruction label

2. Criteria
    - Has evaporated or been cleaned up in accordance with NR 700-726
    - Does not adversely impact or threaten to adversely impact the air, lands, waters of the state as a single discharge, or when accumulated with past discharges
    - Does not cause or threaten to cause chronic/acute human health impacts
    - Does not present or threaten to present a fire or explosion or other safety hazard

Furthermore, no reporting is required for the following:

- Discharges within the limits authorized by a valid permit or program
- Law enforcement/fire departments using hazardous substances to protect human health, safety or welfare
- Proper applications of a registered pesticide or fertilizer

For federal reportable quantities of specific substances, refer to *Designation, Reportable Quantities and Notification (40 CFR, Part 302)* which can be found online at: homer.ornl.gov/rq/302.pdf.

9.3 Response and Cleanup

Wisconsin Statute 292.11 requires that a person who possesses or controls a hazardous substance which is discharged or who causes the discharge of a hazardous substance shall notify the DNR immediately of any discharge not exempted by law. In addition, those same persons must take the actions necessary to restore the environment to the extent practicable and minimize the harmful effects from the discharge to the air, lands or waters. To ensure that the DNR has been properly notified, it is also recommended that incident responders contact the DNR anytime they respond to an incident that involves a hazardous material.

If a responsible party is unable or unwilling to provide adequate response, the DNR has the authority to identify, locate, monitor, contain, remove or dispose of the hazardous substance or take any other emergency action which it deems appropriate under the circumstances. The DNR can then seek cost recovery for any costs incurred for providing those services. It is recommended that individual agencies work with DNR to coordinate cleanup activities and do ***not*** contact cleanup contractors directly. Typically, this will result in the contacting agency being billed for cleanup activities, which may limit, or eliminate, the possibility of recovering costs from the responsible party.

10. Helicopter Emergency Medical Services Landing Zones

When incident victims sustain critical injuries, Helicopter Emergency Medical Services (HEMS) may be required to respond. To ensure the safety of HEMS staff, on-scene responders and the traveling public it is essential that a proper landing zone (LZ) be established.

10.1 Landing Zone Coordinator and Tail Rotor Guard

An LZ Coordinator should be designated by the Incident Commander to set up the LZ and maintain communications with the aircraft pilot through all phases of the HEMS response including approach, on-scene operations and departure. During aircraft approach, landing and takeoff, this individual should stand with their back to the wind in a location far enough back from the touchdown area that they can maintain eye contact with the pilot.

The LZ Coordinator should also designate someone to serve as the Tail Rotor (TR) Guard. The TR Guard is responsible for ensuring that no one approaches the tail rotor and should be positioned a minimum of 50 feet behind the tail rotor. If resources are limited, the LZ

Coordinator can serve as the TR Guard once the aircraft has landed, but it is preferred that a separate TR Guard be designated. The TR Guard should remain in-place for the entire period between landing and takeoff (arrival to departure).

10.2 Landing Zones

The preferred LZ area is ***150 feet x 150 feet*** regardless of time of day or wind speed/direction. The LZ should be a flat (maximum slope 5 degrees), firm surface that is free of overhead obstructions and easily blown debris. The LZ should not be in a low-lying area. If possible, the LZ should be located on the downwind side of the scene, which will help to reduce noise and dust and enables the helicopter to land closer to the scene. The LZ Coordinator should mark the direction of the wind by standing with their back to the wind, on the upwind side of the landing zone.

The LZ should be clearly marked with four lights, one in each corner as illustrated in Figure 10.1. The LZ can be marked with red or amber strobes, weighted illuminated cones or weighted LED flares. The LZ should ***not*** be marked with lightweight items such as police/fire barrier tape or non-weighted cones. Responders should keep in mind that LED flares are difficult to see during the day but are beneficial at night. Similarly, cones are difficult to see at night but are preferred during the day. Green markings may not be visible to HEMS crews that are utilizing night vision goggles so LEDs that produce a green light should ***not*** be used.

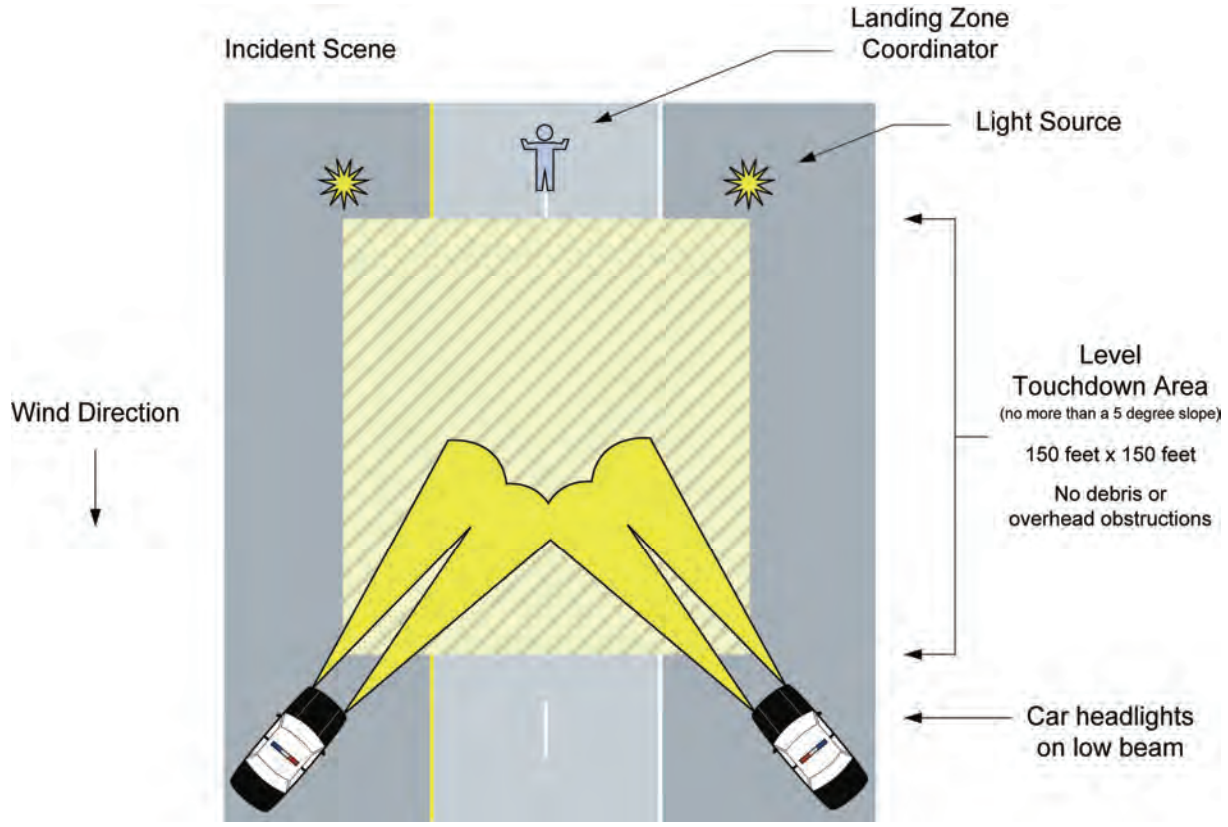


Figure 10.1 - Landing Zone Example

(Diagram Not to Scale)

Emergency lighting and ***low*** beam headlights can be used to help mark the LZ if necessary. Lights should be directed upwind towards the center of the LZ at a 45 degree angle. Lights should never be pointed upward towards the helicopter. If night vision goggles are being used the HEMS crew may request that lights, including those on response vehicles close to the LZ, be turned off. The LZ Coordinator should maintain communications with the pilot and be prepared to turn off lights if requested.

Emergency personnel and vehicles providing lighting assistance for aircraft landing must remain 100 feet away from the LZ. Non-emergency personnel (including crowds and media) and all other vehicles must be kept back a minimum of 200 feet from the LZ. Obstructions at the edge of the LZ that are in line with the approach/departure paths should be no higher than 4 feet and should be clearly marked with a row of lights, extending the length of the landing area.

10.2.1 Highway Closure Requirements – If an aircraft is landing on an undivided highway, on-scene personnel must close both directions of travel. The highway should remain closed until the helicopter departs.

If an aircraft is landing on a divided highway, on-scene personnel must close both directions of travel during landing and take-off. Traffic lanes in the opposing direction may be opened while the aircraft is on-scene; however, the pilot has the authority to request that both directions remain closed. If possible, adjacent crossovers should be blocked to prevent vehicles from accessing the scene counter-directional.

It may not be necessary to close both directions of travel in rural areas where the highway is divided by a large, wooded median. Based on access and resource restrictions, and the limited visibility of passing motorists, on-scene personnel may determine that it is not necessary to close traffic lanes in the opposing direction during landing and take-off.

An example of a TIMA with a HEMS LZ is illustrated in Figure 10.2.

10.2.2 Off-Site Landing Zones – It is preferable for the helicopter to land at the scene. The use of a safe, off-site LZ is acceptable ***as long as there will not be a delay in providing patient care***. On-scene personnel should consider that use of an off-site LZ might cause other complications, most notably the need for enough resources to both secure the alternate LZ while maintaining a safe and secure incident scene and to transport the patient from the incident scene to the off-site LZ. The HEMS crew is responsible for all loading and off-loading of patients and equipment. If help is needed, the crew will designate on-scene personnel to assist and will provide instructions.

10.2.3 Multi-HEMS Response – If multiple HEMS need to respond to an incident scene, it is essential to notify both programs that there will be another helicopter approaching. Aircraft should be directed to the landing zone so they do not need to fly over one another. Each LZ should be a minimum of 150 feet x 150 feet. If there is not enough room to land two helicopters, sequencing of the landings may be required. This coordination will most likely occur between the two pilots in consultation with the LZ Coordinator. It is essential that both helicopters and on-scene personnel use the same radio frequency for communications.

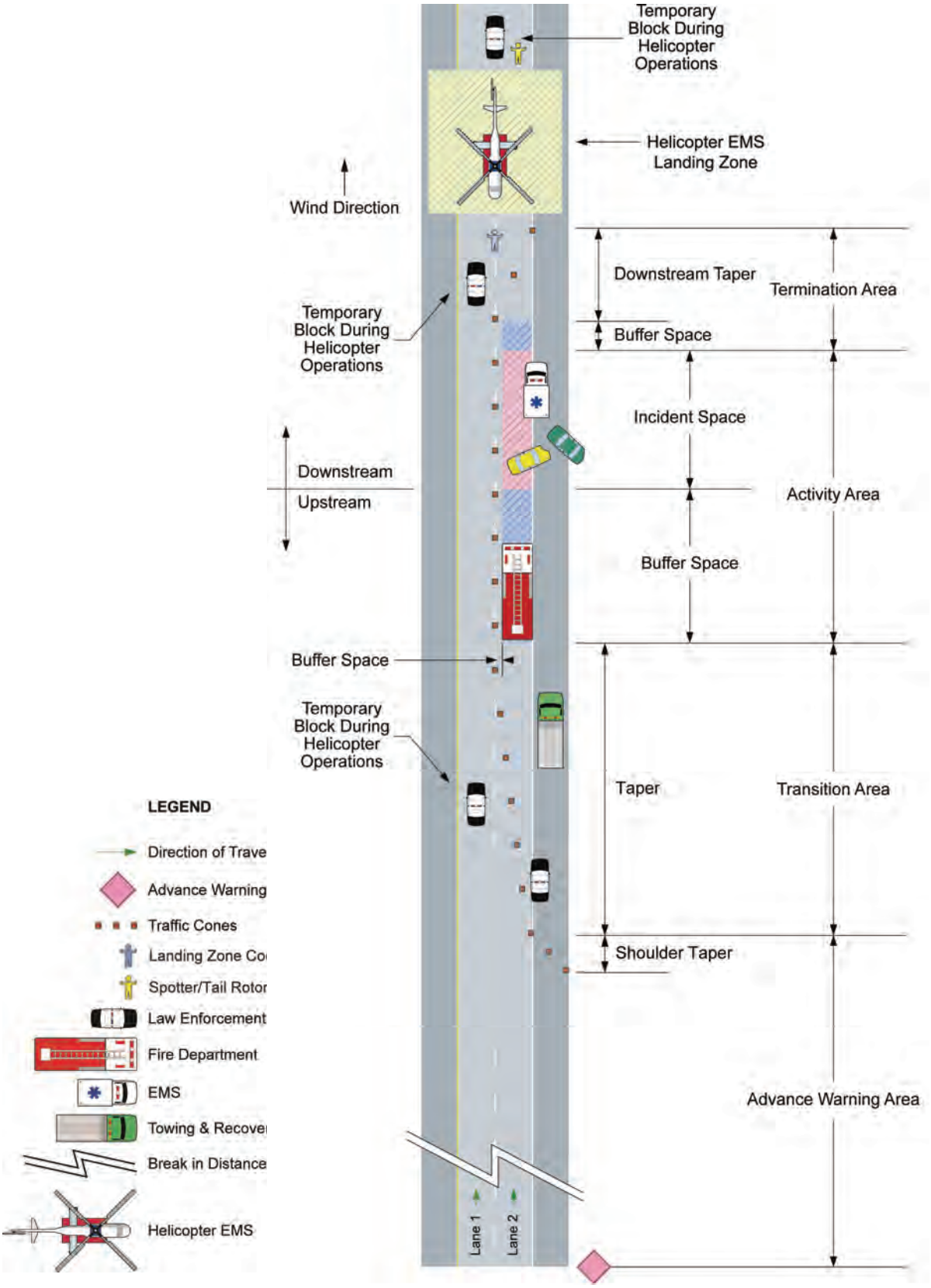


Figure 10.2 - HEMS Landing Zone TIMA Example

(Diagram Not to Scale)

10.3 Communications

A preferred radio frequency, free from excessive traffic, should be designated immediately for air to ground communications. The LZ Coordinator must use this frequency and establish communication with the responding HEMS aircraft prior to the pilot initiating any landing operations. An alternate, or back-up, frequency should also be identified in advance. The *State of Wisconsin Emergency Medical Services Communication Plan* has designated the following frequencies for air to ground communications:

- Primary: MARC 2 (151.280 with Tone 136.5 Hz)
- Backup: EMS C (155.280 with Tone D156)

It is recommended that these frequencies be utilized whenever possible. If there are issues with communication, the HEMS dispatch center can be contacted to discuss status and estimated time of arrival (ETA), and to assist with establishing communications. It is important for the LZ Coordinator to also be aware that if a portable radio is being used to communicate with the responding helicopter, the transmission range may be limited to 2-5 miles.

The ETA provided by the responding HEMS program is based on the global positioning system (GPS) location at the time of the initial call. Once the responding aircraft is airborne, it is likely that the ETA will be updated and a final update will be provided as the aircraft approaches the scene.

The pilot may not land until clear radio communications have been established with on-scene personnel. It is imperative that the pilot be advised of anything that may assist with or impede their arrival and response. Upon contact with the HEMS pilot, the LZ Coordinator should provide the following information:

- Wind direction (helicopters land and take off into the wind)
- Nearby landmarks to identify the LZ (airport, town, water tower, highway, etc.)
- Direction and distance from town, major landmarks or highways
- GPS coordinates (if available)
- Location of the LZ relative to the incident scene
- Location of any obstructions in the area

If possible, on-scene personnel caring for the patient(s) should also relay any known patient information, including number of patients, injuries and patient weight(s).

10.3.1 Hand Signals – While the use of hand signals may not occur often, there may be times that radio communications between the LZ Coordinator and the HEMS aircraft pilot may be lost or interrupted. For these situations, the standard hand signals illustrated in Figure 10.3 should be used. During nighttime conditions, the LZ Coordinator can hold lights to help ensure that the hand signals are clear to the pilot.

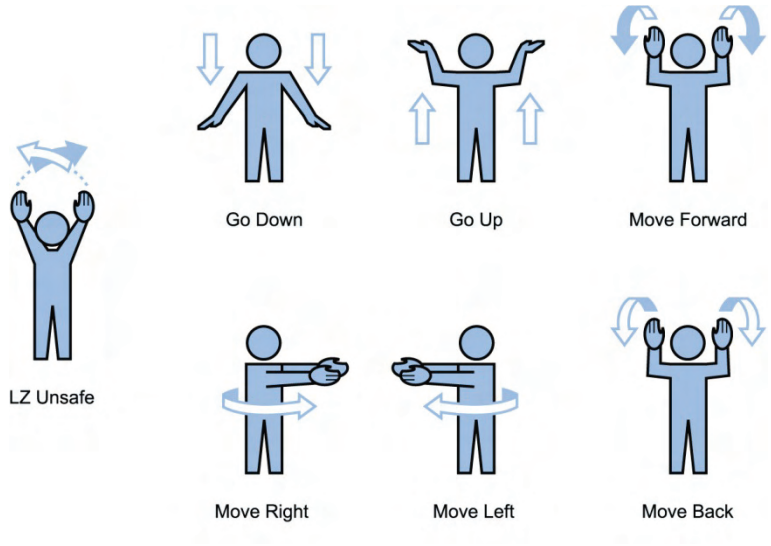


Figure 10.3 - Landing Zone Coordinator Hand Signals

10.4 Safety Considerations

Never approach the aircraft from the rear as the spinning tail rotor is nearly invisible. Furthermore, on-scene responders should not approach the helicopter unless requested by HEMS personnel. If requested to approach the aircraft, the individual should be accompanied by one of the HEMS staff members, remain in the pilot's field of vision and only approach the aircraft from the front/side. Responders should ***not*** approach or depart the helicopter from an area that is higher than the aircraft. On-scene personnel need to be aware of the rotor wash created by the helicopter and the potential for flying debris during landing and take-off. Everyone near the LZ should wear eye and hearing protection or remain in a vehicle. In addition, secure all loose items, such as equipment, headgear and vehicle doors and windows.

The LZ must remain under the control of the LZ Coordinator and the TR Guard at all times including during aircraft approach, ground operations and aircraft departure. It is important to ensure the safety of everyone at the scene including, but not limited to, on-scene personnel, the HEMS crew, motorists and all bystanders. Other on-scene emergency response personnel should assist with maintaining scene safety and security by:

- Providing traffic/crowd/media control
- Monitoring pedestrian and vehicular traffic (authorized and non-authorized)
- Ensuring ***no*** one crosses into the LZ
- Notifying the LZ Coordinator and/or HEMS crew of any hazards or obstructions
- Calling off the landing if needed
- Monitoring communications with the HEMS crew

10.4.1 HEMS Response to Scenes Involving Hazardous Materials – Upon initial radio contact, the HEMS crew must be made aware of any hazardous materials in the area. ***Never*** assume they have been previously informed. ***Patients must be field decontaminated prior to transport by helicopter***. The Federal Aviation

Administration (FAA) prohibits transportation of hazardous materials and helicopter crews do not have protective gear or breathing apparatus with them. The LZ should be at least 1 mile upwind of and not in a low-lying area for:

- Explosives
- Poisonous gases/vapors
- Chemicals in danger of exploding or burning
- Radioactive gas or materials

11. Crash Investigation/Reconstruction

Traffic incident scenes should be cleared as quickly as is practical, emphasizing restoration (i.e., opening) of all available traffic lanes without compromising short-lived and often un-retrievable evidence necessary for a thorough crash investigation. The investigation and reconstruction of traffic crashes has become increasingly more important in recent years. Among the most significant reasons for this include:

- Criminal, including homicide investigations, and civil aspects of traffic crash cases
- Litigation against law enforcement agencies and personnel
- Documentation of the economic and personal loss and injury of those involved in traffic crashes

Reconstruction is the objective analysis of physical evidence present in a collision event that serves to establish how the collision occurred, factually and objectively. In order to perform reconstruction of incident scenes, evidentiary items must be accurately documented and preserved for analytical purposes.

11.1 Evidence Collection

Consideration must be given to balancing the necessity of road or lane closure with the collection of evidence. There may be times when evidence is photographed and marked, and location measurements are collected at a later time. All responders must be mindful of the impact closures have on traffic and the potential for secondary crashes. When necessary, crash reconstructionists should gather key crash related evidence immediately and consider measuring the roadway itself at a later time when proper traffic control can be established. However, regardless of the situation, it is most important that safety be maintained for all personnel.

If something of potential evidentiary value needs to be moved in order to open the roadway, that item should be photographed and its location marked (with paint or other semi-permanent marking) prior to it being moved. Additionally, documentation recording who marked, photographed and moved the item should be kept.

When available, the most current technology for capturing detailed measurements should be utilized to aid in quick clearance of the crash scene. Available technologies include total station, GPS, surveying, laser mapping and photogrammetry. Consideration should also be given to

utilizing the closest qualified reconstruction personnel for initial scene documentation to aid in clearing the crash scene as quickly as possible.

11.1.1 Short-Lived Evidence – Short-lived evidence is most susceptible to being destroyed at a crash scene. Short-lived evidence is any evidence relative to a crash that will most likely be lost, destroyed or compromised due to weather or during the process of clearing the crash scene. Critical short-lived evidence can consist of blood, hair, tissue, fibers, tire marks, fluid trails, debris fields, gouges, scrapes, paint transfer, and the final rest positions of all vehicles and the bodies of victims. If at all possible, make note of occupant seating location/position and seat belt usage.

It should be noted that some tire mark evidence can be wiped off of the roadway similar to how eraser shavings can be wiped off of a piece of paper. These marks should be protected from foot traffic, fire hoses and vehicle movement until photographed and marked.

11.1.2 Vehicle Evidence – Within the vehicle there is potential DNA and other sensitive evidence such as blood, hair, tissue and fibers that may need to be collected and preserved. Other vehicle evidence may include seat positions, seat belts, deployed airbags and contents of the vehicle, including driver logbooks, cellular telephones, GPS units and other personal electronic devices. Extra care should be given to cases where the driver of the vehicle is not readily identifiable.

Under ***no*** circumstances should the vehicle itself be used as a garbage can. Debris that is swept up at a crash scene should be placed in appropriate containers and not dumped into the vehicle.

11.1.3 Electronic Evidence/Data – Electronic data, including that related to the deployment of airbags in passenger cars and light trucks, can be destroyed or deleted by providing power to the vehicle or cycling the ignition. Ignition keys should be removed and turned over to the personnel investigating the crash, not to tow operators. It is preferred that if power to the vehicle needs to be disconnected that it is disconnected by removing the cables from the battery terminals rather than physically cutting the power cables themselves. It is understood that when more severe circumstances exist, cutting the cables may be required. However, when no extrication of occupants is required, and there is no immediate fire hazard, the cutting of power cables is ***not*** necessary.

Some commercial motor vehicles contain electronic data pertaining to the crash and the events leading up to it. Portions of this data can also be destroyed by disconnecting power to the vehicle. In all cases, it is recommended that the ignition be turned off, and the keys be removed and turned over to the personnel investigating the crash. Unless exigent circumstances exist (such as a fire hazard), it is preferred that power lines not be disconnected or cut on commercial motor vehicles. Since most commercial motor vehicles are currently not equipped with air bags, leaving power supplied to these vehicles should not pose any additional hazard to rescue personnel.

12. Clearance/Removal Operations

12.1 Quick Clearance

Motorists who are involved in crashes are exposed to the same dangers responders face when working in or near traffic. To improve the safety of motorists involved in minor crashes, Wisconsin enacted quick clearance legislation in 1998 (reference WI Statutes 346.67-68). The law requires motorists involved in crashes, if the vehicle is able to be driven and no one is injured in the crash, to move the vehicle to a location where it will obstruct traffic as little as possible.

12.1.1 Crash Investigation Sites – To support the incident clearance law, crash investigation sites (CIS) have been installed along the freeway in various locations across the state. CIS are designated safe zones for distressed motorists to relocate to if they are involved in an incident on the freeway. The sites are intended for use by motorists to exchange insurance information or make emergency repairs to vehicles following a minor collision or breakdown, provided that the vehicle can be driven.

Additionally, Wisconsin's quick clearance legislation includes hold harmless provisions as follows (reference WI Statute 349.13):

> *No person, who removes or stores a vehicle under subs. (3) to (4) or otherwise at the request of a law enforcement officer, and no person who removes or stores a disabled vehicle, accident debris or other object that obstructs the roadway of a freeway or expressway, as defined in s. 346.57 (1) (ag), may incur any civil liability for the act, except for civil liability for failure to exercise reasonable care in the performance of the act or for conduct that is willful, wanton or malicious.*

This is interpreted to mean that if a vehicle is blocking travel lanes on a freeway or expressway and law enforcement, in an effort to mitigate the effects of this blockage, requests that the vehicle be quickly removed from the travel lanes, the towing and recovery agency will not be held liable for additional damage given that reasonable care is used and that conduct was not willful, wanton or malicious. This legislation is not related to and does not cover traffic control activities performed by towing and recovery professionals.

12.2 Towing and Recovery

Towing and recovery professionals are integral to achieving safe quick clearance. However, the capabilities of towing and recovery professionals are not always well understood by their law enforcement partners. Similarly, the expectations law enforcement has for towing and recovery professionals are not always clearly defined. In an effort to address this issue and ensure safe practices are followed, recommended minimum standards for towing and recovery call-out lists were developed with input from both law enforcement and the Wisconsin Towing Association. A copy of the recommendations can be found in *Appendix G*.

12.2.1 Towing and Recovery Call-Out Checklist – Incident clearance can be significantly delayed when towing and recovery agencies respond with the incorrect equipment because they were provided inaccurate information or simply told what equipment to bring. To facilitate information exchange, a towing and

recovery call-out checklist was developed and can be found in *Appendix H*. It should be noted that the checklist was developed as a reference tool and it is not expected to be used as a form that is filled out for each tow request.

12.3 Vehicle Removal

If a vehicle is in the shoulder/median and removal does not require that a lane be closed, towing and recovery professionals can remove the vehicle and coordination with local law enforcement is not necessary. However, towing and recovery professionals can request law enforcement assistance.

If a vehicle is in the shoulder/median and removal requires a travel lane to be closed, towing and recovery professionals must coordinate with law enforcement. In situations where law enforcement is on-scene, they, as acting Incident Commander or part of Unified Command, can determine if the lane closure can be done with the equipment on hand or if assistance from the public works or highway department will be necessary.

12.4 Delayed Heavy-Duty Clearance/Recovery

Depending on the circumstances, delaying some or all clearance/recovery activities may be appropriate in the interest of safety or facilitating traffic flow through the incident scene. For example, it may be safer for responders and motorists to pull a stuck vehicle out of the ditch area adjacent to the roadway after rush hour or when inclement weather subsides. In all cases, the decision to delay clearance/recovery must be made either by the Incident Commander or as part of Unified Command. During this decision process, it is important to consider:

1. Where the incident vehicles, spill, debris, etc. will be left with respect to the traveled way and/or clear zone. The term “clear zone” is used to designate the unobstructed, relatively flat area provided beyond the edge of the traveled way for the recovery of errant vehicles. Consideration should be given to whether or not the location of the vehicle may cause a safety hazard. Simply stated, the closer the vehicle is to the edge of the traveled way the greater the safety hazard.
2. The time period that the incident vehicles, spill, debris, etc. is anticipated to remain at the scene before they are cleared/removed. It is important to understand when traffic volumes may be reduced so that the impact on traffic flow may be minimized. The time of day for clearance/removal must also be considered recognizing the safety implications of doing the work at night when visibility is reduced.
3. Mark the incident vehicles, spill, debris, etc. so that other motorists do not unnecessarily contact 911 when observing incident debris left for later removal. One method for marking involves the use of caution tape to border the incident debris.
4. Delayed clearance/removal is considered a planned activity. Therefore, lane closures and traffic control must be consistent with and conform to WisDOT and county highway department policies and procedures. In other words, MUTCD requirements for temporary traffic control (TTC) must be followed as opposed to a TIMA establishment, which is used for emergency conditions.

Once the decision to delay recovery operations is made, coordination and communication must occur between the responsible party, the WisDOT regional office, the highway department, the

local State Patrol Post, the STOC and the agency responsible for recovery operations. If for any reason, the towing and recovery agency responsible for recovery/clearance is unsure as to whom they should be coordinating with, they can contact the STOC.

13. Emergency Alternate Routes

One tactic for managing traffic diverted around an incident scene is by pre-establishing and implementing emergency alternate routes. The Incident Commander considers a number of factors before emergency alternate route deployment including, the incident type, its expected duration, and anticipated traffic impacts on the affected highway and the alternate route. Generally speaking, these routes are only used during an incident or emergency and not as alternates to bypass recurring traffic congestion.

13.1 Pre-Planning Requirements

WisDOT has developed emergency alternate route guides (EARG) for a number of corridors throughout the state. As part of this initiative, an EARG template has been prepared to promote consistency. EARGs typically include a map of the emergency alternate route and identify existing and/or required traffic control devices, location of closure points, and guidance on PCMS location and messages. Each EARG also includes emergency contact information and agency responsibilities for deployment of the routes along with a written description of the route to assist responders with disseminating information to the motoring public. See *Appendix I* for an EARG example. It is important for incident responders, particularly law enforcement, to be aware of the WisDOT EARGs for their respective area or region. The TIME Program website, www.dot.wisconsin.gov/travel/stoc/time.htm, provides additional information about existing EARGs.

Regardless of whether or not a WisDOT EARG has been prepared for a given highway segment, prior to the occurrence of an incident, it is important for law enforcement to have a general understanding of where traffic could be routed in an emergency. Some jurisdictions have simply highlighted routes on existing maps that could safely accommodate diverted traffic. There is no substitute for enhanced field knowledge of route characteristics made possible by routinely driving the route. Consistent with the development of the WisDOT EARGs for both rural and urban areas, the following are considerations in selecting an emergency route:

- Utilization of state highway and/or truck routes with higher speed limits (preferred)
- Roadway design and geometry (e.g., number of lanes, lane widths, shoulder widths, limited secondary access, etc.)
- Proximity of alternate to diverted highway
- Existing signing (back to primary route)
- Truck/trailer weight, height and turning movement restrictions
- Presence of traffic control devices such as signals and stop signs
- Impacts of additional traffic on emergency response routes
- At-grade railroad crossings with a high frequency of trains
- Current pavement conditions

- Popular pedestrian areas
- Residential areas or school zones
- Presence of construction activity or work zones

13.2 Deployment Considerations

Deployment of emergency alternate routes can be resource intensive. Therefore, it is imperative for responders to coordinate with the Incident Commander as early as possible. Responders should recognize and account for a number of potential challenges, issues and resource needs in the deployment of an emergency alternate route. These include:

- Information dissemination to diverted motorists (e.g. static and dynamic signing) and positive reinforcement of information leading motorists back to the primary highway
- Need for personnel to monitor alternate route operations and for traffic control at certain intersections
- Need for additional temporary traffic control equipment on alternate route
- Real-time communications with local jurisdictions, the STOC and other responders and telecommunicators
- Contingencies for incidents that occur on the alternate route itself

In some locations, permanent static signing, such as depicted in Figure 13.1, has been installed to facilitate emergency alternate route deployment and designation. Static signing guides motorists along the route and can reduce or eliminate the amount of resources needed to implement the route.

Figure 13.1 - Emergency Alternate Route Signing

13.2.1 Ramp Gates – To enable the physical closure of freeway on-ramps when the mainline is blocked, WisDOT is installing ramp gates at interstate interchanges around the state. Ramp gates utilize a mechanical gate arm that can be manually lowered to provide a physical barrier preventing motorists from accessing the interstate. Ramp gates allow law enforcement to restrict access to the highway during an emergency safely and efficiently, thereby reducing the need for other responder resources to provide traffic/closure control at the on-ramp. Use of ramp gates is only for emergencies such as traffic incidents, severe weather or planned special events and is not for use in construction projects or maintenance activities.

Deployment Responsibilities – The on-scene Incident Commander is responsible for assigning personnel to deploy ramp gates in an emergency. In most cases, law enforcement is responsible for deploying ramp gates. The responder's vehicle typically blocks traffic while lowering the ramp gate arm. The flip-down "Ramp Closed, Use Alt Route" sign adjacent to or upstream of the ramp gate is also deployed/folded down to warn motorists of the closure. The sign supports the legal basis to enforce laws related to obeying traffic control devices (ramp gates).

A padlock secures the ramp gate and protects unauthorized lowering of the ramp gate arm. The combination for all ramp gate padlocks throughout the state is 3700. Once the ramp gate arm is in the down position, the user returns the lock (unlocked) to the hole in the bolt to avoid loss. Refer to *Appendix J* for a copy of the ramp gate utilization quick reference guide.

13.2.2 Traffic Signals – In deploying emergency alternate routes, law enforcement and transportation responders must consider the operations of traffic signals along the route(s), particularly in urban areas where volumes are likely to be higher. Given the significant increase in traffic due to incident diversion, traffic signals may not be timed or have the required field equipment capabilities to accommodate the sudden volume increases. For pre-planned routes (i.e., those with EARGs), responders must follow the information in the guides to determine where traffic signals exist along a given route.

Strategies to consider for operating traffic signals on emergency alternate routes generally fall into two categories based on the anticipated emergency operation times: 1) Short-term; and 2) Long-term. Other factors to consider include time of day and location/proximity to other traffic generators. In other words, it is difficult to assign a specific time period to each of these categories as they are dependent on when and where the incident requiring diversion takes place.

Short-term emergency traffic signal operations strategies include:

- Active field monitoring of signal operations made possible by routinely driving the route during diversion
- Safely placing the signal in emergency all-red flash
- Responders (typically law enforcement) physically directing traffic at the intersection in combination with all-red flash
- Responders (typically law enforcement) using the traffic signal police panel stop-time function to manually control the signal phase timing

Long-term emergency traffic signal operations strategies include:

- Pre-developing and implementing signal timing plans to accommodate diversion volumes
- Placing the signal in "night-flash" (i.e. flashing yellow on primary/diversion street, flashing red on side street) Note: this operation must be closely monitored to ensure that side street traffic does not encounter significant delay or perform unsafe turning movements

- Updating signal field equipment to respond to or adapt to fluctuating diversion volumes

Not unlike other TIM activities, it is critical that strategies used for emergency traffic signal operations be coordinated with the maintaining agency, closely monitored, adjusted as required, and communicated to communication/dispatch centers and the Incident Commander.

13.3 Temporary Use of the Shoulder in an Emergency

The design of highway/interstate shoulders provides for vehicular traffic on a very limited basis. In other words, using the shoulder as an emergency alternate to a closed or blocked travel lane could result in pavement failure. Furthermore, shoulders may discontinue or reduce width at bridge structures. For these reasons, WisDOT strongly recommends avoiding the prolonged use of a shoulder for managing traffic at an incident scene. If use of the shoulder is the only option for longer duration intermediate or major incidents, the Incident Commander or law enforcement should consult with the WisDOT RIMC prior to diverting traffic to the shoulder.

14. Post Incident Debriefings

Each traffic incident is unique and, as such, one of the most effective ways to enhance quick clearance and improve safety is to regularly debrief incidents that have occurred. The purpose of an incident debriefing is to evaluate the decisions made and actions taken during an incident and to identify best practices and opportunities for improvement. An incident debriefing can be held for any type or size of incident, but it is highly recommended that all major incidents be debriefed.

Effective debriefings provide a forum in which conflicts and inefficiencies are identified and steps are taken to resolve or eliminate them. Debriefings can also help open lines of communication and foster relationships among responders. It is essential that incident debriefings be multi-agency and multi-discipline and include all agencies and personnel that were involved with the incident, including telecommunicators. Incident debriefings can be initiated by any agency involved in the response to an incident and should take place as soon as possible.

The TIME Program incident debrief form can be found in *Appendix K*. The form is intended to assist agencies in gathering and disseminating incident details and can be completed by any agency involved in the response to a traffic incident.

Acronyms

ANSI	–	American National Standards Institute
CAD	–	Computer-Aided Dispatch
CCTV	–	Closed-Circuit Television
CFR	–	Code of Federal Regulations
CIS	–	Crash Investigation Site
DMS	–	Dynamic Message Signs
DNR	–	Department of Natural Resources
DOJ	–	Department of Justice
EARG	–	Emergency Alternate Route Guide
EMS	–	Emergency Medical Services
ERG	–	Emergency Response Guidebook
ERSI	–	Emergency Responder Safety Institute
ETA	–	Estimated Time of Arrival
FAA	–	Federal Aviation Administration
FHWA	–	Federal Highway Administration
GPS	–	Global Positioning System
GVWR	–	Gross Vehicle Weight Rating
HAR	–	Highway Advisory Radio
HEMS	–	Helicopter Emergency Medical Services
ICS	–	Incident Command System
IFSTA	–	International Fire Service Training Association
ISEA	–	International Safety Equipment Association
LCS	–	Lane Closure System
LED	–	Light Emitting Diode
LZ	–	Landing Zone
MUTCD	–	Manual on Uniform Traffic Control Devices
NFPA	–	National Fire Protection Association
NIJ	–	National Institute of Justice
NIMS	–	National Incident Management System
NTIMC	–	National Traffic Incident Management Coalition
NUG	–	National Unified Goal

PCMS	–	Portable Changeable Message Signs
PIO	–	Public Information Officer
RIMC	–	Regional Incident Management Coordinator
STOC	–	Statewide Traffic Operations Center
TIM	–	Traffic Incident Management
TIMA	–	Traffic Incident Management Area
TIME	–	Traffic Incident Management Enhancement
TR	–	Tail Rotor
TRAA	–	Towing and Recovery Association of America
TTC	–	Temporary Traffic Control
USDOT	–	U.S. Department of Transportation
USFA	–	U.S. Fire Administration
WI	–	Wisconsin
WisDOT	–	Wisconsin Department of Transportation

Glossary

Activity Area – Section of the highway where incident response activities take place. The activity area is comprised of the upstream buffer space and the incident space.

Advance Warning – Notification methodologies that advise approaching motorists to transition from normal driving status to that required by the temporary emergency traffic control measures ahead of them.

Advance Warning Area – Section of highway where motorists are informed about the upcoming incident area.

Block – Positioning of an emergency vehicle to create a physical barrier between upstream traffic and the incident space.

Block to the Left – Positioning of an emergency vehicle where traffic is being diverted to the left.

Block to the Right – Positioning of an emergency vehicle where traffic is being diverted to the right.

Buffer Space – A lateral or longitudinal area that separates personnel and vehicles in the protected incident space from nearby moving traffic.

Command – The act of directing, ordering, or controlling by virtue of explicit statutory, regulatory, or delegated authority.

Command Staff – Consists of Public Information Officer, Safety Officer, Liaison Officer, and other positions as required, who report directly to the Incident Commander.

Communications/Dispatch Center – Agency or interagency dispatch centers, 911 call centers, emergency control or command dispatch centers, or any naming convention given to the facility and staff that handles emergency calls from the public and communication with emergency management/response personnel.

Crash Reconstruction – The objective analysis of physical evidence present in a collision event that serves to establish how the collision occurred, factually and objectively.

Downstream – Roadway or traffic flow beyond the incident space, when considered from the perspective of a passing motorist.

Flagger(s) – Personnel assigned to control stop and go traffic or direct traffic in conformance with the Manual on Uniform Traffic Control Devices (MUTCD).

Highway – A general term for denoting a public way for purposes of travel by vehicular travel, including the entire area within the right-of-way.

Incident Command – Responsible for overall management of the incident and consists of the Incident Commander, either single or Unified Command, and any assigned supporting staff.

Incident Command Post – The field location where the primary tactical-level, on-scene incident command functions are performed.

Incident Command System (ICS) – A standardized, on-scene, all-hazard incident management concept that is based upon a flexible, scalable response organization providing a common framework within which people can work together effectively.

Incident Commander – The individual responsible for all incident activities, including the development of strategies and tactics and the ordering and release of resources. The Incident Commander has overall authority and responsibility for conducting incident operations and is responsible for the management of all incident operations at the incident site.

Incident Space – Physical area of the roadway within which incident responders perform their emergency medical services, fire, law enforcement and recovery tasks at a vehicle-related incident.

Landing Zone (LZ) – A designated location where HEMS may safely take off and land. Landing zones may be used for medical evacuation and loading of supplies, equipment or personnel.

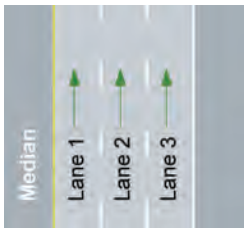
Landing Zone (LZ) Coordinator – Individual designated by the Incident Commander to set up the landing zone for HEMS response. The LZ Coordinator is responsible for maintaining communications with the aircraft pilot through all phases of the HEMS response including approach, on-scene operations and departure.

Lane 1, 2, 3, etc. – Naming convention for lane identification. Lanes are numbered starting with the left most lane as seen from the motorist's direction of travel (the lane nearest the median) being Lane 1. See example below for a 3 lane highway:

Lane 1 - left lane nearest the median

Lane 2 - middle lane

Lane 3 - right lane nearest the shoulder



Liaison Officer – A member of the Command Staff responsible for coordinating with representatives from cooperating and assisting agencies or organizations.

Manual on Uniform Traffic Control Devices (MUTCD) – The MUTCD is the national standard for all traffic control devices used during construction and maintenance activities. MUTCD Chapter 6I covers the use of traffic control devices at an incident scene.

National Traffic Incident Management Coalition (NTIMC) – The NTIMC is a forum of national organizations representing emergency medical services, fire, law enforcement, public safety communications, towing and recovery, and transportation communities working together to promote multi-disciplinary, multi-jurisdictional Traffic Incident Management (TIM) programs and activities.

National Unified Goal (NUG) – The NUG for Traffic Incident Management is responder safety; safe, quick clearance; and prompt, reliable, interoperable communications. The NUG was developed by the NTIMC.

Officers – The ICS title for the personnel responsible for the Command Staff positions of Safety, Liaison and Public Information.

Public Information Officer – A member of the Command Staff responsible for interfacing with the public and media and/or with other agencies with incident-related information requirements.

Regional Incident Management Coordinator (RIMC) – RIMCs serve as WisDOT's on-scene responder for incidents that involve state-owned infrastructure and provide support to public safety incident responders.

Responders – All personnel who have a responsibility in managing an incident and mitigating its impacts. Most responders arrive on the scene and are there to assist those involved in the incident. Traffic incident responders may include, but are not limited to: law enforcement, fire, emergency medical services, towing and recovery, coroner or medical examiner, county maintenance/highway, municipal public works, transportation officials, insurance investigators and engineers.

Retroreflectivity – A property of a surface that allows a large portion of the light coming from a point source to be returned directly back to a point near its origin.

Safety Officer – A member of the Command Staff responsible for monitoring incident operations and advising the Incident Commander on all matters relating to operational safety, including the health and safety of emergency responder personnel.

Spotter(s) – Emergency personnel assigned to monitor approaching traffic and activate an emergency signal if the actions of a motorist do not conform to established traffic control measures in place at the incident scene.

Staging Area – Location established where available resources can be temporarily housed or parked while awaiting operational assignment.

Tail Rotor (TR) Guard – Individual designated by the Landing Zone Coordinator that is responsible for ensuring that no one approaches the tail rotor during HEMS response.

Tapers – Used to move traffic out of or into the normal path through the use of a series of channelizing devices.

Temporary Traffic Control (TTC) Zone – An area of a highway where road user conditions are changed due to a work zone or incident by the use of temporary traffic control devices, flaggers, law enforcement officers and other authorized personnel/incident responders.

Termination Area – Area used to return motorists to their normal path. The termination area extends from the downstream end of the incident space to the last temporary traffic control device.

Traffic Incident – An emergency road user occurrence, a natural disaster, or other unplanned event that affects or impedes the normal flow of traffic. A traffic incident requires a response to protect life or property, and to mitigate its impacts. Traffic incidents, for example, include motor vehicle crashes, fires, hazardous materials release, disabled vehicles, infrastructure damage, major disasters and other occurrences that require an emergency response.

Traffic Incident Management (TIM) – Systematic, planned and coordinated use of human, institutional, mechanical and technical resources to reduce the duration of traffic incidents, and improve the safety of motorists, crash victims and incident responders.

Traffic Incident Management Area (TIMA) – Area of a highway where temporary traffic controls are imposed by authorized officials in response to an incident. A TIMA is a type of TTC Zone and extends from the first warning device (such as a sign 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. The components of a TIMA include an advance warning area, a transition area, an activity area and a termination area.

Traffic Incident Scene – Location at which a traffic incident occurred including the TIMA.

Traffic Space – Portion of the highway in which traffic is routed through the activity area.

Transition Area – The section of the highway where motorists are redirected out of their normal path. The transition area is the area in which approaching motorists should change their speed and position to comply with the emergency traffic control measures established at an incident scene.

Unified Command – An ICS application in which responding agencies and/or jurisdictions with responsibility for the incident work together to establish a common set of objectives and strategies.

Upstream – Roadway or traffic flow prior to the incident space, when considered from the perspective of a passing motorist.

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Appendices

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Appendix A

Legal Basis for Traffic Control and Related Wisconsin Statutes

Wisconsin Statute Chapter 346 - Rules of the Road

346.04 Obedience to traffic officers, signs and signals; fleeing from officer.

(1) No person shall fail or refuse to comply with any lawful order, signal or direction of a traffic officer.

(2) No operator of a vehicle shall disobey the instructions of any official traffic sign or signal unless otherwise directed by a traffic officer.

(2t) No operator of a vehicle, after having received a visible or audible signal to stop his or her vehicle from a traffic officer or marked police vehicle, shall knowingly resist the traffic officer by failing to stop his or her vehicle as promptly as safety reasonably permits.

346.072 Passing stopped emergency vehicles, tow trucks and highway machinery equipment. *(Commonly referred to as the Move Over or Slow Down Law)*

(1) If an authorized emergency vehicle giving visual signal, a tow truck flashing red lamps, as required by s. 347.26 (6) (b), or any road machinery or motor vehicle used in highway construction or maintenance displaying the lights specified in s. 347.23 (1) (a) or (b) or, with respect to a motor vehicle, displaying the lights specified in s. 347.26 (7), is parked or standing on or within 12 feet of a roadway, the operator of a motor vehicle approaching such vehicle or machinery shall proceed with due regard for all other traffic and shall do either of the following:

(a) Move the motor vehicle into a lane that is not the lane nearest the parked or standing vehicle or machinery and continue traveling in that lane until safely clear of the vehicle or machinery. This paragraph applies only if the roadway has at least two lanes for traffic proceeding in the direction of the approaching motor vehicle and if the approaching motor vehicle may change lanes safely and without interfering with any vehicular traffic.

(b) Slow the motor vehicle, maintaining a safe speed for traffic conditions, and operate the motor vehicle at a reduced speed until completely past the vehicle or machinery. This paragraph applies only if the roadway has only one lane for traffic proceeding in the direction of the approaching motor vehicle or if the approaching motor vehicle may not change lanes safely and without interfering with any vehicular traffic.

(2) In addition to any penalty imposed under s. 346.17 (2), any person violating this section shall have his or her operating privilege suspended as provided in s. 343.30 (1o).

346.67 Duty upon striking person or attended or occupied vehicle.
(Driver removal portion of law commonly referred to as the Steer It, Clear It Law)

(2) Any stop required under sub. (1) shall be made without obstructing traffic more than is necessary.

346.68 Duty upon striking unattended vehicle.
(Driver removal portion of law commonly referred to as the Steer It, Clear It Law)

The operator of any vehicle which collides with any vehicle which is unattended shall immediately stop and either locate and notify the operator or owner of such vehicle of the name and address of the operator and owner of the vehicle striking the unattended vehicle

or leave in a conspicuous place in the vehicle struck, a written notice giving the name and address of the operator and of the owner of the vehicle doing the striking and a statement of the circumstances thereof. Any such stop shall be made without obstructing traffic more than is necessary.

346.90 Following emergency vehicle.

The operator of any vehicle other than one on official business shall not follow an authorized emergency vehicle responding to a call or alarm closer than 500 feet or drive into or park his or her vehicle within the block where, or within 300 feet of the driveway entrance or similar point of access to a driveway or road on which, fire apparatus has stopped in response to an alarm. The personal vehicles of members of a volunteer fire department answering the alarm are considered on official business.

Wisconsin Statute Chapter 349 - Vehicles – Powers of State and Local Authorities

349.02 Police and traffic officers to enforce law.

(1) It is the duty of the police, sheriff's and traffic departments of every unit of government and each authorized department of the state to enforce chs. 346 to 348 and 350. Police officers, sheriffs, deputy sheriffs and traffic officers are authorized to direct all traffic within their respective jurisdictions either in person or by means of visual or audible signal in accordance with chs. 346 to 348 and 350. In the event of fire or other emergency, police officers, sheriffs, deputy sheriffs and traffic officers and officers of the fire department may direct traffic as conditions may require notwithstanding the provisions of chs. 346 to 348 and 350.

349.13 Authority to regulate the stopping, standing or parking of vehicles.

(Authority removal and hold harmless portions of law commonly referred to as the Steer It, Clear It Law)

(3) Whenever any traffic officer finds a vehicle standing upon a highway in violation of a prohibition, limitation or restriction on stopping, standing or parking imposed under ch. 346 or this section, or a disabled vehicle that obstructs the roadway of a freeway or expressway, as defined in s. 346.57 (1) (ag), the traffic officer is authorized to move the vehicle or to require the operator in charge thereof to move the vehicle to a position where parking is permitted or to either private or public parking or storage premises. The removal may be performed by, or under the direction of, the traffic officer or may be contracted for by local authorities. Any charges for removal shall be regulated by local ordinance. The operator or owner of the vehicle removed shall pay the reasonable charges for moving or towing or any storage involved based upon the ordinance.

(4) In counties having a population of 500,000 or more whenever any traffic officer finds a vehicle disabled so as to cause a hazard on any portion of the interstate system, limited access highway or any expressway, even though it may be impossible for the operator to avoid stopping or temporarily leaving the vehicle thereon, the county may remove such vehicle to a position where parking is permitted or to either private or public parking or storage premises. The removal may be performed by such officer or under the officer's direction or such removal may be contracted for by such counties and any charges shall be regulated by ordinance. The operator or owner of the vehicle removed shall pay a reasonable charge for moving or towing or any storage involved based upon said ordinance.

(5) (a) No person who removes or stores a vehicle under subs. (3) to (4) or otherwise at the request of a law enforcement officer, and no person who removes or stores a disabled vehicle, accident debris or other object that obstructs the roadway of a freeway or expressway, as defined in s. 346.57 (1) (ag), may incur any civil liability for the act, except for civil liability for failure to exercise reasonable care in the performance of the act or for conduct that is willful, wanton or malicious.

Wisconsin Statute Chapter 941 - Crimes Against Public Health and Safety

941.37 Obstructing emergency or rescue personnel.

(1) In this section:
(a) “Ambulance” has the meaning specified in s. 256.01 (1).
(b) “Authorized emergency vehicle” has the meaning specified in s. 340.01 (3).
(c) "Emergency medical personnel” means an emergency medical technician licensed under s. 256.15, first responder certified under s. 256.15 (8), peace officer or fire fighter, or other person operating or staffing an ambulance or an authorized emergency vehicle.

(2) Any person who knowingly obstructs any emergency medical personnel in the performance of duties relating to an emergency or rescue is guilty of a Class A misdemeanor.

(3) Any person who intentionally interferes with any emergency medical personnel in the performance of duties relating to an emergency or rescue and who has reasonable grounds to believe that the interference may endanger another's safety is guilty of a Class I felony.

(4) Any person who violates sub. (3) and thereby contributes to the death of another is guilty of a Class E felony.

Wisconsin Statute Chapter 946 - Crimes Against Government and Its Administration

946.41 Resisting or obstructing officer.

(1) Whoever knowingly resists or obstructs an officer while such officer is doing any act in an official capacity and with lawful authority, is guilty of a Class A misdemeanor.

(2) In this section:
(a) “Obstructs” includes without limitation knowingly giving false information to the officer or knowingly placing physical evidence with intent to mislead the officer in the performance of his or her duty including the service of any summons or civil process.
(b) “Officer” means a peace officer or other public officer or public employee having the authority by virtue of the officer’s or employee’s office or employment to take another into custody.

Appendix B

Manual on Uniform Traffic Control Devices Chapter 6I

The complete Manual on Uniform Traffic Control Devices (MUTCD) is available online at: mutcd.fhwa.dot.gov

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.*

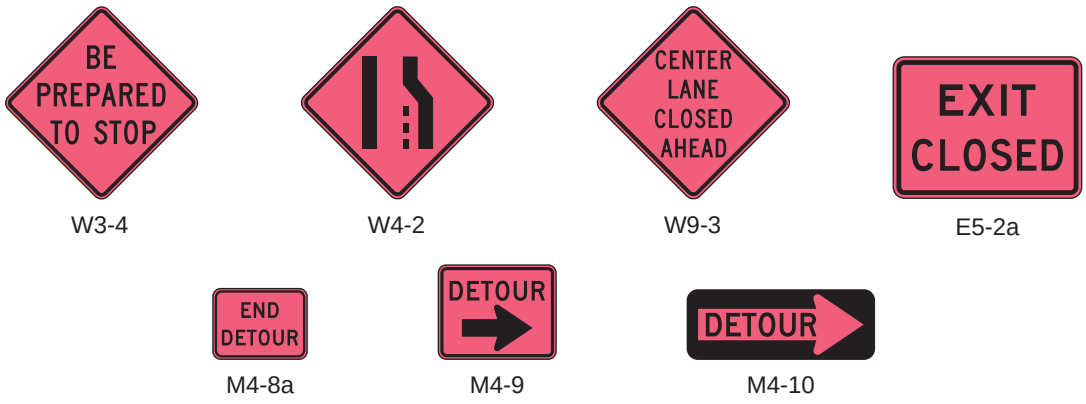
Option:

10 Warning and guide signs used for TTC traffic incident management situations may have a black legend and border on a fluorescent pink background (see Figure 6I-1).

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.

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



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.*

Appendix C

Guide for Taper Set Up Using Skip Lines

			Cumulative Skip Distance (feet)																	
			0	50	100	150	200	250	300	350	400	450	500	550	600	650	700	750	800	850
# of Cones	**Speed (mph)**	**Taper Length (ft)**	**Offset Distance from Lane Edge (feet)**																	
18	70	840	12	11.5	10.5	10	9	8.5	8	7	6.5	5.5	5	4.5	3.5	3	2	1.5	0.5	0
17	65	780	12	11.5	10.5	10	9	8.5	7.5	7	6	5.5	4.5	4	3	2.5	1.5	1	0	-
16	60	720	12	11	10.5	9.5	9	8	7	6.5	5.5	5	4	3	2.5	1.5	1	0	-	-
15	55	660	12	11	10.5	9.5	8.5	8	7	6	5	4.5	3.5	2.5	2	1	0	-	-	-
13	50	600	12	11	10	9	8	7	6	5	4	3	2	1	0	-	-	-	-	-
12	45	540	12	11	10	9	7.5	6.5	5.5	4.5	3.5	2	1	0	-	-	-	-	-	-
8	40	320	12	10.5	8.5	7	5	3.5	2	0	-	-	-	-	-	-	-	-	-	-
6	35	245	12	9.5	7	5	2.5	0	-	-	-	-	-	-	-	-	-	-	-	-
5	30	180	12	9	6	3	0	-	-	-	-	-	-	-	-	-	-	-	-	-
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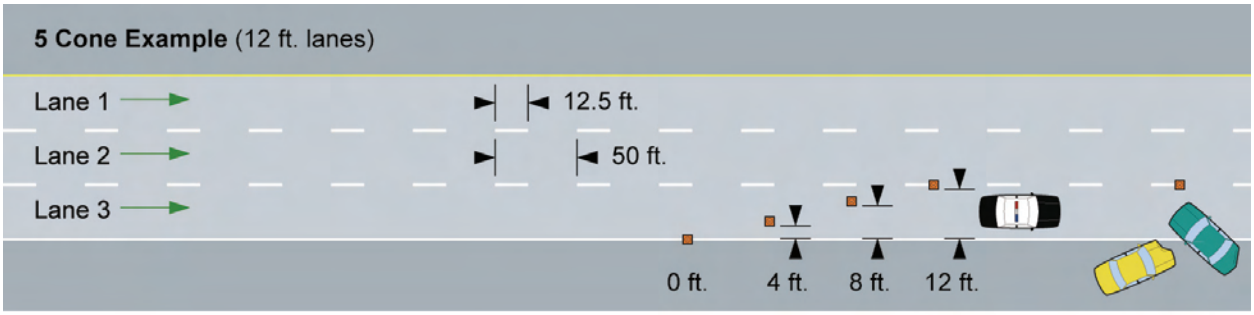
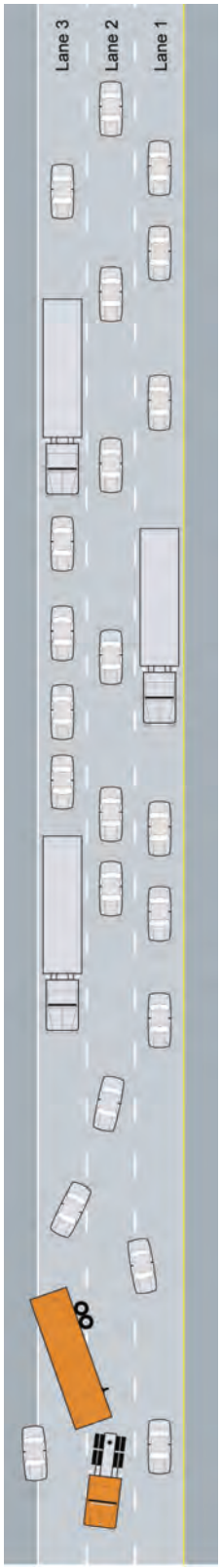


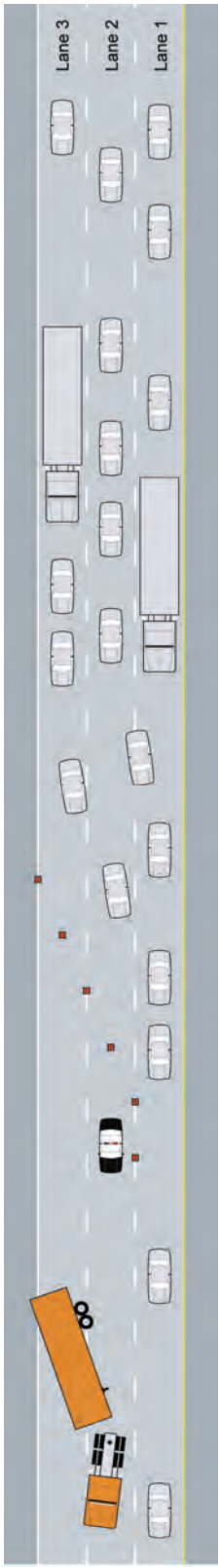
Appendix D

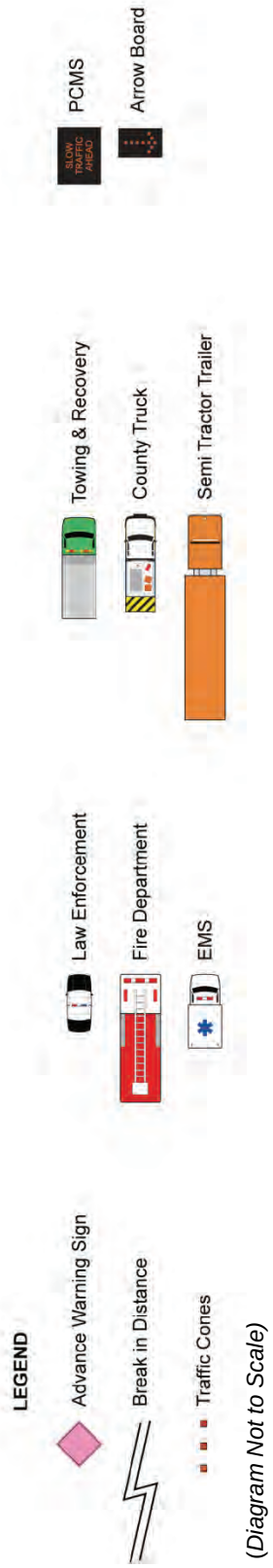
TIMA Incident Progression Example

Phase 1 - Incident occurs, lanes 2 and 3 blocked



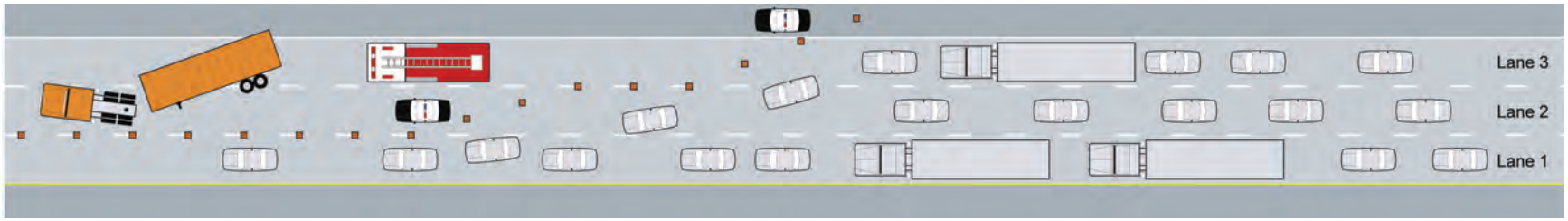
Phase 2 - Initial law enforcement response



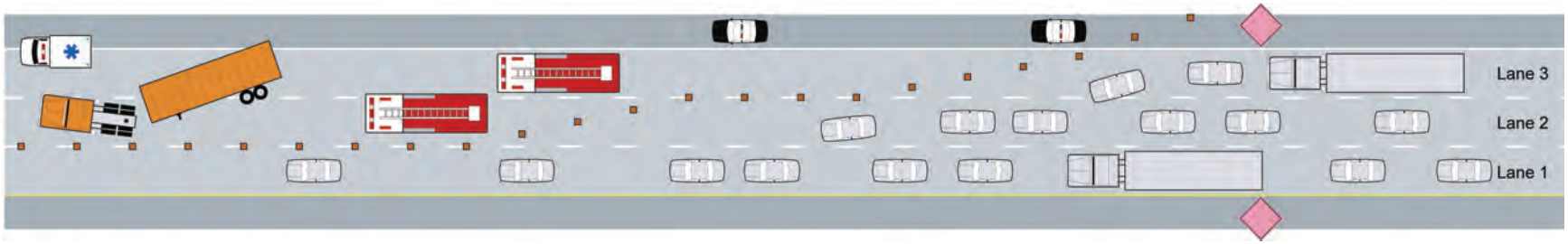


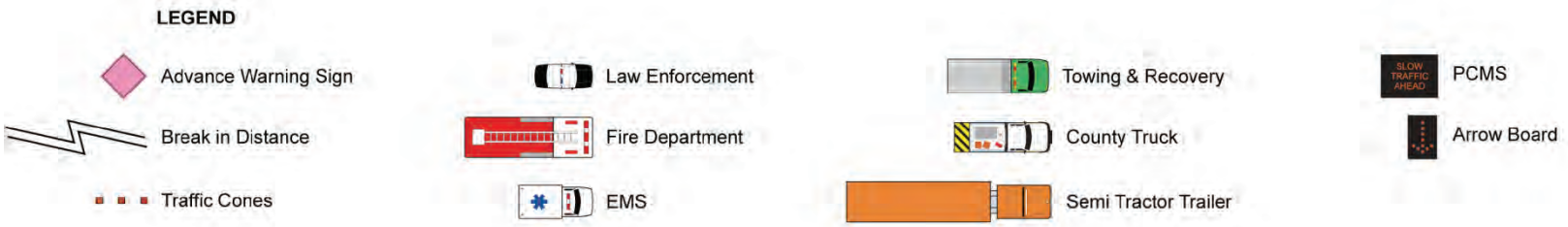
(Diagram Not to Scale)

Phase 3 - Fire response, additional law enforcement support



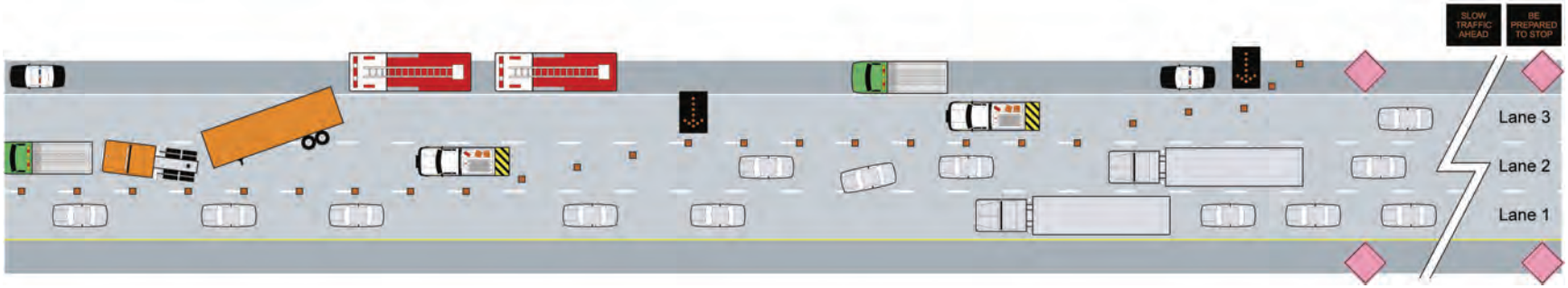
Phase 4 - EMS response, TIMA established



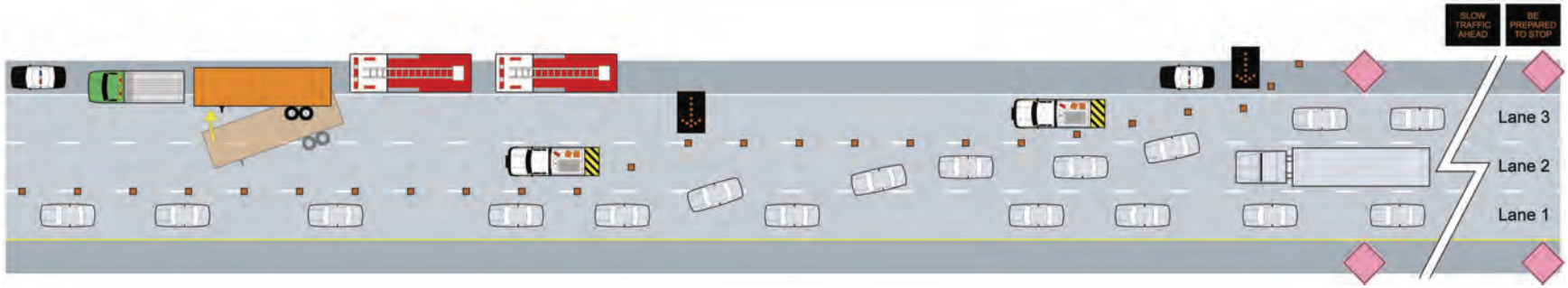


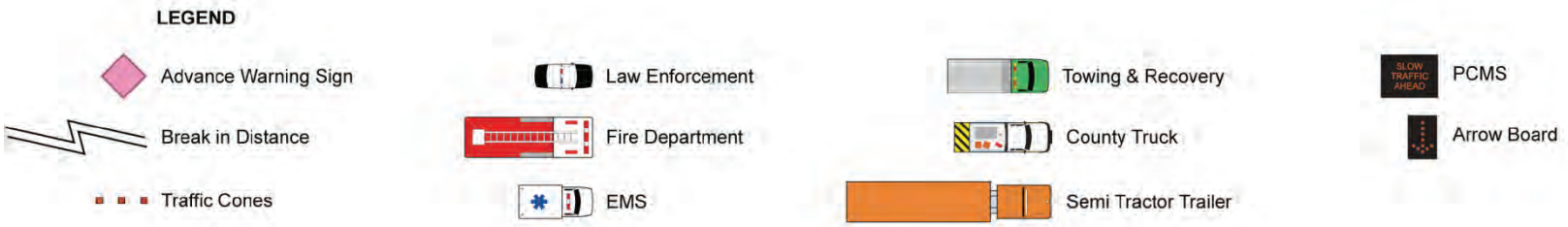
(*Diagram Not to Scale*)

Phase 5 - Towing and recovery response, additional traffic control by County Highway



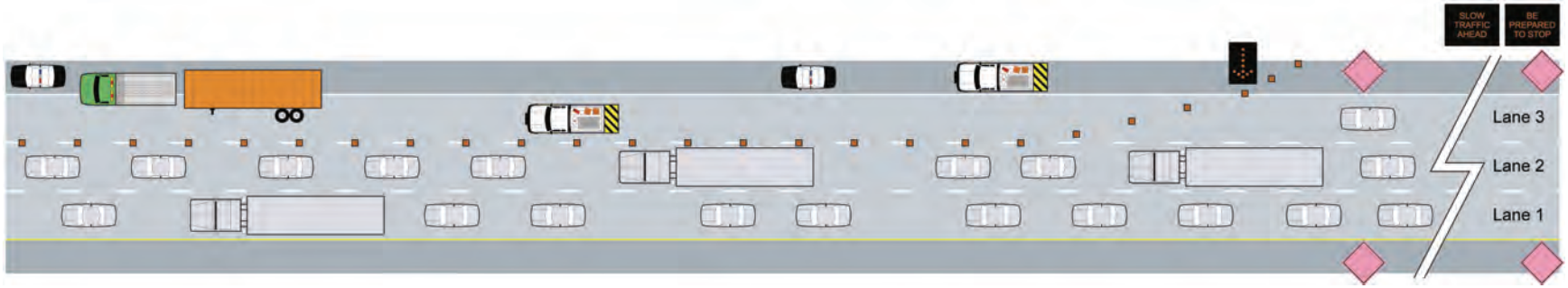
Phase 6 - Semi trailer moved from lane 2 to lane 3/shoulder



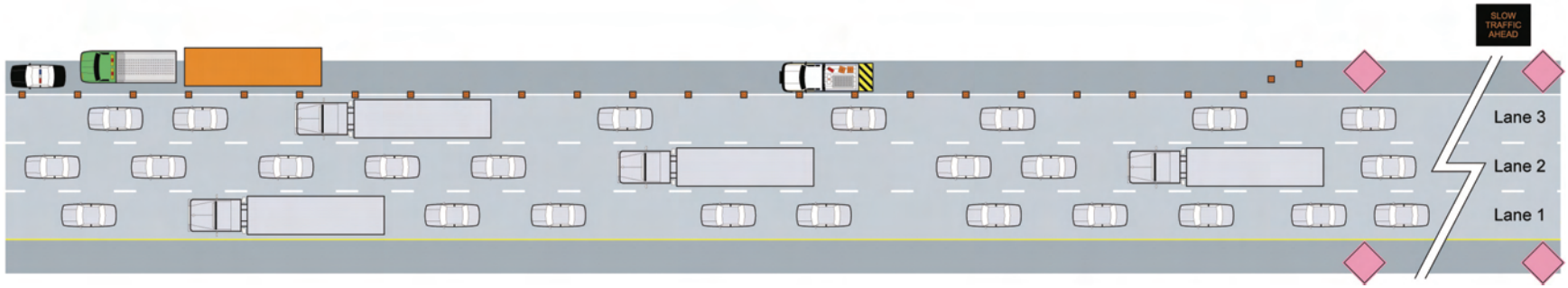


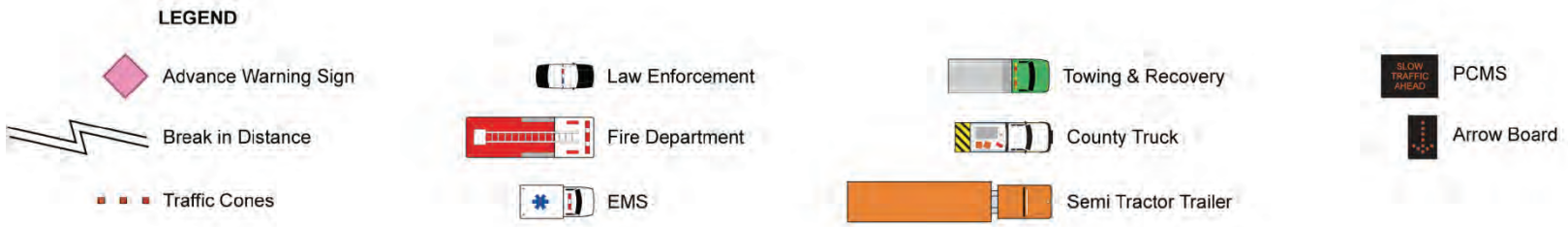
(*Diagram Not to Scale*)

Phase 7 - Lane 2 reopened to traffic



Phase 8 - Incident moved to shoulder, lane 3 reopened to traffic





(*Diagram Not to Scale*)

Appendix E

Rules for Driving Roundabouts

RULES FOR DRIVING ROUNDABOUTS

www.wisconsinroundabouts.gov

General information for all roundabouts

Roundabouts are becoming more common in the U.S. because they provide safer and more efficient traffic flow than standard intersections. By keeping traffic moving one-way in a counterclockwise direction, there are fewer conflict points and traffic flows smoothly.

Crash statistics show that roundabouts reduce fatal crashes about 90%, reduce injury crashes about 75%, and reduce overall crashes about 35%, when compared to other types of intersection control.

When driving a roundabout, the same general rules apply as for maneuvering through any other type of intersection.

Truck apron

Large vehicles need more space when driving in a roundabout. A truck apron is a paved area on the inside of the roundabout for the rear wheels of large trucks to use when turning, sometimes referred to as off-tracking. Truck aprons are not to be used by cars, SUVs or pickup trucks.

Steps for driving a roundabout:

1. Slow down. Obey traffic signs.
2. Yield to pedestrians and bicyclists.
3. Yield to traffic on your left already in the roundabout.
4. Enter the roundabout when there is a safe gap in traffic.
5. Keep your speed low within the roundabout.
6. As you approach your exit, turn on your right turn signal.
7. Yield to pedestrians and bicycles as you exit.

Emergency vehicles in the roundabout

- ➤ Always yield to emergency vehicles.
- ➤ If you have not entered the roundabout, pull over and allow emergency vehicles to pass.
- ➤ If you have entered the roundabout, continue to your exit, then pull over and allow emergency vehicles to pass.
- ➤ Avoid stopping in the roundabout.

Driving a one-lane roundabout

<< Driving a one-lane roundabout

This example shows the traffic movement patterns through a one-lane roundabout.

The one-lane roundabout is known as one of the safest and most efficient intersections.

Driving a roundabout with two or more lanes >>>

Choose the proper lane before entering: As you get closer to the roundabout entrance, it is very important to observe the signs and arrows to determine which lane to use before entering a roundabout. Black and white signs on the side of the road and white arrows on the road will show the correct lane to use. In general, if you want to make a left turn, you should be in the left lane or other lanes that are signed and marked as left turn lanes. If you want to make a right turn, you should be in the right lane or other lanes that are signed and marked as right turn lanes. If you want to go straight, observe the signs and arrows to see what lane is correct.

Left turns/u turns: use left lane

- When approaching the roundabout, use the left lane, or other lanes that are signed and marked as a left turn lane.
- Yield to pedestrians in the crosswalk.
- Yield to all traffic on your left before entering the roundabout.
- Enter the roundabout when there is a safe gap in traffic.
- Stay in your lane.
- Use your right turn signal to exit the roundabout.
- Yield to pedestrians in the crosswalk at the exit.

Going straight: use right lane or left lane

- When approaching the roundabout, choose the correct lane for your desired exit.
- Yield to pedestrians in the crosswalk.
- Yield to all traffic on your left before entering the roundabout.
- Enter the roundabout when there is a safe gap in traffic.
- Stay in your lane.
- Use your right turn signal to exit the roundabout.
- Yield to pedestrians in the crosswalk at the exit.

Right turns: use right lane

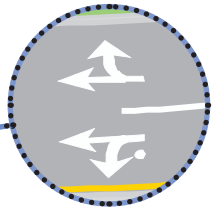
- When approaching the roundabout, use the right lane, or other lanes that are signed and marked as a right turn lane.
- Yield to pedestrians in the crosswalk.
- Yield to all traffic on your left before entering the roundabout.
- Enter the roundabout when there is a safe gap in traffic.
- Stay in your lane.
- Use your right turn signal to exit the roundabout.
- Yield to pedestrians in the crosswalk at the exit.

Large vehicles

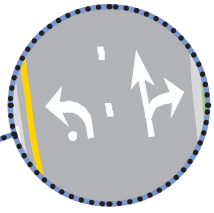
- Large vehicles need more space in a roundabout.
- All drivers should be cautious and avoid driving next to or passing large trucks while approaching and maneuvering through a roundabout.
- A truck apron is a paved area inside a roundabout.
- It is for the rear wheels of large trucks to use when turning.
- Trucks may cross into other lanes or onto the truck apron.
- Truck aprons are not to be used by cars, SUVs or pickup trucks.

Lane choice is critical at roundabouts

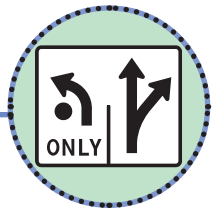
- Right lane is for right turns only.
- Left lane is for left turns, u-turns, or through traffic only.



- Right lane is for right turns or through traffic only.
- Left lane is for left turns, u-turns, or through traffic only.



- Right lane is for right turns or through traffic.
- Left lane is for left turns or u-turns only.



Black and white signs:

- at the side of the road

Appendix F

USDOT Hazardous Materials Warning Placards Quick Reference Guide

Hazardous Materials Warning Placards

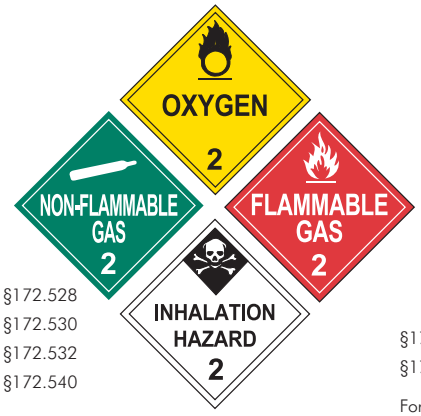
Actual placard size: at least 273 mm (10.8 inches) on all sides

CLASS 1 Explosives

§172.522
§172.523
§172.524
§172.525

* For Divisions 1.1, 1.2, or 1.3, enter division number and compatibility group letter, when required; placard any quantity. For Divisions 1.4, 1.5, and 1.6, enter compatibility group letter, when required; placard 454 kg (1,001 lbs) or more.

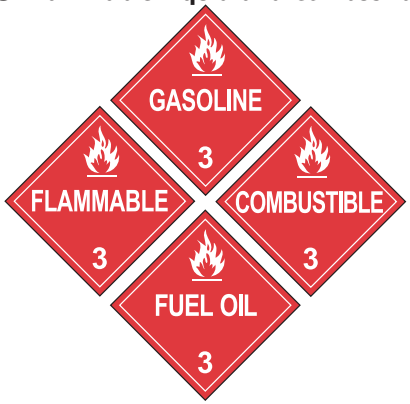
CLASS 2 Gases



§172.528
§172.530
§172.532
§172.540

For NON-FLAMMABLE GAS, OXYGEN (compressed gas or refrigerated liquid), and FLAMMABLE GAS, placard 454 kg (1,001 lbs) or more gross weight. For POISON GAS (Division 2.3), placard any quantity.

CLASS 3 Flammable Liquid and Combustible Liquid



§172.542
§172.544

For FLAMMABLE, placard 454 kg (1,001 lbs) or more. GASOLINE may be used in place of FLAMMABLE placard displayed on a cargo tank or portable tank transporting gasoline by highway. Placard combustible liquid transported in bulk. See §172.504(f)(2) for use of FLAMMABLE placard in place of COMBUSTIBLE. FUEL OIL may be used in place of COMBUSTIBLE on a cargo or portable tank transporting fuel oil not classed as a flammable liquid by highway.

CLASS 4 Flammable Solid, Spontaneously Combustible, and Dangerous When Wet

§172.546, §172.547, §172.548

For FLAMMABLE SOLID and SPONTANEOUSLY COMBUSTIBLE, placard 454 kg (1,001 lbs) or more. For DANGEROUS WHEN WET (Division 4.3), placard any quantity.

CLASS 5 Oxidizer & Organic Peroxide

Organic Peroxide, Transition-2011 (rail, vessel, and aircraft) 2014 (highway)

§172.550, §172.552

For OXIDIZER and ORGANIC PEROXIDE (other than TYPE B, temperature controlled), placard 454 kg (1,001 lbs) or more. For ORGANIC PEROXIDE (Division 5.2), Type B, temperature controlled, placard any quantity.

CLASS 6 Poison (Toxic) and Poison Inhalation Hazard

§172.504(f)(10), §172.554, §172.555

For POISON (PGI or PGII, other than inhalation hazard) and POISON (PGIII), placard 454 kg (1,001 lbs) or more. For POISON-INHALATION HAZARD (Division 6.1), inhalation hazard only, placard any quantity.

CLASS 7 Radioactive

§172.556

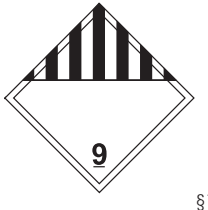
Placard any quantity - packages bearing RADIOACTIVE YELLOW-III labels only. Certain low specific activity radioactive materials in "exclusive use" will not bear the label, but the radioactive placard is required for exclusive use shipments of low specific activity material and surface contaminated objects transported in accordance with §172.504(e) Table 1 and §173.427(a)(6).

CLASS 8 Corrosive

§172.558

For CORROSIVE, placard 454 kg (1,001 lbs) or more.

CLASS 9 Miscellaneous



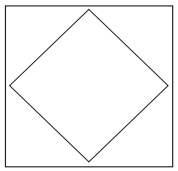
§172.560

Not required for domestic transportation. A bulk packaging containing a Class 9 material must be marked with the appropriate ID number displayed on a Class 9 placard, an orange panel, or a white square-on-point display.

Dangerous

§172.521

A freight container, unit load device, transport vehicle, or rail car which contains non-bulk packages with two or more categories of hazardous materials that require different placards specified in Table 2 may be placarded with DANGEROUS placards instead of the specific placards required for each of the materials in Table 2. However, when 1,000 kg (2,205 lbs) or more of one category of material is loaded at one loading facility, the placard specified in Table 2 must be applied.



§172.527

White square background required for placard for highway route controlled quantity radioactive material and for rail shipment of certain explosives and poisons, and for flammable gas in a DOT 113 tank car (§172.507 and §172.510).

PLACARDS OR ORANGE PANELS

§172.332

and

Appropriate placard must be used.

IDENTIFICATION NUMBER DISPLAYS

MUST BE DISPLAYED ON: (1) Tank Cars, Cargo Tanks, Portable Tanks, and other Bulk Packagings; (2) Vehicles or containers containing 4,000 kg (8,820 lbs) in non-bulk packages of only a single hazardous material having the same proper shipping name and identification number; and (3) 1,000 kg (2,205 lbs) of materials poisonous by inhalation in Hazard Zone A or B. See §172.301(a)(3) and §172.313(c).

Response begins with identification!

Appendix G

Recommended Minimum Standards for Towing and Recovery Call-Out Lists

1. Purpose

(a) To improve safety and efficiency of daily towing operations on public roadways.

(b) To minimize delays in requests for towing and recovery services.

(c) To establish minimum business, equipment and operator qualification standards for response to traffic incidents.

2. Definitions

The following words and terms, when used in this document, shall have the following meaning, unless the context clearly indicates otherwise:

Abandoned Vehicle – Any unattended motor vehicle, trailer, semitrailer or mobile home on any public highway, or private or public property, for such time and under such circumstances as to cause the vehicle to reasonably appear to have been abandoned and as further defined in WI Statute 342.40(1m).

Call – A request for Tow Company services resulting in that Tow Company receiving compensation for those services.

Call-Out List – A listing of qualified Tow Companies maintained and administered by the Department for the purpose of obtaining towing and recovery related services.

Consent Tow – Any tow of a motor vehicle initiated by the vehicle owner or operator or by a person who has possession, custody or control of the vehicle. The term does ***not*** include a tow of a motor vehicle initiated by a law enforcement officer investigating a traffic crash or a traffic incident that involves the vehicle.

Department – Refers to [*Insert Department Name Here*]

Flatbed Car Carrier – A type of Tow Truck that conveys a vehicle in its entirety on the rear bed of the Tow Truck.

Heavy Duty Service – The recovery and/or transport of vehicles with 6 or more wheels and/or a gross weight of more than 4 tons.

Heavy Duty Operator – Any Operator who meets all of the standards herein for Heavy Duty Service.

Law Enforcement Tow – The towing of a vehicle at the direction of the Department or another law enforcement agency or Officer.

Light Duty Service – The recovery and/or transport of vehicles registered as automobiles, light trucks, motorcycles and those with a gross weight of 4 tons or less.

Light Duty Operator – Any Operator who meets all of the standards herein for Light Duty Service.

Non-Consent Tow – Any tow of a motor vehicle that is not a consent tow. Non-consensual tows include police-initiated tows from public or private property.

Officer – Any Wisconsin law enforcement officer.

Operator – Any person operating a Tow Truck for the Tow Company under the direction of the Department in reference to the Call-Out List.

Place of Business – A Tow Company's primary base of operations.

Tow/Towing – The use of a Tow Truck to lift, pull, move, haul or otherwise transport any other vehicle by means of:

(a) Attaching the vehicle to and pulling the vehicle with the Tow Truck, or
(b) Loading the vehicle onto and transporting the vehicle upon the Tow Truck.

Tow Company – Any person or legal entity owning or operating a towing and recovery service.

Tow Truck – A motor vehicle that is equipped with mechanical or hydraulic lifting devices or winches capable of, and used for, the recovery or transport or both of wrecked, disabled, abandoned, used or replacement vehicles, as defined in WI Statute 340.01(67n).

Under-Lift – A Tow Truck deployed, hydraulically operated device for lifting the front or rear of a disabled vehicle by its axles or frame in preparation for towing/removal.

Vehicle – Every device in, upon, or by which any person or property is or may be transported or drawn upon a highway, except railroad trains, as defined in WI Statute 340.01(74).

Vehicle Owner Preference – The right of the vehicle owner, his or her agent, or any competent occupant of any disabled or inoperative vehicle to request towing service of his or her choosing to take charge and care of the vehicle.

Wheel-Lift – A Tow Truck deployed, hydraulically operated device for lifting the front or back wheels of a disabled vehicle in preparation for towing/removal.

WisDOT – The Wisconsin Department of Transportation.

3. General Policies

(a) All Tow Companies shall conduct operations in accordance with all applicable laws and rules of the State of Wisconsin and all applicable rules of the Department.

(b) All Tow Companies must have a satisfactory business reputation, which may be verified with the Better Business Bureau for unresolved complaints or an analysis of service complaints documented by the Department.

(c) Every Tow Company shall cooperate with the Department should it become necessary to review, audit, examine or investigate any records relating to the towing operations it may provide, or has provided, at the request of the Department. Failure to cooperate with any review, audit or investigation may result in exclusion from the Call-Out List.

(d) Any violation of applicable rules or laws or failure to meet the standards herein may result in suspension or exclusion from the Call-Out List.

(e) Every Tow Company shall maintain a Place of Business.

(f) To ensure compliance with the provisions herein, all Tow Companies on the Call-Out List are subject to inspections of equipment, Operator qualifications, vehicle storage and Place of Business.

4. Place of Business

All Tow Companies' primary base of operations must meet the following requirements:

(a) A permanent commercial building, occupied by the Tow Company, as shown in the records of the Department;

(b) With phone service;

(c) Where normal business is transacted and all towing service records are maintained;

(d) Where equipment is domiciled and maintained; and

(e) Complies with local zoning and conditional use requirements.

5. Level of Service

(a) Tow Companies shall be available to respond to calls from the Department 24 hours a day and seven days a week for the removal of wrecked and disabled vehicles, abandoned vehicles, and other vehicles that may require removal due to vehicle operator violations.

(b) Response times to the scene:
   (i) Light Duty Calls – [*Select Time - suggest 15 minutes (urban areas) or 30 minutes (rural areas)*] from time the Tow Company receives a request for service from the Department.
   (ii) Heavy Duty Calls – [*Select Time - suggest 30 minutes (urban areas) or 60 minutes (rural areas)*] from time the Tow Company receives a request for service from the Department.

   It is understood that traffic and weather conditions may impact the Tow Company's ability to respond within the response times outlined above. However, if the Tow Company will not be able to respond within the required response time they shall contact the Department and provide an estimated time of arrival.

6. Equipment

(a) Equipment required for Light Duty Service:
  (i) One Tow Truck with a gross vehicle weight rating (GVWR) of 12,000 lbs or more equipped with a hydraulic boom and a winch or winches with a minimum factory rated capacity of 8,000 lbs and a wheel-lift.
  (ii) One Flatbed Car Carrier with a GVWR of 14,500 lbs and a flatbed of at least 19 feet in length.

(b) Equipment required for Heavy Duty Service:
  (i) One Tow Truck equipped and meeting the following specifications:
    1. Hydraulically operated boom with a 25 ton capacity;
    2. Tandem axle;
    3. Equipped with air brakes;
    4. Equipped with an Under-Lift; and
    5. Capable of safely towing a loaded (maximum 80,000 lb.) tractor semi-trailer.

(c) The Tow Company shall provide the Department with a list of their Tow Trucks both owned and/or leased to include the make, model, vehicle identification number and license plate number, and other equipment such as service vehicles, tractors, trailers, semi trailers, cranes and loaders which they may utilize in the recovery and transport of wrecked and disabled vehicles. The Tow Company is responsible for ensuring the list is both current and accurate.

(d) All equipment must be compliant with the current laws, rules and regulations:
  (i) WI Statute Chapter 347
  (ii) WI Administrative Code Trans 302
  (iii) WI Administrative Code Trans 305
  (iv) 49 CFR 393 and 49 CFR 396 as adopted in WI Administrative rule Trans 327

(e) All equipment is subject to random inspection by the Department.

(f) The Department may grant a variance or exemption to a Tow Company for equipment requirements in paragraphs (a) and (b) of this section where strict compliance would likely result in reduced service.

7. Storage Facilities

All Tow Companies who may store, park or maintain possession of vehicles towed at the request of the Department, shall store such vehicles in a facility that is secure.

(a) Every outdoor storage facility shall be surrounded by a fence of wood, metal, wire or masonry construction of not less than 6 feet in height.

(b) Every Tow Company shall have a local business telephone number published in the local telephone directory that is accessible to the public twenty-four hours a day.

8. Insurance

As required of all motor carriers authorized by the Department to engage in contract carriage, each Tow Company shall maintain a valid insurance policy, issued by a surety or an insurance company currently authorized to issue policies of insurance covering risks in the State of Wisconsin in the following amounts:

(a) Public liability as provided in the Schedule of Limits at 49 CFR 387.9 Financial Responsibility, Minimum Levels.

Federal Motor Carrier Safety Administration (FMCSA) Regulatory Guidance – 49 CFR 387.3 - Applicability

Question 3: When are tow trucks subject to financial responsibility coverage?

Guidance: For-hire tow trucks with a GVWR or GCWR of 10,000 pounds or more performing emergency moves in interstate or foreign commerce are required to maintain minimum levels of financial responsibility in the amount of $750,000. For-hire tow trucks performing secondary moves are required to maintain levels of coverage applicable to the commodity being transported by the vehicle being towed.

Question 8: Are motor vehicles being transported considered to be hazardous materials (HM) for purposes of the financial responsibility requirements, thus requiring the higher limits set forth in the regulations?

Guidance: Yes. Even though vehicles being transported by motor vehicle are subject only to 49 CFR 173.220 of the Hazardous Materials Regulations (HMRs), they meet the definition of "Hazardous material" in 49 CFR 171.8 because "Vehicle, flammable gas powered" and "Vehicle, flammable liquid powered" are designated as hazardous in 49 CFR 172.101 [UN 3166]. For that reason, vehicles transporting other vehicles would have to carry $1,000,000 of public liability insurance.

(b) Garage Keeper's Legal Liability – Not less than $100,000 with a deductible no greater than $1,000, which must include comprehensive perils to the towed vehicle while being stored by the Tow Company.

(c) On-Hook or In-Tow – Not less than $100,000 in On-Hook or In-Tow Coverage with a deductible no greater than $1,000, which must include comprehensive perils and collision to the towed vehicle while it is being towed by the Tow Company.

To ensure the Department receives prompt notification of any policy cancelations, the Tow Company shall add the Department to their insurance policy as an Interested Party.

9. Operator Qualifications

(a) Operators shall possess a current and valid operator's license with any required endorsements for the class of vehicle to be operated.

(b) Operator Certification:
  (i) Light Duty Operators shall successfully complete the *Level 1 National Driver Certification Program* provided by the Towing and Recovery Association of America (TRAA) or another certification program approved by the Department.

(ii) At least one Operator of a Tow Company providing Heavy Duty Service shall successfully complete the *Level 2 National Driver Certification Program* provided by TRAA or another certification program approved by the Department.

(c) At the written request of the Tow Company, operators that have provided Light Duty Service and/or Heavy Duty Service, whichever is applicable, at the request of the Department during the 5 years previous to adoption of this minimum standard may be grandfathered from the requirements of paragraph (b) of Section 9 for a period not to exceed two years.

10. Safety

(a) All Operators within the highway right-of-way who are exposed to traffic (vehicles using the highway for purposes of travel) shall wear high-visibility safety apparel that meets the Class 2 or 3 performance requirements of the ANSI/ISEA 107-2004 publication entitled *American National Standard for High-Visibility Safety Apparel and Headwear* as required by 23 CFR Part 634 and the Manual on Uniform Traffic Control Devices Section 6D.03.

(b) All Operators shall be knowledgeable of and comply with WisDOT's Emergency Traffic Control and Scene Management Guidelines as they may be applicable to towing and recovery.

(c) Where practical, all Operators shall utilize the operating controls of the tow truck furthest from the traveled portion of the highway.

(d) All Tow Companies shall be compliant with the requirements for warning lamps on tow trucks required by WI Statute 347.26(6).

(6) WARNING LAMPS ON TOW TRUCKS AND SERVICE VEHICLES.

(a) Any vehicle which by reason of its use upon a highway creates a vehicular traffic hazard requiring the exercise of unusual care in approaching, overtaking or passing shall be equipped with a flashing or rotating amber lamp of the dome type at the highest practicable point, visible from a distance of 500 feet, or 2 flashing amber lamps, one showing to the front and one showing to the rear, visible from a distance of 500 feet and mounted approximately midway between the extremities of the width of the vehicle and at the highest practicable point. Such amber lamp or lamps shall be lighted when such vehicle is moving a disabled vehicle along or upon a public highway at a speed below the average speed of motor vehicle traffic on such street or highway and may not be lit at other times.

(b) Operators of tow trucks or towing vehicles shall equip each tow truck or towing vehicle with a flashing or rotating red lamp, in addition to flashing type amber lamps. Such lamp shall be placed on the dome of the vehicle at the highest practicable point visible from a distance of 500 feet. This flashing red lamp shall be used only when such vehicle is standing on or near the traveled portion of a highway preparatory to towing or servicing the disabled vehicle.

(e) All Operators shall be responsible for the removal of any debris, except hazardous substances as defined in WI Statute 292.01(5), on the roadway or in the roadway right-of-way that may be the result of a vehicle disablement or crash prior to leaving the incident scene.

292.01(5) "Hazardous substance" *means any substance or combination of substances including any waste of a solid, semisolid, liquid or gaseous form which may cause or significantly contribute to an increase in mortality or an increase in serious irreversible or incapacitating reversible illness or which may pose a substantial present or potential hazard to human health or the environment because of its quantity, concentration or physical, chemical or infectious characteristics. This term includes, but is not limited to, substances which are toxic, corrosive, flammable, irritants, strong sensitizers or explosives as determined by the department.*

(f) All Operators shall properly light any vehicle in tow with functioning stop lamps and directional signal lamps in conformance with WI Statute 347.14 and 347.15 respectively.

Appendix H

Towing and Recovery Call-Out Checklist

TOWING AND RECOVERY CALL-OUT CHECKLIST

Reason for tow: ☐ Crash ☐ Breakdown ☐ Arrest

Location

City/County: _____

Roadway (including direction of travel): _____

Is the vehicle on the: ☐ Median (Left/Inside) ☐ Shoulder (Right/Outside) ☐ In traffic

And is the vehicle: ☐ On the roadway ☐ Off the roadway 20 ft or more

Vehicle Information

How many vehicles need to be towed: ____ # of Light Duty ____ # of Heavy Duty

Light Duty

Vehicle description (make and model): _____

Is the vehicle: ☐ Four-Wheel/AWD and/or ☐ Hybrid

Is the vehicle: ☐ Unoccupied ☐ Occupied - # of passengers: _____

Are the keys with the vehicle? ☐ Yes ☐ No

Heavy Duty

Is the truck/trailer: ☐ Empty ☐ Loaded and/or ☐ HAZMAT

What is the approximate weight of the truck? _____

How many axles does the truck/trailer have? _____

How many tires does the truck/trailer have? _____

Additional Vehicle/Crash Information

Visual damage assessment (i.e. load spill, vehicle facing wrong direction, etc.): _____

_____

_____

Additional information: _____

_____

_____

Appendix I

Emergency Alternate Route Guide Example

SB SEGMENT EXIT 89 – 85

I-43 EMERGENCY ALTERNATE ROUTE - OZAUKEE AND MILWAUKEE COUNTIES

NOTIFICATIONS

INCIDENT COMMANDER ASSIGNS DISPATCH CENTER TO:

- Contact the following agencies and personnel:
  - Wisconsin State Patrol (Waukesha) (262) 785-4700
  - Ozaukee County Dispatch Center (262) 377-5820
  - Milwaukee County Dispatch Center (414) 278-4788
  - Union Pacific Railroad (800) 848-8715
  - Statewide Traffic Operations Center (STOC) (800) 375-7302

  Note: Governmental use only – not for public distribution
- Inform them of:
  - Incident location
  - Alternate Route being implemented
  - Any additional details
- Inform local media outlets of freeway closure

ACTIONS

WISCONSIN STATE PATROL (WAUKESHA)

- Send out Traffic Incident Alert
- EXIT 89 - P1: Close SB I-43
- EXIT 89 - P2: Close SB on-ramp at WIS 57

OZAUKEE COUNTY SHERIFF'S DEPARTMENT

- Provide traffic control at the following intersections:
  - EXIT 89: I-43 and WIS 57
  - Other locations along Alternate Route, as necessary

OZAUKEE COUNTY HIGHWAY DEPARTMENT

- Provide traffic control equipment to assist law enforcement at all closure posts
- Deploy and activate 2 PCMS on SB I-43 (as shown on map)
- Program PCMS as shown on map
- Distribute traffic control devices to relieve law enforcement directing traffic

MILWAUKEE COUNTY SHERIFF'S DEPARTMENT

- Provide traffic control along Alternate Route, as necessary
- Coordinate with individual Municipal law enforcement

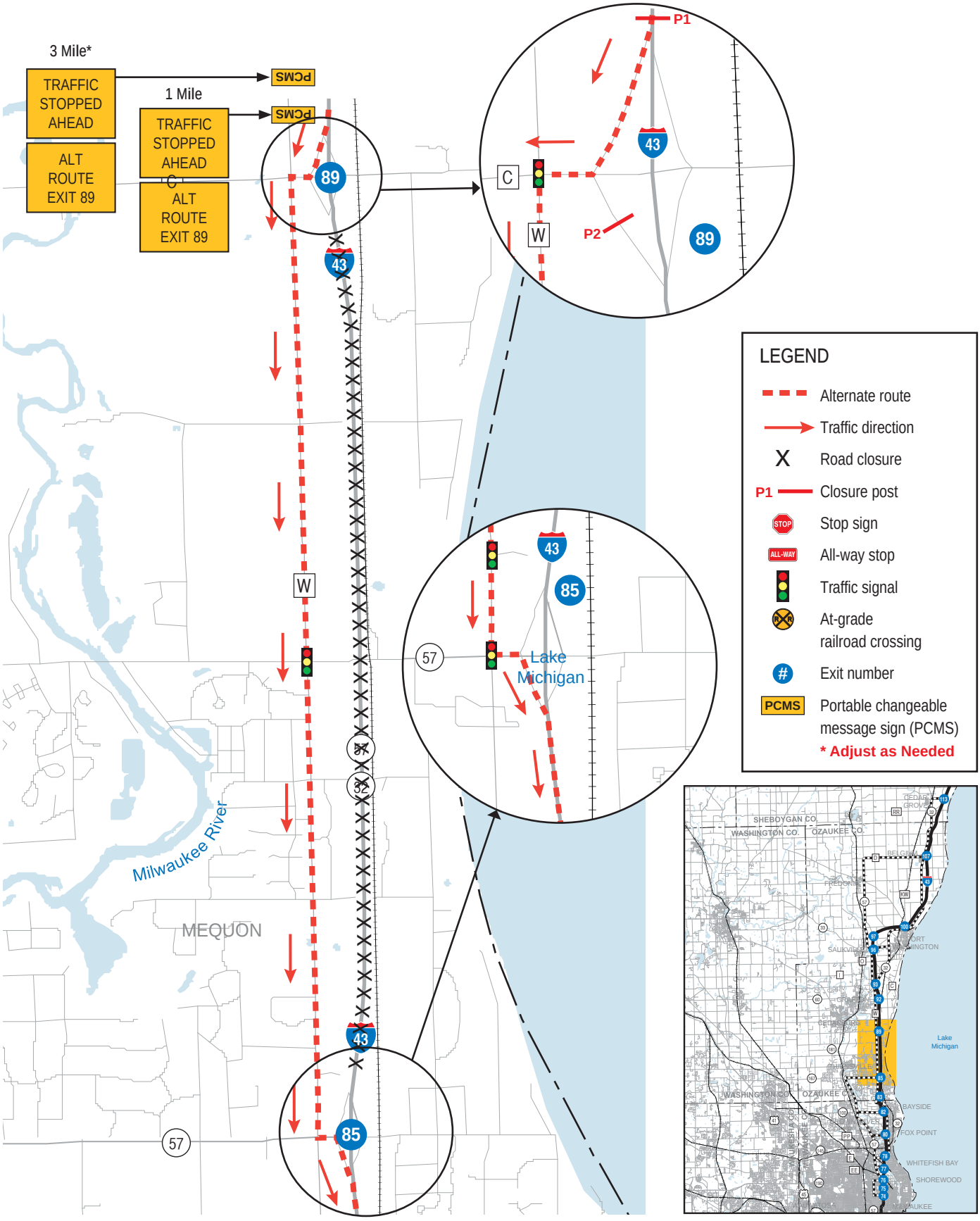
ROUTE DESCRIPTION

If southbound I-43 is closed between EXITS 89 and 85, all traffic should take EXIT 89 (County C). Turn RIGHT and proceed WEST on County C to County W. Turn LEFT on County W and proceed SOUTH to WIS 57. Turn LEFT and proceed EAST on Mequon Road (WIS 57) to southbound I-43.

June 2010 27

SB SEGMENT EXIT 89 – 85

I-43 EMERGENCY ALTERNATE ROUTE - OZAUKEE AND MILWAUKEE COUNTIES



Appendix J

Ramp Gate Utilization Quick Reference Guide

Ramp Gate Utilization:
a quick reference guide

TIME
Traffic Incident Management Enhancement

1. Put on high-visibility safety apparel.

2.

Position vehicle upstream of ramp gate to block traffic and provide protection.

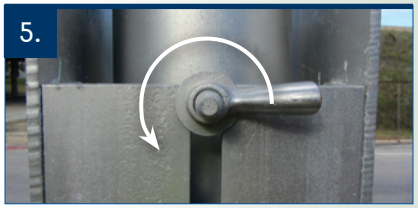
3.

Fold down "Ramp Closed Use Alt Route" sign. *Left: folded sign; right: unfolded sign.*

4.

Unlock and remove the combination padlock by rotating the dials to 3700.

5.



Loosen and remove the wing nut by turning it counterclockwise.

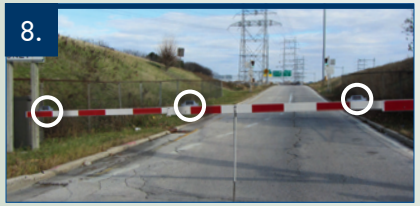
6.

Crank the winch to lower the ramp gate arm horizontal to the ground.

7.

Return the wing nut and padlock (unlocked) to the bolt.

8.



Confirm that warning lights automatically activate after lowering the gate arm.

9.

If applicable, repeat Steps 3-8 to deploy second ramp gate and fold down sign.

Ramp Gate Utilization:
additional considerations

- Step 6: Be sure to remove the padlock (Step 4) and wing nut (Step 5) prior to attempting to crank the winch when lifting or lowering the gate arm.
- Step 6: To facilitate lowering the gate arm from its initial, upright position, lift up and apply pressure to the metal bracket (Type A or B) where the winch strap is attached to the gate arm.

- Reverse the process to raise the gate arm to its upright position.
- The on-scene Incident Commander may request that an individual remain at the ramp to raise the gate arm to allow authorized emergency personnel access to the scene or to direct traffic.

STOC assistance

Contact the WisDOT Statewide Traffic Operations Center (STOC) at (800) 375-7302 for any mechanical or operational issues encountered (i.e., the warning lights do not activate after lowering the gate arm). The STOC should also be contacted for any incident anticipated to have at least one state highway lane or ramp blocked for greater than 30 minutes.

Note: The STOC phone number is NOT to be distributed to the general public.

WISCONSIN DEPARTMENT OF TRANSPORTATION

02/12/12

Appendix K

TIME Program Incident Debrief Form

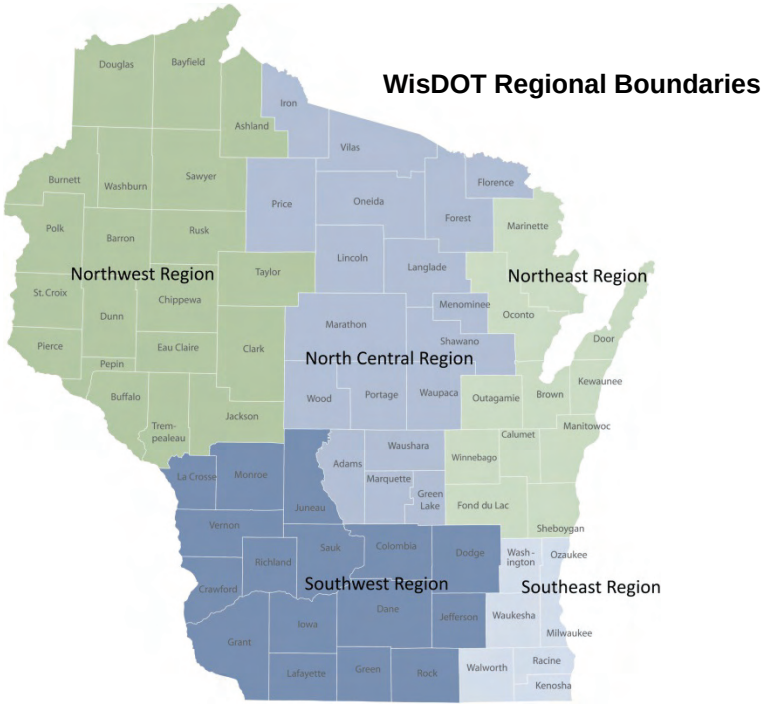
Overview

Each traffic incident is unique and, as such, one of the most effective ways to enhance quick clearance and improve safety is to regularly debrief incidents that have occurred. The purpose of an incident debriefing is to evaluate the decisions made and actions taken during an incident and to objectively identify best practices and opportunities for improvement. An incident debriefing can be held for any type or size of incident, but it is highly recommended that all major incidents be debriefed.

Effective debriefings provide a forum in which conflicts and inefficiencies are identified and steps are taken to resolve or eliminate them. Debriefings can also help open lines of communication and foster relationships among responders. It is essential that incident debriefings be multi-agency and multi-discipline.

The Incident Debrief Form is intended to assist agencies in gathering and disseminating incident details and can be completed by any agency involved in the response to a traffic incident. Ideally, the form will enhance communications between agencies and provide the framework for formal debriefings. In addition, the form provides another avenue for identifying and compiling traffic incident management best practices.

Completed Incident Debrief Forms should be submitted to the appropriate regional WisDOT TIME Program contact. Current contact information, and an electronic version of the form, can be found on the TIME Program website at: www.dot.wisconsin.gov/travel/stoc/time.htm. Alternatively, completed forms can be submitted to the WisDOT State TIM Engineer via fax (414) 227-2165 or e-mail timeprogram@dot.wi.gov.



INCIDENT DEBRIEF FORM

Contact Information

Name: _____ Agency: _____

Phone Number: _____ Fax Number: _____

E-Mail: _____

Incident Information

Date: _____ Time: _____ STOC SINS Record #: _____

Main Street: _____ Direction: _____ CAD/Crash Record #: _____

Cross Street or Mile Marker: _____ Weather: _____

Cleared Time: _____ Total Duration: _____

County: _____ Municipality: _____

Lead Agency: _____ Incident Commander: _____

Brief Incident Description: *(Provide a brief description of the incident, highlighting key activities)*

_____

_____

_____

_____

_____

Roadway Closures: *(List any roadway closures and emergency alternate/detour routes used)*

_____

_____

_____

_____

_____

Responding Agencies: *(List all agencies that participated in response to this incident)*

Timeline: *(Identify key events and approximate times when they occurred starting with arrival on-scene)*

Best Practices: *(Identify TIM best practices utilized during the incident, i.e. traffic control, safety vest use, communication/coordination among responders, etc.)*

Opportunities for Improvement: *(Identify possible areas for improvement)*

Pictures: Please include any digital photos you would like to share in an e-mail to the WisDOT TIME Program contact for your Region.

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please contact the Wisconsin Department of Transportation's
Statewide Traffic Operations Center at:
(414) 227-2166 • timeprogram@dot.wi.gov
or visit our website at: www.dot.wisconsin.gov/travel/stoc/time.htm