TIME Task Force, Inc.

Inter-Agency Cooperation

Developing Traffic Incident Management Protocols for Fire First Responders

Battalion Chief Rick Elvey
Calgary Fire Department

I am here today to give you an overview of the evolution of Emergency Traffic Accommodation in the City of Calgary.

This program was established in 2000 and continues to provide a service to the community and emergency responders.

The continued success of these guidelines is a tribute to the Communication, Cooperation and Coordination of the agencies and individuals who provided input to the project.

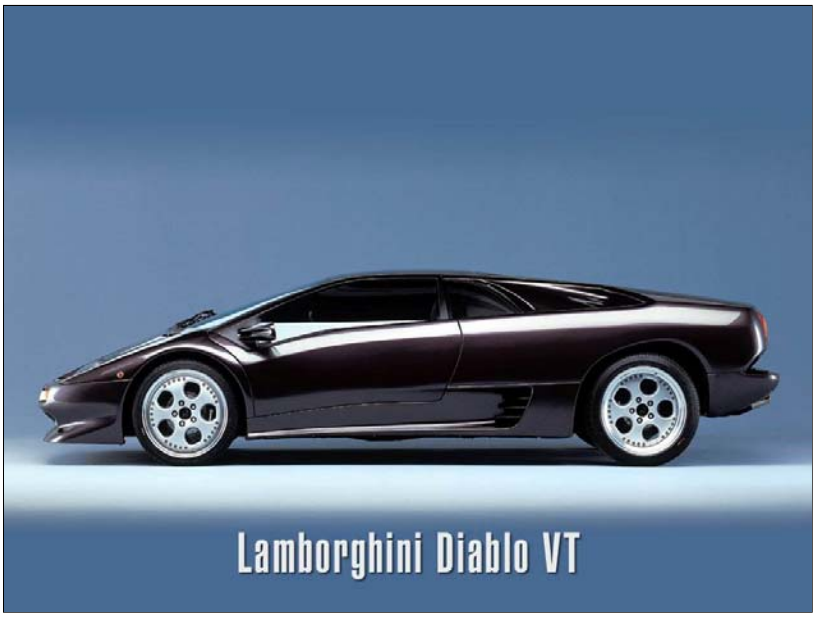
The CHIEF asked me one day “Can you look at a plan to safely stage our apparatus on the roadway?

That question led to the development of **a plan** for the organized placement of *Emergency Vehicles and Traffic Control devices* on the roadway.

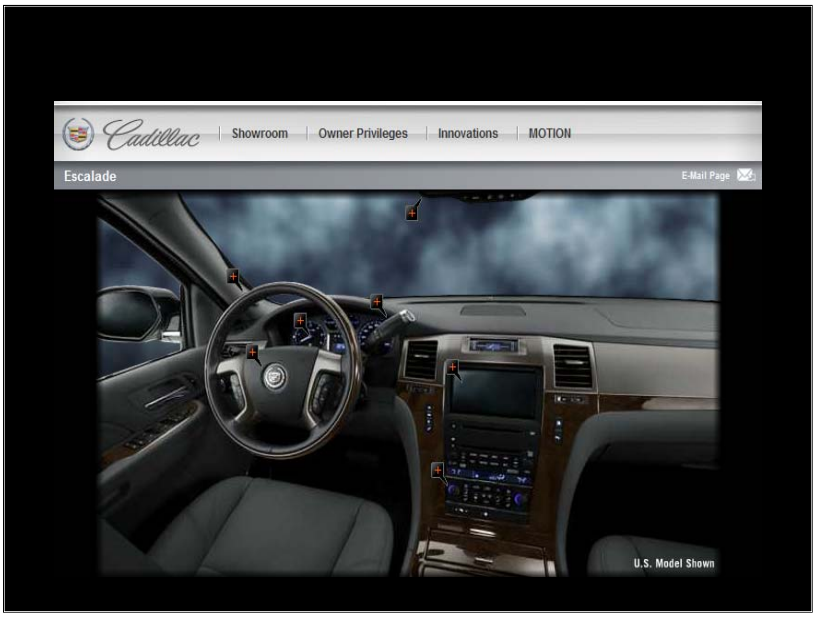
When I started on this project, I had no idea where it was going to take me…

Aggressive motorists?

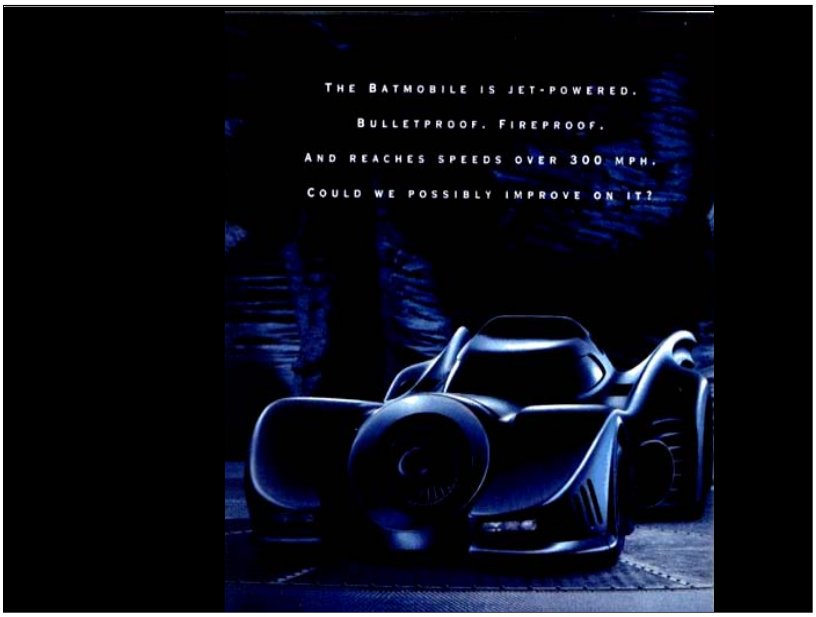
Aggressive motorists? – In the “good old days” vehicles were limited by the size of their engine and the basic ability to stay on the road.



Speedometers now show speeds of 200 to 300 mph.



The automobile of today has more “creature comforts” built in than ever before, Leather heated seats, DVD Players, high-fidelity surround stereo, MP3 players and video I-pods, GPS Navigation systems, intelligent cruse control systems, climate control, radial tuned suspension, noise limiting interiors, safety features like air bags are everywhere and even…….



…….the Batmobile has “On Star”.

What about Cellular Phones. Sign, sign, everywhere a sign……

Higher Traffic Volumes

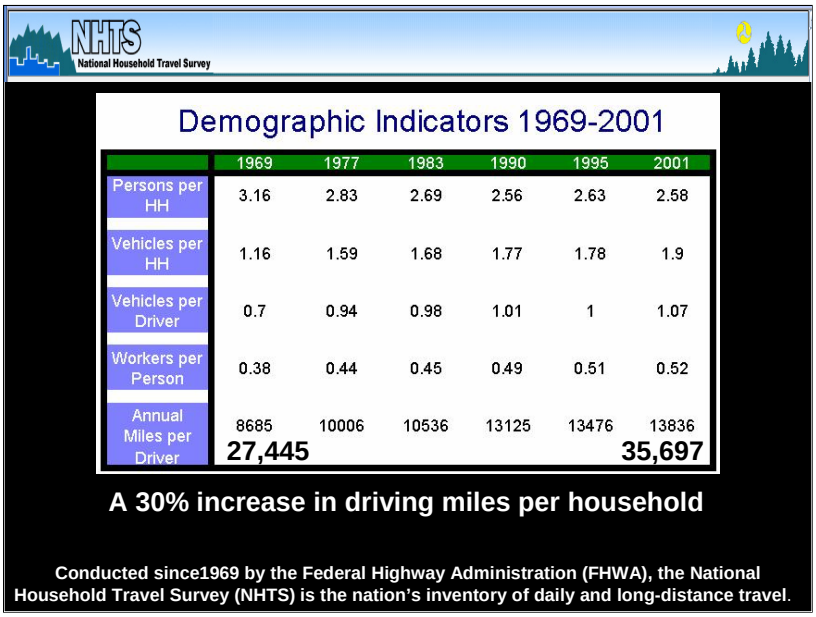
Higher traffic volumes – Calgary's population continues to climb, yet the road infrastructure fails to keep pace. Congestion and frustration increase, "road rage" is added to our vocabulary.

Picture 1 – Atlanta – in the **2007 Annual Urban Mobility Report prepared by the** Texas Transportation Institute it is reported that congestion cost Atlanta 2.581 billion dollars in 2005

The 2005 study shows American roads are becoming more congested as the average driver spent 38 hours in traffic, using 26 gallons of fuel and losing $710. That creates a $78 billion drain on the U.S. economy, including the loss of 4.2 billion hours -- the equivalent of 105 million weeks of vacation -- and 2.9 billion gallons of fuel, enough to fully load 58 supertankers.

Picture from Wikipedia

Picture 2 - Traffic congestion is common in heavily populated areas. One of the motorways of Manila during peak hour traffic.



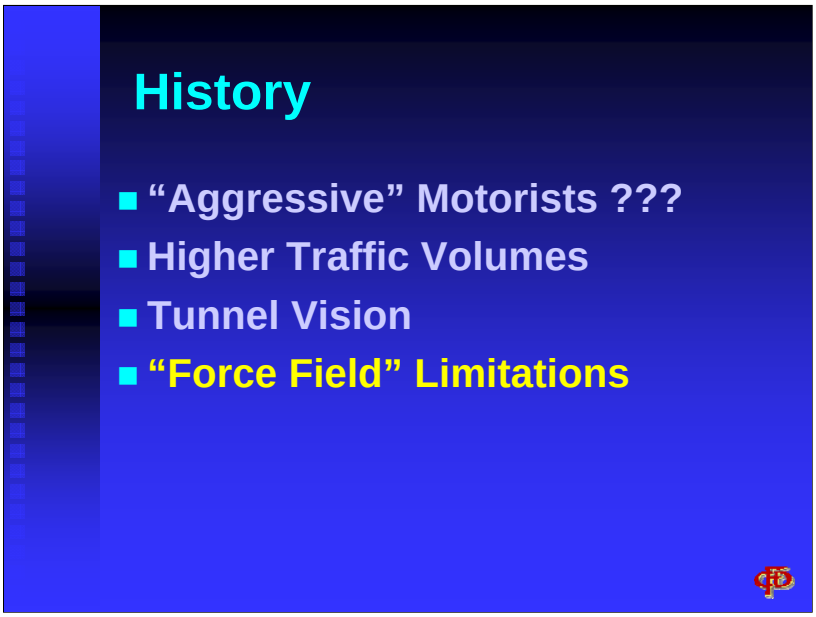
From the FHWA – This graph shows a decrease in drivers per household yet a 30% increase in driving per household

Tunnel Vision

Tunnel Vision

Our focus is primarily on the incident, not the effect we create. We have never really looked back down the road at the "BIG PICTURE" of Traffic Incident Management.

Special thanks to the sandiegonewsphotographer.com for these great pictures.



Force Field Limitations – Red emergency lights apply a force field and protect all responders (or do they?)

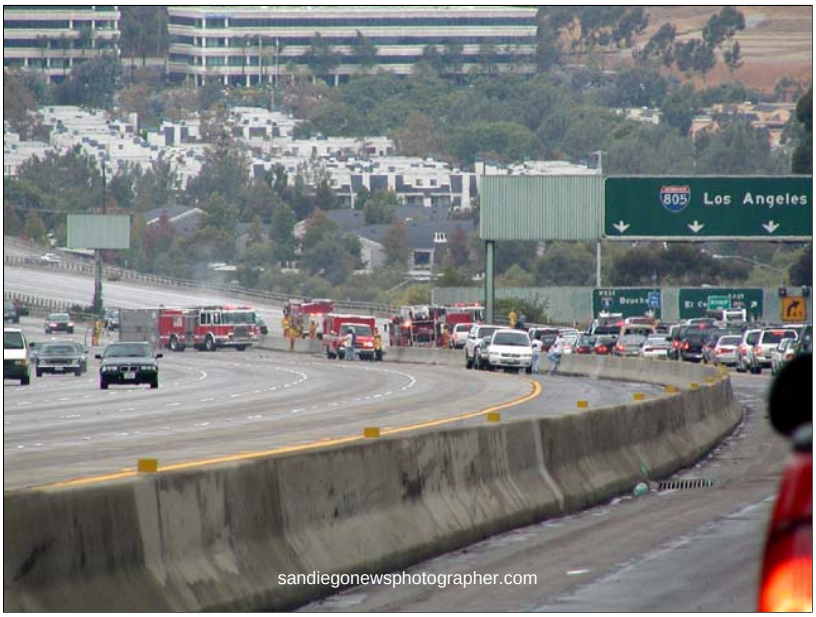
Emergency Personnel are invincible and rely on the “it won’t happen to me” syndrome.

ETA is PROACTIVE, most FD’s say why would we want to change our policy if we haven't killed anyone yet?

Speaking from experience, you don’t want too.

An 18 year old girl crashed into the back of our fire engine and died at the scene.

Frequent “Near-Miss” Incidents



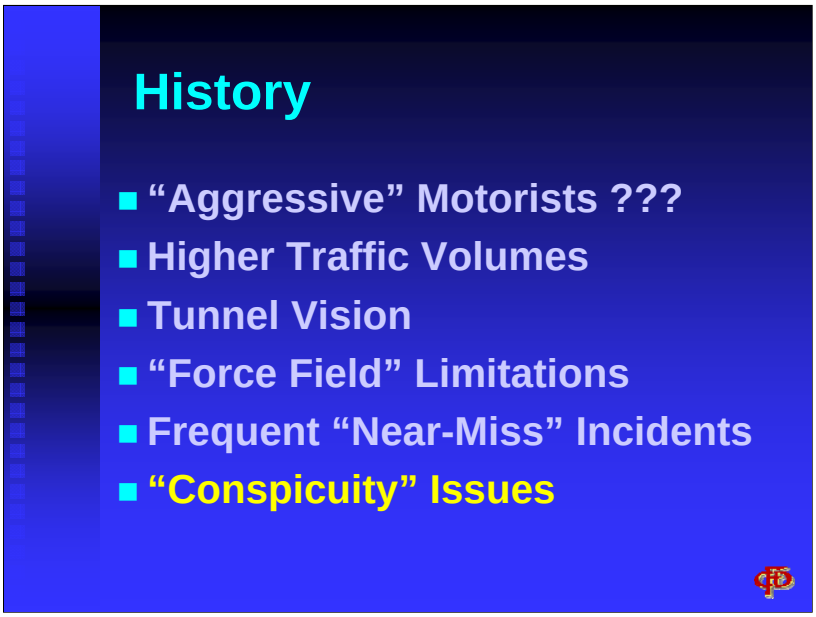
Frequent "Near-Miss" Incidents or an Increase in near-miss incidents

On a regular basis, firefighters report that working at roadway incidents is becoming more dangerous.

We are just out there doing our job……..

What were they (the motorist) thinking?

Can't they see me?



Apparatus and Firefighter “**CONSPICUITY” issues** – Apparatus flashing lights are no longer sufficient warning devices. The court no longer considers this a “BEST PRACTICE” for the industry. How can we improve the lighting and striping of apparatus.

Are our firefighters visible on the roadway in all light conditions?

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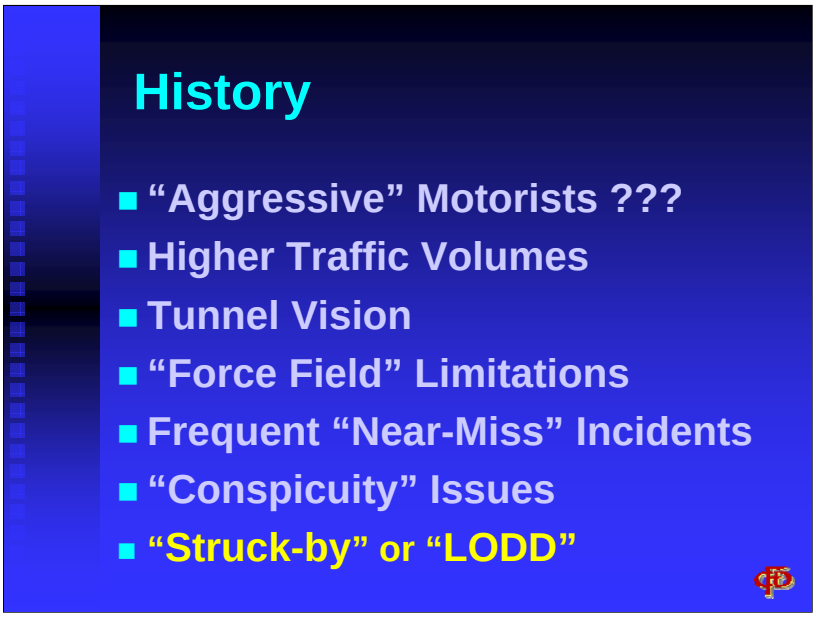

Struck-by or Line of Duty Deaths 1074 people were killed at construction site collisions in 2005

Police, 20 officers died after being struck by vehicles while outside their cruisers in 2000 - US STATS ?? Ref – Firehouse -Reference To National Law Enforcement Officers Memorial Fund and the Concerns of Police Survivors.

Fire & EMS “Struck By” Incidents 2000 - 2003

121 Recorded Incidents Total

137 Fire / EMS responders struck

33 Fire / EMS Fatalities

97 Fire / EMS Injuries

34 Apparatus struck

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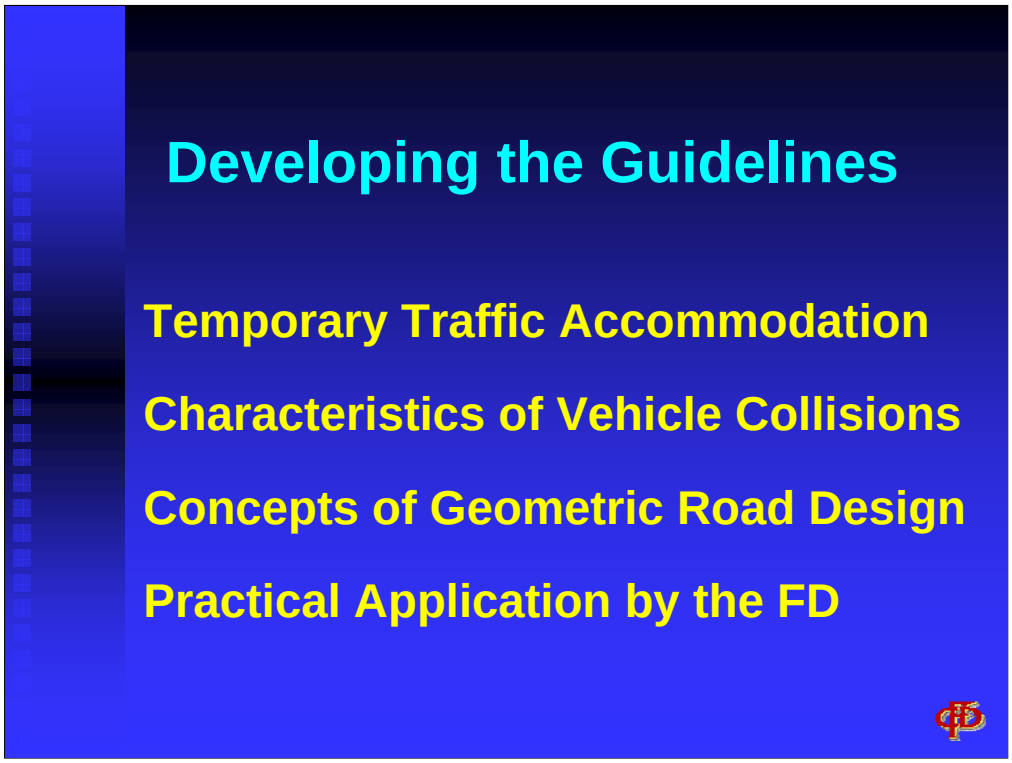


•Review the “Best Practices” used for Temporary Traffic Accommodation”. Engage the people who provide this service daily… Our transportation people…..

•Understanding the basic characteristics of vehicle collisions may reduce the risk or prevent secondary collisions from occurring. I was fortunate enough to work very closely with a member of the police service who was the head collision re-constructionist for our city. This included his comments on apparatus conspicuity and those of the local 3M representative.

•An awareness of the concepts of geometric road design – Identify the types and styles or classifications of roadways. So I engaged one of the experts in the field, a professor of civil engineering at the U of C, Dr. John Morrall.

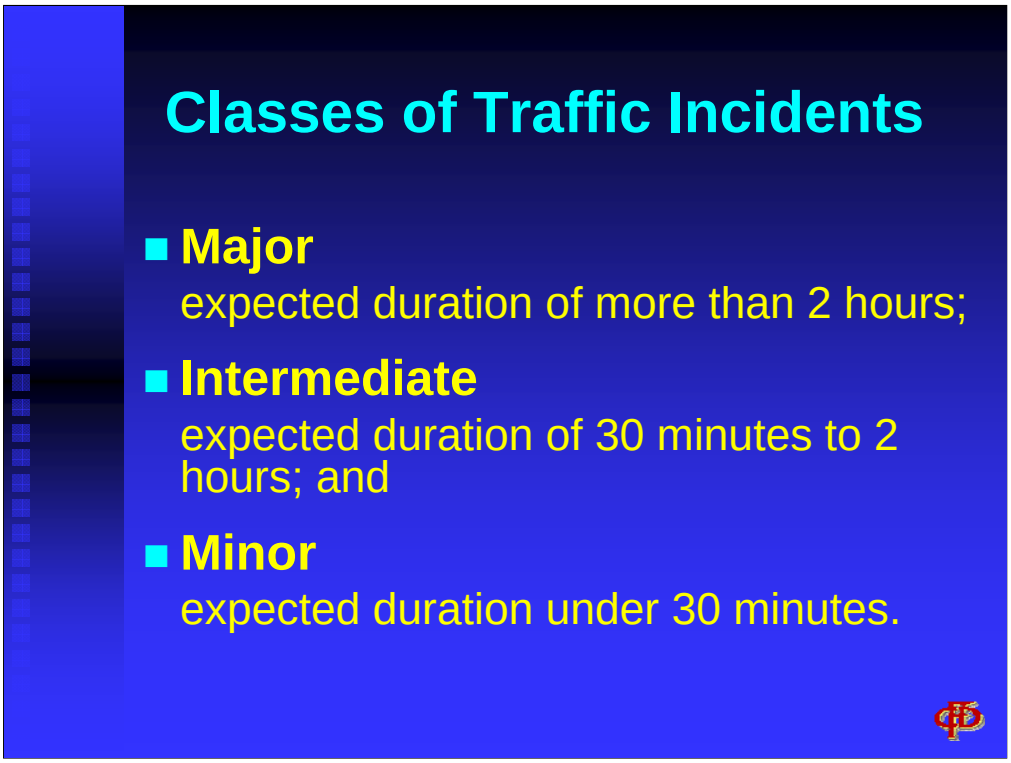
This information provided the rationale, I just have to….

•Establish the logistics for a practical application by the fire department. – Can we come up with a working model?

Talk with Traffic Operations staff and develop protocols using their experience working on the roadway.

The fire department now has a partnership with that business unit and work together to resolve transportations issues in and around our City.

Road Users - (motorists, bicyclists, and pedestrians within the highway, including persons with disabilities in accordance with the Americans with Disabilities Act of 1990 (ADA), Title II, Paragraph 35.130



MUTCD - CHAPTER 6I. CONTROL OF TRAFFIC THROUGH TRAFFIC INCIDENT MANAGEMENT AREAS

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

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.

If the traffic incident is anticipated to last more than 2 hours, applicable procedures and devices set forth in other Chapters of Part 6 should be used.

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.

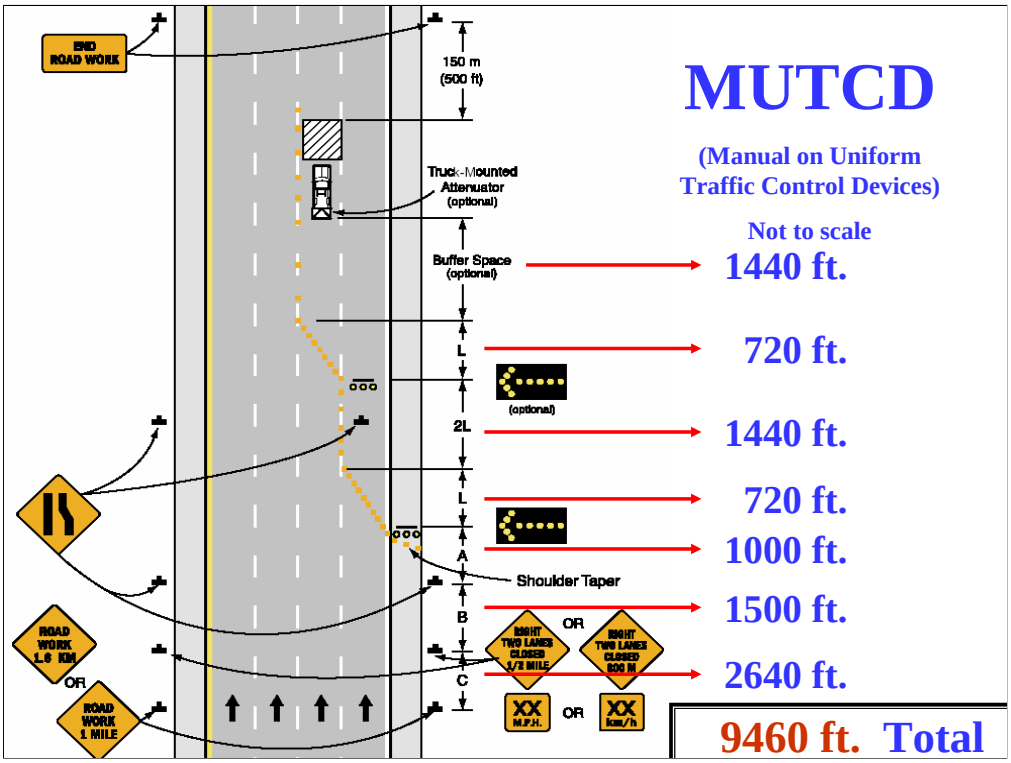
The establishment, maintenance, and prompt removal of lane diversions can be effectively managed by interagency planning that includes representatives of highway and public safety agencies.

Minor traffic incidents are typically disabled vehicles and minor crashes that result in lane closures of less than 30 minutes. 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.

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

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.**

It is often confusing to 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.



This is the "Construction Industry Standard" for the closure of two lanes on a high speed roadway.

An excerpt from the Manual on Uniform Traffic Control Devices, the US version of MUTCDC (for Canada). This manual allows us to use this drawing in this presentation. I have added the distances in blue on the right, to comply with these standards we would need **9460 ft. of equipment**.

Approx. 10 Signs - 184 Cones - 2 Arrow Panels and a Truck mounted crash attenuator.

Since a large percentage of EMERGENCY incidents are mitigated within 30 minutes, this set-up is not realistic.

40 mph or less L = WS2 (sq) over 60

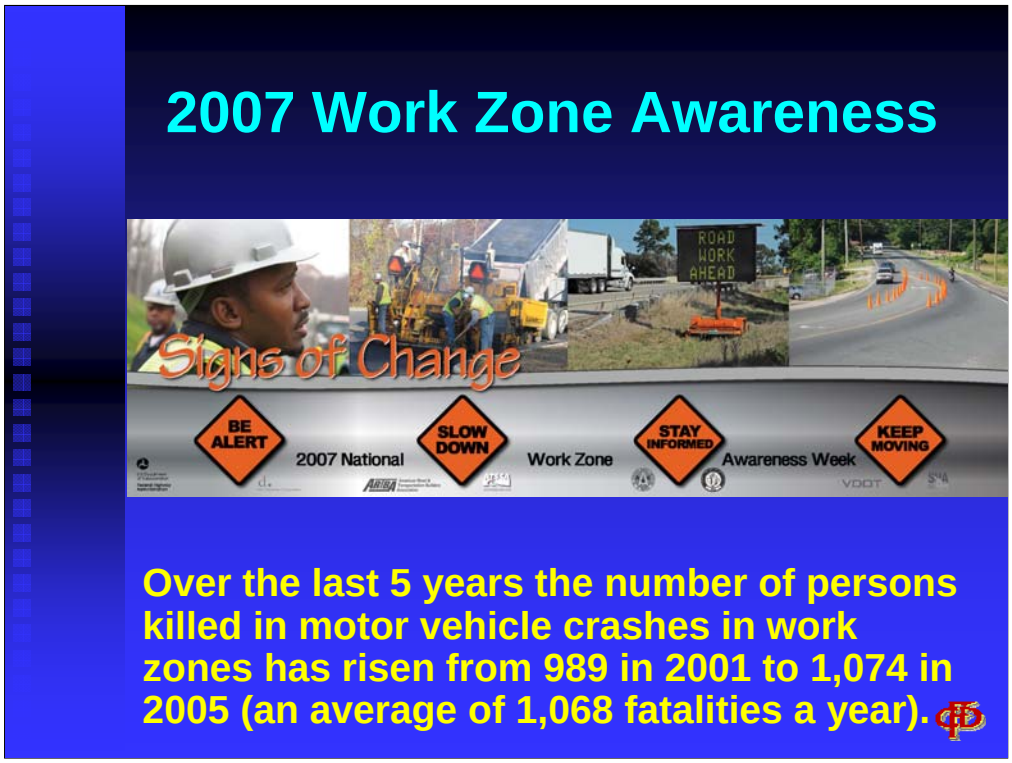
L= taper length in feet

W= offset in feet

S=posted speed or of peak 85% speed

45mph or more L=W x S 60 mph x 12ft = 720 ft.

Part 6 temp traffic control – 2003 edition MUTCD



1093 in 2000 when this program was developed.

Over the last five years, the number of persons killed in motor vehicle crashes in work zones has risen from 989 in 2001 to 1,074 in 2005 (an average of 1,068 fatalities a year).

I developed a Partnership with the Calgary Police Service “Traffic Division”, and an excellent working relationship with the members of the Collision Reconstruction Team.

Definition **“ACCIDENT”** – Anything occurring unexpectedly or without known or assignable cause.

A **Traffic or Vehicle collision** must be thought of as a series of unexpected events leading to death, damage or injury.

The **“Series of Events”** is the foundation of collision investigation! These will be referred to later.

Collision Investigation Conditions

•Visibility of Hazard – What was the hazard and could they see it?

•Roadway alignment

•Positioning of traffic control devices – in this instance cone placement

•Driver distractions

•Weather and Light conditions

•What was the condition of the roadway surface?

Secure the Scene – Emergency Services also have their own definition.

Firefighter a.k.a. EEU

The Police “secure the scene” or provide scene security, this allows for the Preservation of Evidence.

A clear Buffer Space promotes scene preservation.

Police and Fire shared some concerns about developing an Emergency Traffic Management Program

WE agreed that Working in, or near, a moving traffic environment is dangerous.

The skill of driving has become very complex

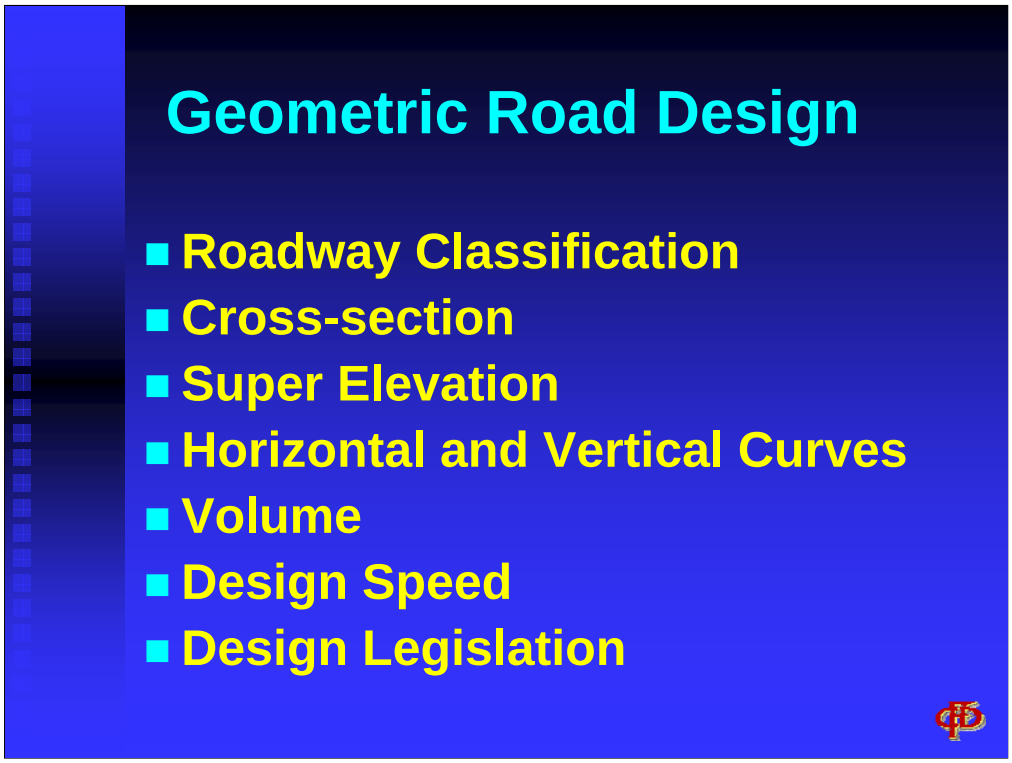
This initiative is PRO-ACTIVE

20 Police officers died after being struck by vehicles while outside their cruisers in 2000 - US STATS ??

Ref – Firehouse Magazine with Reference To National Law Enforcement Officers Memorial Fund and the Concerns of Police Survivors.

22 Highway incidents involving Fire and EMS personnel in 2000

- 11 Apparatus hits at MVA's, 7 at Fires and 4 miscellaneous, resulting in:
- 5 Fatalities
- 19 Injuries



Since each roadway has a designed speed, curve radius and changes in elevation it is not easy to prepare a plan that will accommodate all of the situations that will be encountered.

Or

Not every road is straight and level. The principals of ETM must be applied to all applications.

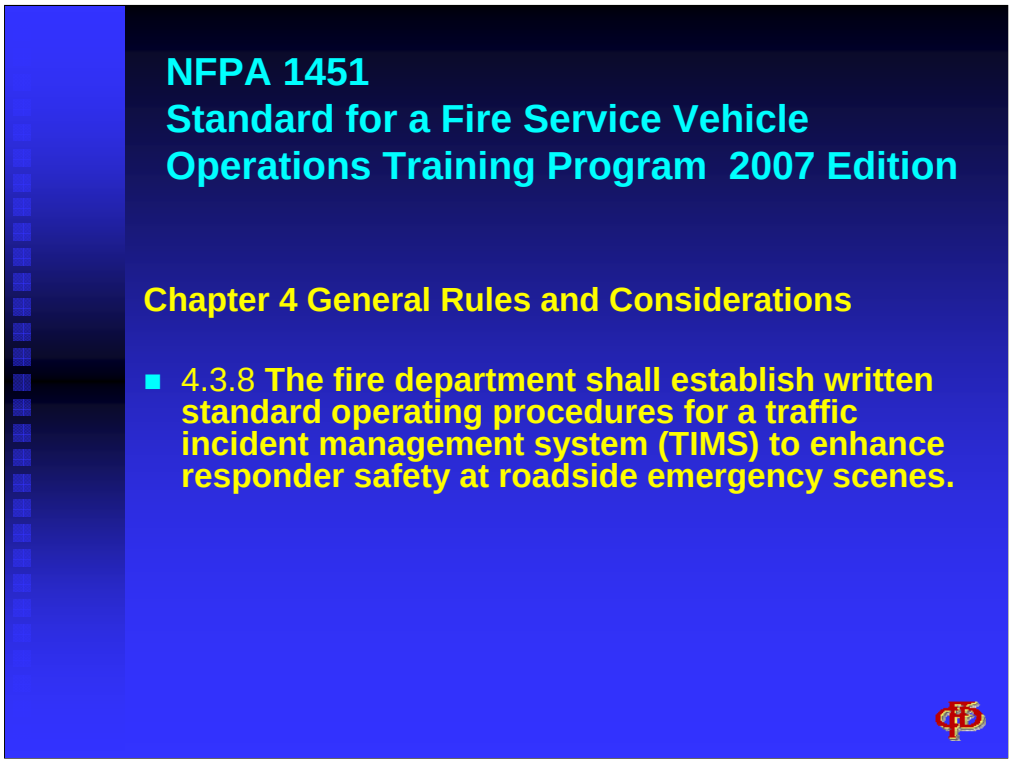
Street – Avenue – Highway are the terms we referred to 7 years ago.

What is the

"INDUSTRY STANDARD"

for

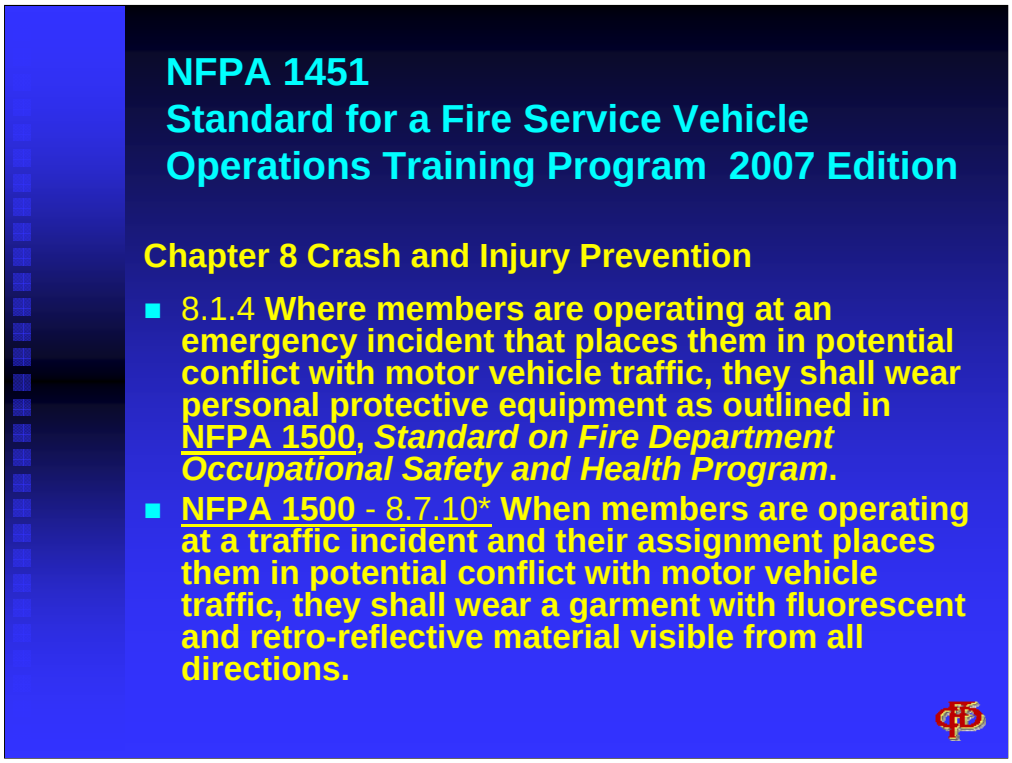
FIRE DEPARTMENTS?



NFPA 1451
Standard for a Fire Service Vehicle Operations Training Program
2007 Edition

Chapter 4 General Rules and Considerations

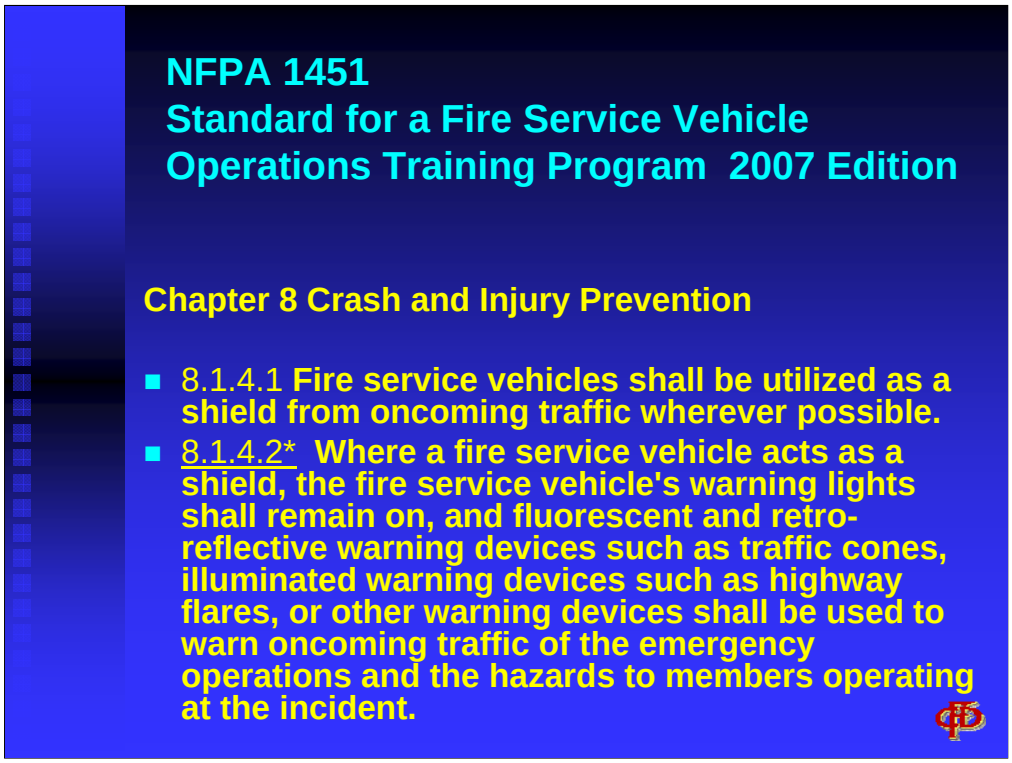
4.3.8 The fire department shall establish written standard operating procedures for a traffic incident management system (TIMS) to enhance responder safety at roadside emergency scenes.



NFPA 1451
Standard for a Fire Service Vehicle Operations Training Program
2007 Edition

Chapter 8 Crash and Injury Prevention

8.1.4 Where members are operating at an emergency incident that places them in potential conflict with motor vehicle traffic, they shall wear personal protective equipment as outlined in NFPA 1500, *Standard on Fire Department Occupational Safety and Health Program*.



NFPA 1451
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2007 Edition

Chapter 8 Crash and Injury Prevention

8.1.4.1 Fire service vehicles shall be utilized as a shield from oncoming traffic wherever possible.

8.1.4.2* Where a fire service vehicle acts as a shield, the fire service vehicle's warning lights shall remain on, and fluorescent and retro-reflective warning devices such as traffic cones, illuminated warning devices such as highway flares, or other warning devices shall be used to warn oncoming traffic of the emergency operations and the hazards to members operating at the incident.

Keep It Simple Stupid

On-Scene times are 6 minutes or less

The fire department is the only emergency service capable of carrying traffic control equipment.

Provide immediate and professional scene evaluations, and take actions to secure (**Stabilize**) the scene.

The ability to apply safe aggressive takedown procedures or transfer our set-up seamlessly to Temporary Traffic Accommodation providers.

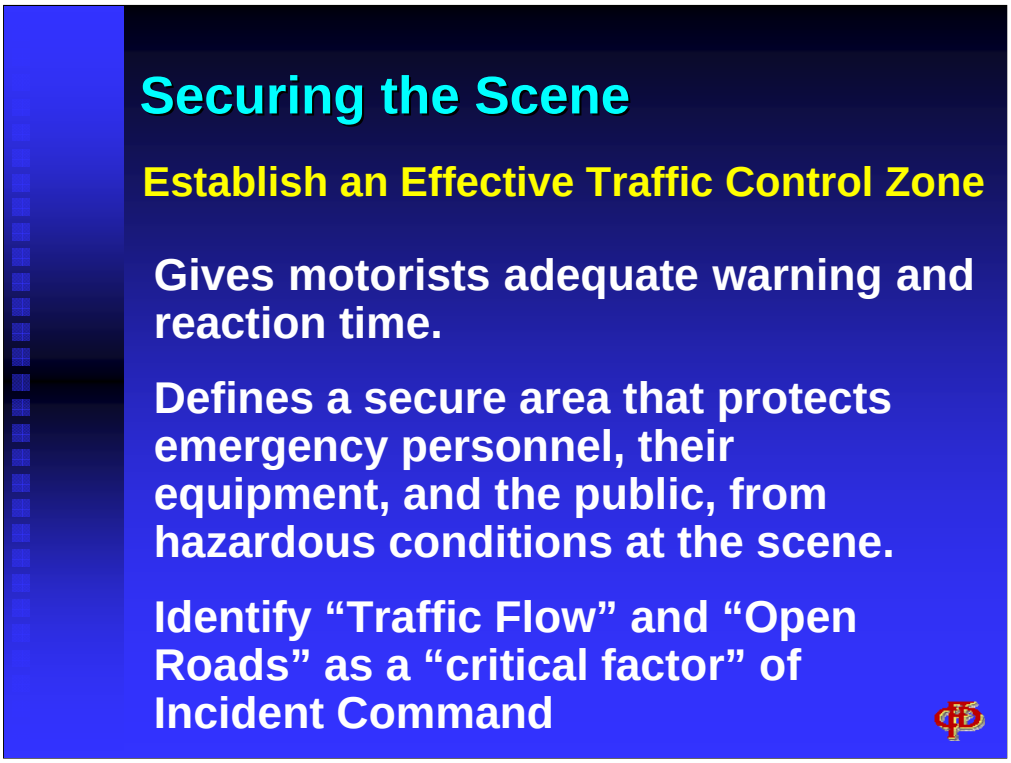
As an Incident Manager, my primary focus is to assume an effective command position and evaluate the critical factors of the incident on arrival.

I must also realize that my position and the location of other units operating at the scene may violate a driver's expectations and compromise their safety.

The Calgary Fire Department assigned me to develop a plan to reduce these risks.

CHAPTER 6I. CONTROL OF TRAFFIC THROUGH TRAFFIC INCIDENT MANAGEMENT AREAS, 2003 Edition

Responders arriving at a traffic incident should, within 15 minutes of arrival on-scene, 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.



Developing Emergency Traffic Accommodation Guidelines –

All we had to do was..

Establish an **EFFECTIVE TRAFFIC CONTROL ZONE…. - under Emergency Conditions**

Gives motorists adequate warning and reaction time.

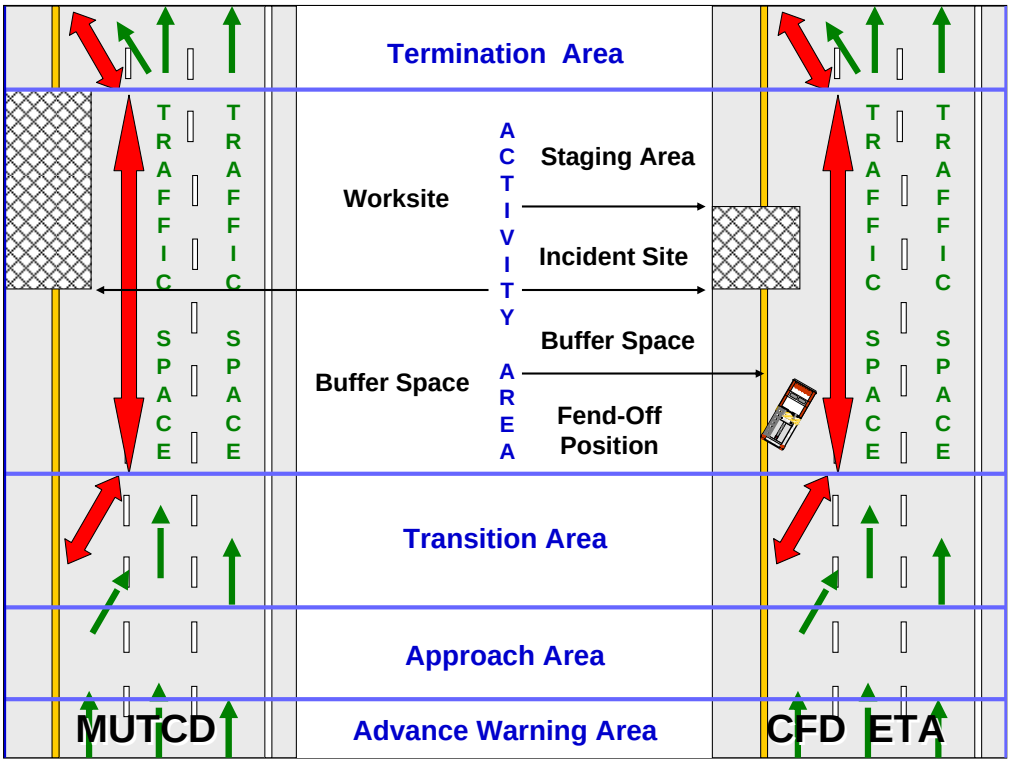
Defines a secure area that protects emergency personnel, their equipment, and the public, from hazardous conditions at the scene.

Identify “Traffic Flow” and “Open Roads” as a “critical factor” of Incident Command

For Every Minute a lane is blocked, it Takes 3 to 7 minutes to recover free flow once the lane is clear.

HAZARDOUS CONDITIONS – That moving and constantly changing traffic environment is a hazard to your health!!

A secure or well-defined incident scene (traffic control zone) will command the attention of motorists and pedestrians and clearly guide them around the occurrence without confusion.



Established Practices - Temporary Traffic Accommodation and Series of Events

Advance Warning Area – Alerts the motorist to the situation or difficulty ahead.

- •Point of Possible Perception
- •Perception delay – **Chemical Process** – Perception distance and time – Foot Moves from gas?

Approach Area – Allows them to Identify the nature of the equipment and analyze the situation

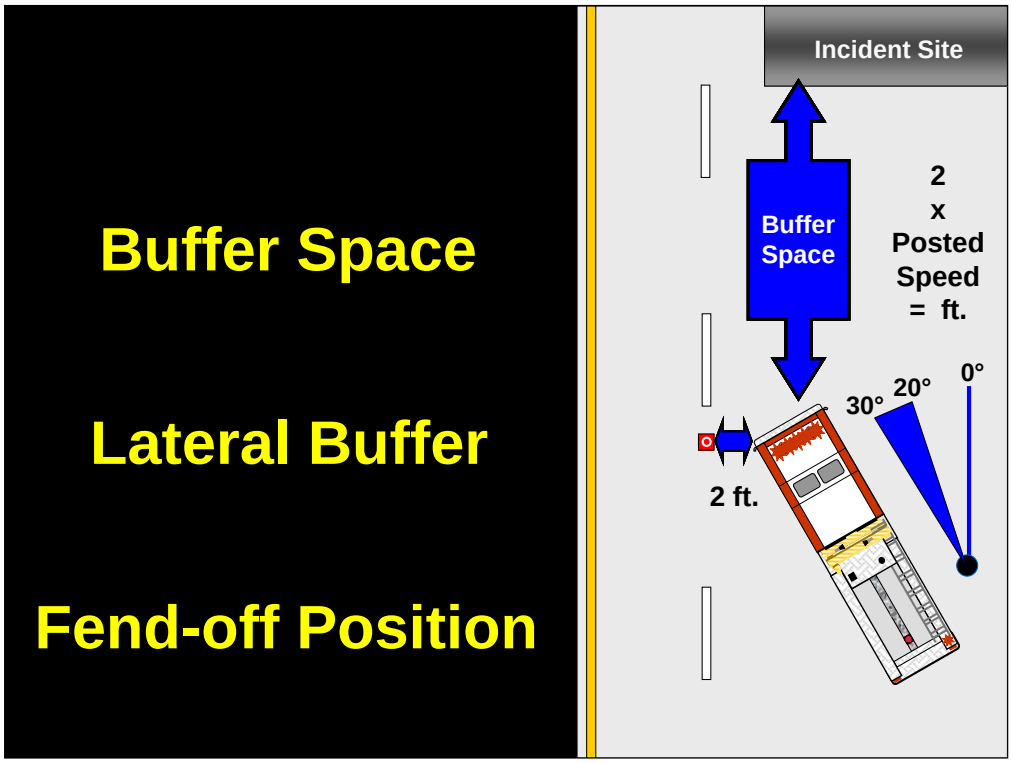
- •Point of Actual Perception - The point where a situation is perceived or comprehended as a hazard

Transition Area – It should indicate the actions to be taken by the motorist so they can **decide** a course of action and **execute** safe driving techniques **before** entering the activity area.

- •Reaction – to perception – (Reaction Distance and Time)
- •Action Point – Usually braking or steering
- •Evasive Action – Attempt to avoid Collision or Hazard
- •True Area - Point of actual perception to point of no escape - Last hope of avoiding a collision.
- •Point of **NO** Escape – Encroachment - Point of Impact

Activity Area and Traffic Space – Separate from each other. Fend-off position provides added protection.

Termination Area – Traffic returns to it's normal path.



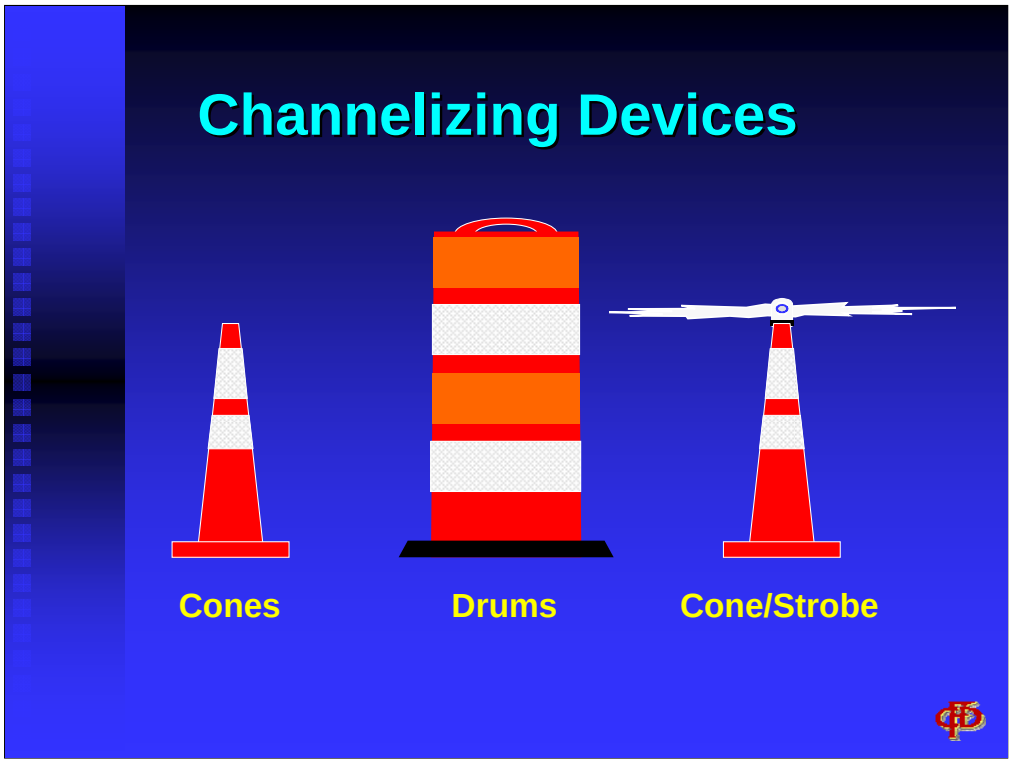
Temporary traffic accommodation is a pre-determined procedure, provided to secure the area **before** workers enter the work site.

In emergency situations the Work Area or Incident Site is already established therefore the traffic control zone must be built around this location. Set-up begins with the arrival of the first unit on-scene and is built upon the staging of this apparatus. The emergency traffic control zone is then created by the placement of traffic control devices on the roadway.

Buffer Space – Referred to as an **escape zone** by the Police Department. **Double the posted speed limit in feet**

Lateral Buffer – Reduces the possibility of lane shift by motorists and a safer area for movement by firefighters.

NFPA states that we should use our apparatus as a **SHIELD** and **NAPD** guidelines reinforced the **Fend-off position.**

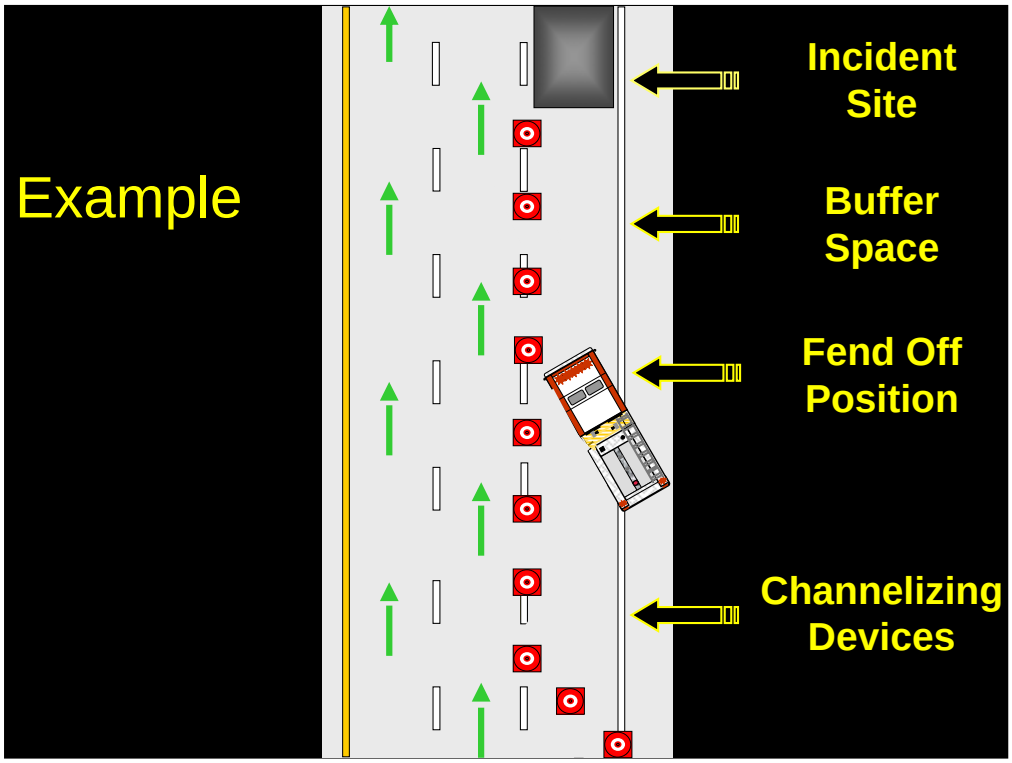


Meet MUTCD Standards for traffic control (day or night) on roadways with posted speeds of 45 mph or greater. A minimum of 28” Cones and 36” drums with retro reflective bands.

New color for **“Incident Management”** related signage – Coral or Fluorescent Pink

CHAPTER 6I. CONTROL OF TRAFFIC THROUGH TRAFFIC INCIDENTMANAGEMENT AREAS

Warning and guide signs used for TTC traffic incident management situations may have a black legend and border on a fluorescent pink background.



This is the only illustration showing individual cones, all other examples use arrows to indicate areas where cones may be placed.

CPS Collision Investigation Conditions and Series of Events

•Visibility of Hazard

•Roadway alignment

•Positioning of traffic control devices – in this instance cone placement

•Driver distractions

•Weather and Light conditions

•Condition of roadway surface

Merged with Geometric Road Design

•Roadway Classification

•Cross-section

•Super Elevation

•Horizontal and Vertical Curves

•Volume

•Design Speed

•Design Legislation

Give firefighters the criteria to reduce secondary collisions

Distance Table

Posted Maximum Speed	30 mph	40 mph	45 mph	50 mph	55 mph	60 + mph
Buffer Space	60 ft.	80 ft.	90 ft.	100 ft.	110 ft.	120 ft.
Taper Length	60 ft.	80 ft.	90 ft.	100 ft.	110 ft.	120 ft.
Recommended Spacing for Cones In Straight Lines	15 ft.		30 ft.			60 ft.
Tangent Length	NOTE: Apply To Roadway Conditions Below					
Dry Pavement	150 ft. 5 E	200 ft. 6.5 E	225 ft. 7.5 E	250 ft. 8.5 E	275 ft. 9 E	300 ft. 10 E
Wet Pavement	225 ft. 7.5 E	300 ft. 10 E	337 ft. 11 E	375 ft 12.5 E	412 ft. 14 E	450 ft. 15 E
Snow Covered Pavement	300 ft. 10 E	400 ft. 13 E	450 ft. 15 E	500 ft. 16.5 E	550 ft. 18 E	600 ft. 20 E

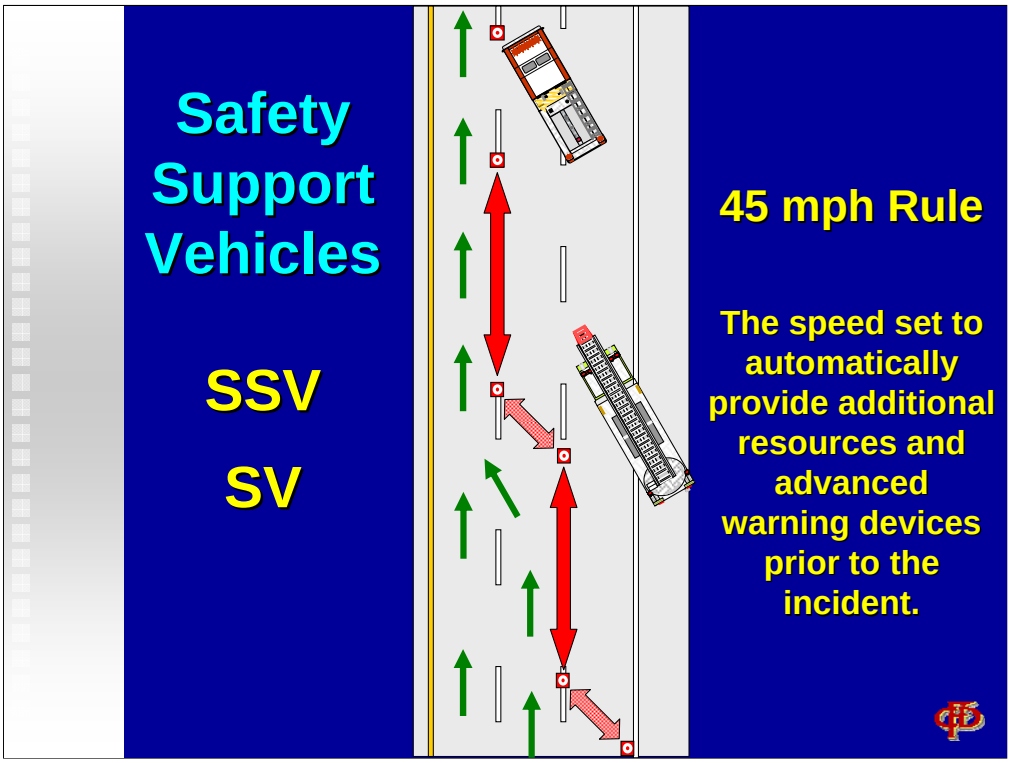
1 Engine length is approximately 30 ft.

The distance table can be carried in the Company Officers Resource Manual

Buffer Space – Double the Posted Speed Limit

Taper Length - same as buffer

Tangent Lengths – Multiply the Posted Speed by 5 for DRY Pavement



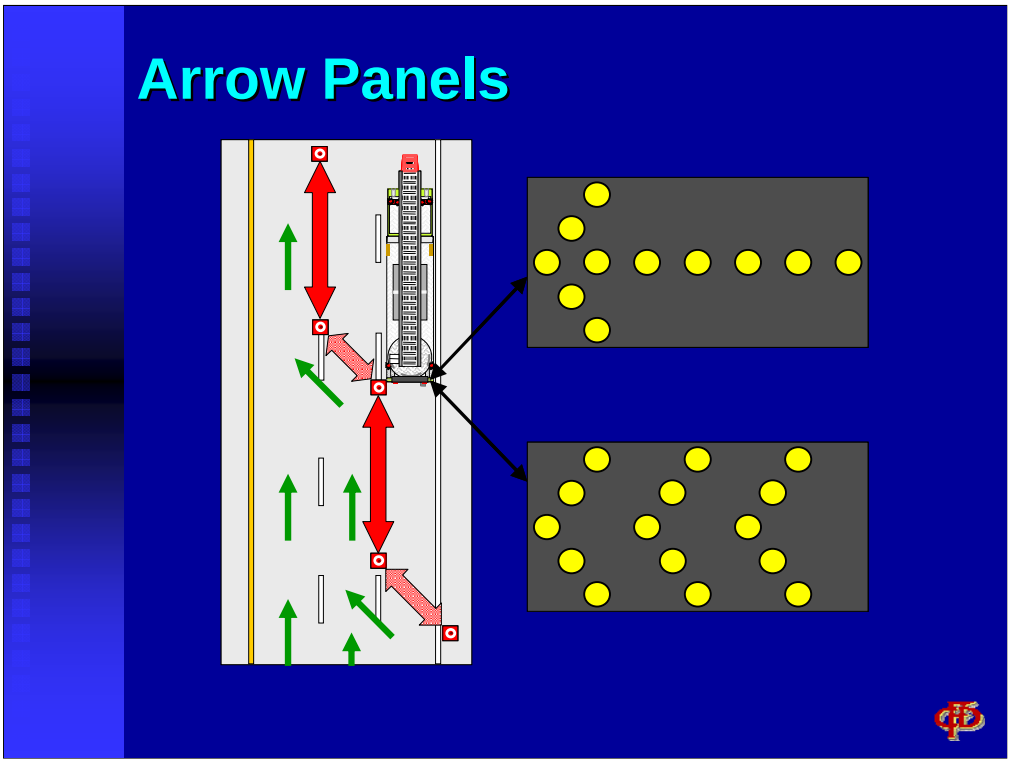
At speeds of 45 mph and above, SSV's are automatically dispatched.

There was a significant change identified in temporary traffic control set-ups above 45mph that prompted this action.

SSVs were used:

42.4% of the time at speeds between 30 and 44 mph

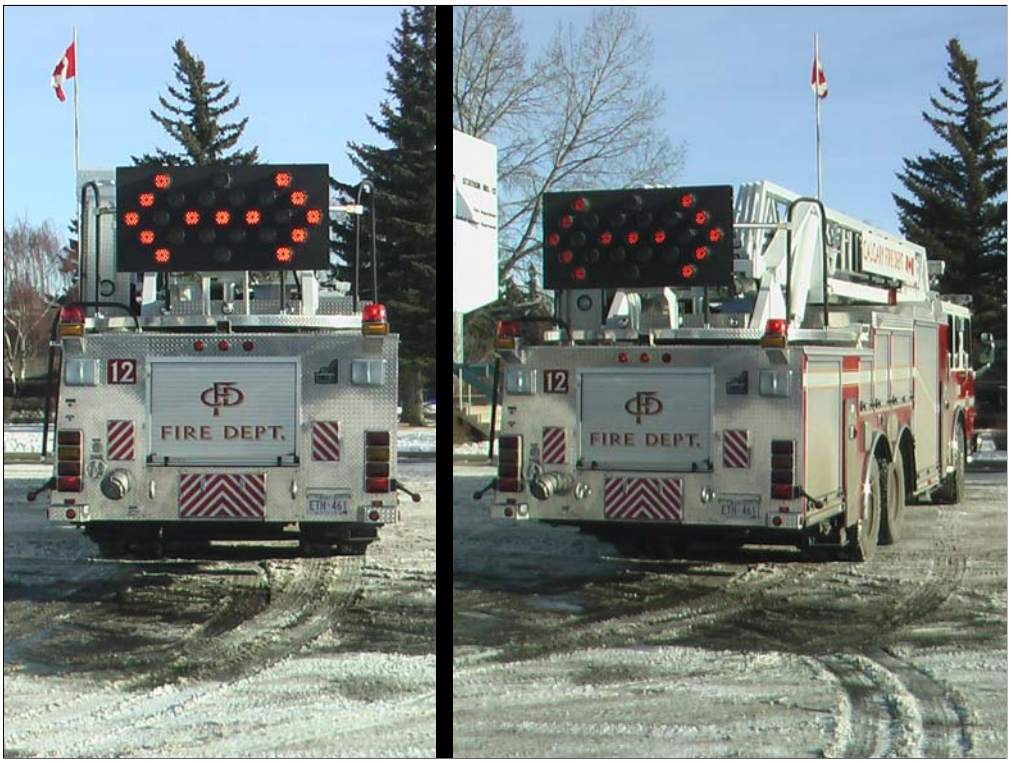
57.6% of the time at speeds of 45 mph and above

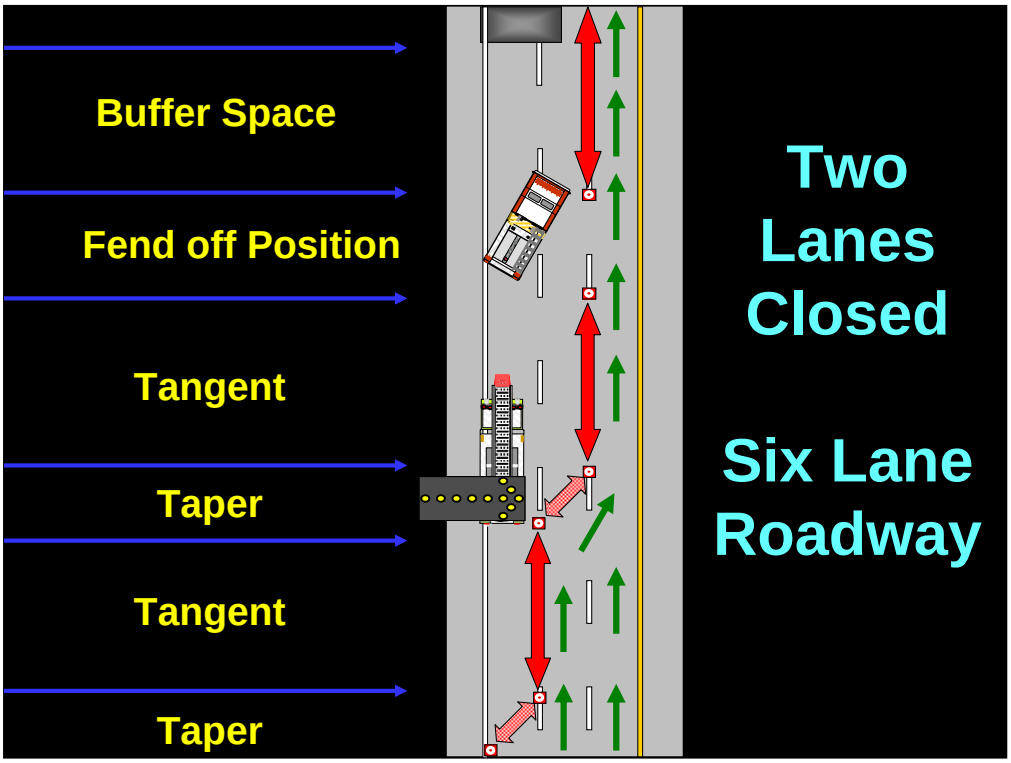


Type “C” 1500mm X 750mm (60” X 30”)

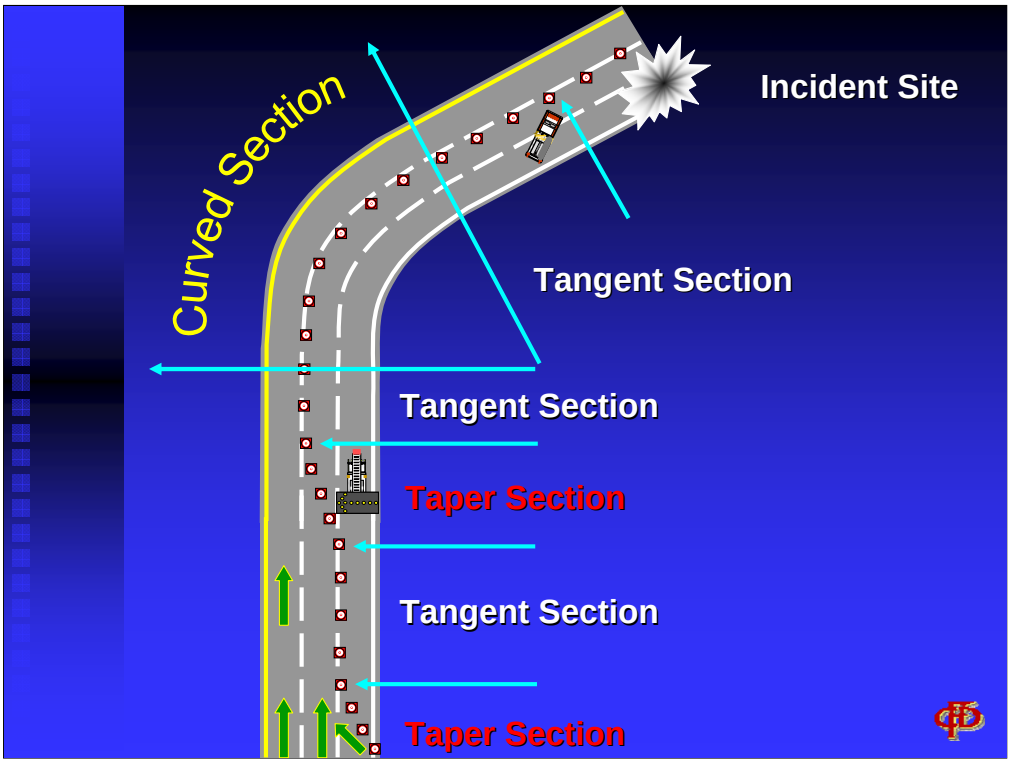
Flashing arrow boards are traffic control devices, which can provide an illuminated, flashing display of a left arrow, a right arrow, sequential arrowheads or a bar; which inform the driver to either change lanes or proceed with caution.

Apparatus using the arrow board to provide direction to motorists must ensure that the display area of the arrow board faces oncoming traffic. This is achieved by parking parallel to the lane markers, inside the lane being closed.


12
FIRE DEPT.
12
FIRE DEPT.



The centre lane is **NEVER** closed by itself.

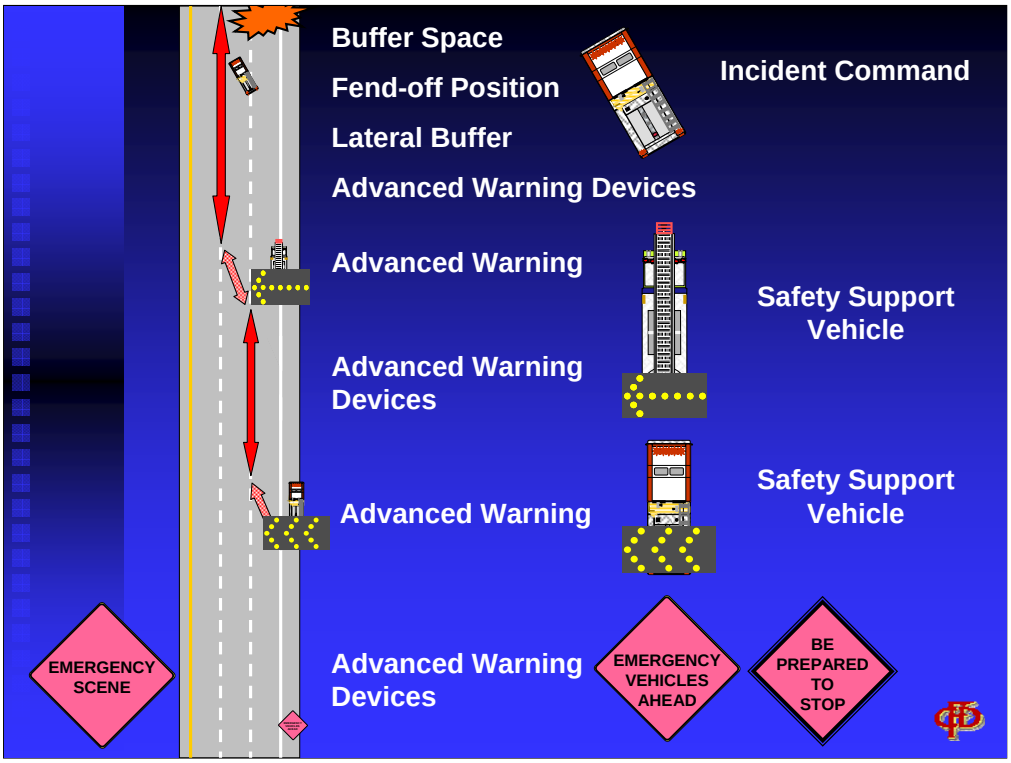

Curved Section
Incident Site
Tangent Section
Tangent Section
Taper Section
Tangent Section
Taper Section

Summary

Set-up Considerations for establishing an Emergency Traffic Accommodation Control Zone

Present Conditions

60 mph posted speed, on a straight and level section of roadway, clear and dry, during daylight hours.


Buffer Space
Fend-off Position
Lateral Buffer
Advanced Warning Devices
Incident Command
Advanced Warning
Safety Support Vehicle
Advanced Warning Devices
Advanced Warning
Safety Support Vehicle
EMERGENCY SCENE
Advanced Warning Devices
EMERGENCY VEHICLES AHEAD
BE PREPARED TO STOP

Traffic Accommodation in Action

In Summary……

Emergency Traffic Accommodation can play a key role in reducing congestion and improving roadway safety. It is easily adaptable to any situation can be expanded to an "ALL HAZARD APPROACH", providing scene safety and security.

Rapid Detection and Verification of the type and location of traffic incidents

Prompt Response by qualified personnel matched to the needs of the incident.

Secure and Stabilize the Scene

"Steer It and Clear It"

Establish TIM Teams to develop **Multidisciplinary TIM Procedures.**

Traffic Incident Management partners at the state, regional and local levels should develop and adopt multidisciplinary procedures for coordination of Traffic Incident Management operations, based on national recommended practices and procedures.

Emergency Traffic Accommodation

Restore and Recover

Open Roads Policy - Quick Clearance Legislation and Move It Laws

Goals for Performance and Progress - establish and implement performance goals at the state, regional and local levels for increasing the effectiveness of Traffic Incident Management

The success of a program like this will rely on the communication, cooperation and coordination between Transportation Agencies, the Public Safety Community and all other stakeholders (Towing Community) who operate on these roadways.

Communication, Cooperation and Coordination

And make a **Commitment** to ensure these policies are enforced and maintained.

TIME Task Force Mission

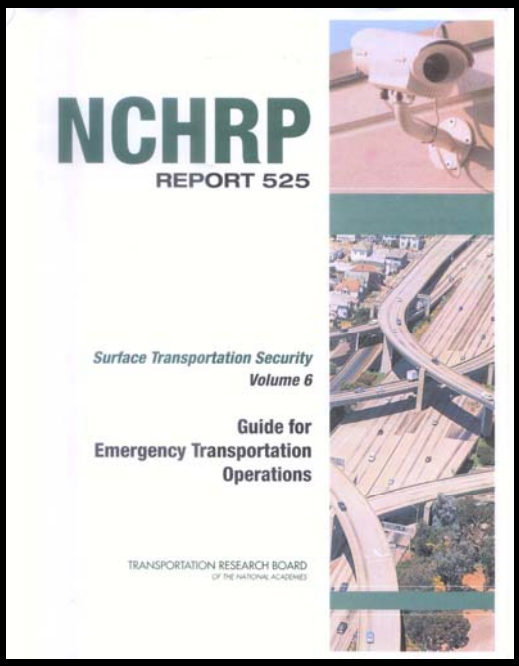
"…to facilitate the *safest and fastest* traffic incident clearance for emergency responders and the motoring public..."

Metro Atlanta Traffic Incident Management Enhancement Task Force

The End

FHWA - Freeway Management and Operations Handbook

- Regardless of what process is used for developing a traffic incident management program, it is essential that traffic incident management be coordinated with all other elements of the broader freeway management program, and that overall performance of the transportation network be considered.



www.TRB.org

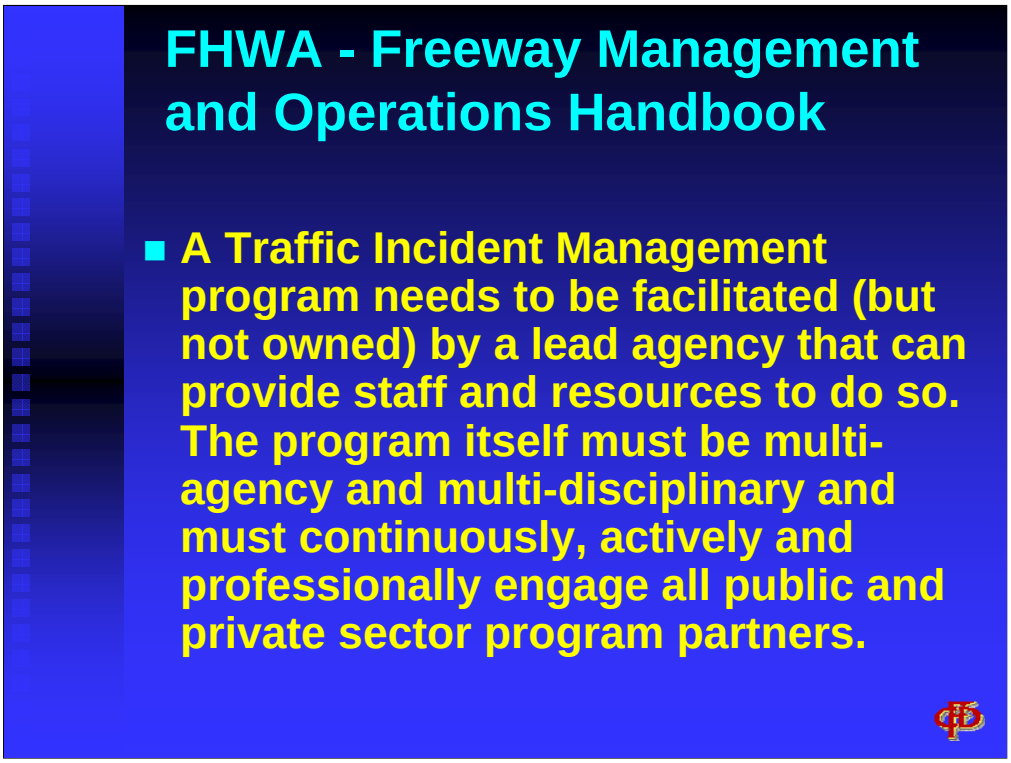
The Transportation Research Board has also provided some interesting information in its 2005 NCHRP Report 525, Surface Transportation Security, Volume 6, Guide for Emergency Transportation Operations.

www.TRB.org

http://trb.org/news/blurb_detail.asp?id=5345

In the Forward of this document there is a quote by DHS Secretary Tom Ridge; who wrote that "NIMS provides a consistent nationwide approach for federal, state, territorial, tribal, and local governments to work effectively and efficiently together to prepare for, prevent, respond to, and recover from domestic incidents, regardless of cause, size, or complexity".

Emergency Traffic Accommodation must be considered as a component of your Emergency Transportation Operation plan.



A Traffic Incident Management program needs to be facilitated (but not owned) by a lead agency that can provide staff and resources to do so. The program itself must be multi-agency and multi-disciplinary and must continuously, actively and professionally engage all public and private sector program partners.

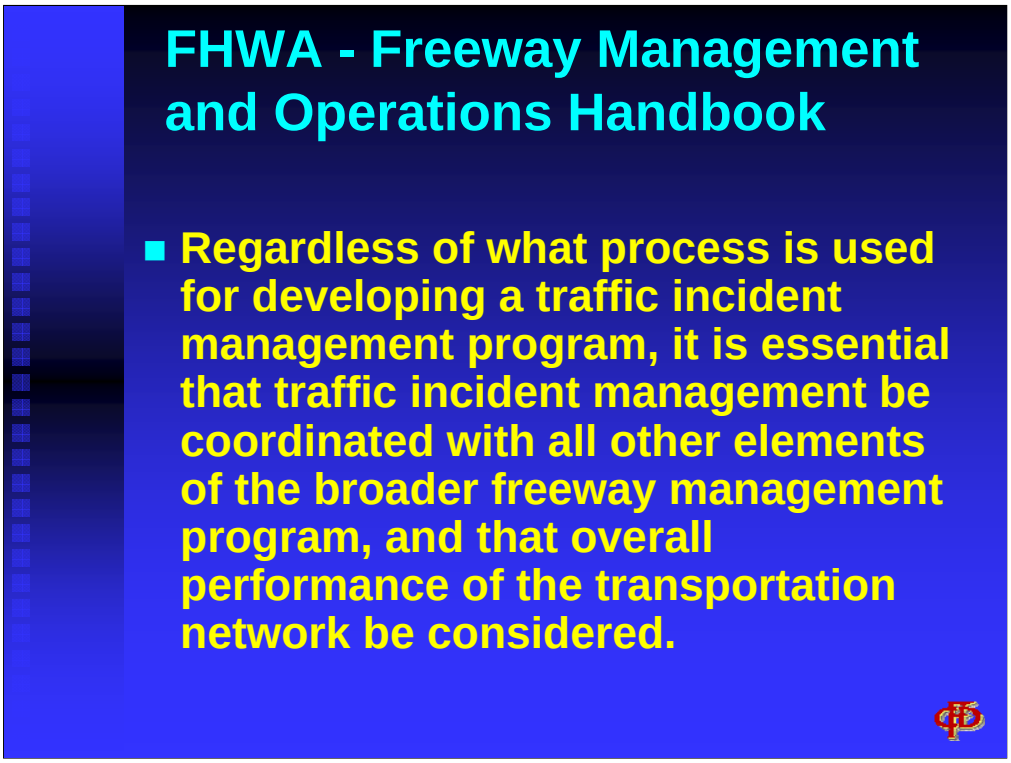
Regardless of what process is used for developing a traffic incident management program, it is essential that traffic incident management be coordinated with all other elements of the broader freeway management program, and that overall performance of the transportation network be considered.

Identify Stakeholders: Critical to the success of a traffic incident management program is the development of a cooperative spirit and consensus among the various stakeholders. Therefore the first step is to identify the relevant stakeholders, such as state, city, and county departments of transportation, Metropolitan Planning Organizations (MPOs), emergency preparedness organizations, emergency medical services, fire departments, state and local law enforcement, transit operators, commercial transportation firms, environmental protection, maintenance, towing operators, major employers, user groups, media, elected officials, policy makers and others specific to the region. Once these stakeholders commit to establishing a traffic incident management program, they can sponsor a traffic incident management Task Force that meets periodically to guide and enhance the program. It has often been said that traffic incident management primarily consists of assembling the involved stakeholders together in an open and non-confrontational atmosphere; the stakeholders will then collectively design their own unique and effective program.

Define the Problem: Before identifying, much less selecting a solution, a clear understanding of the severity, impacts, and locations of incident-related problems is required. Problem definition can be accomplished through a combination of data collection, data compilation, brainstorming, and constructive critiques of existing practices. In addition to considering responder activities, responsibilities, and roles in assessing the current practices, it is also important that the Traffic Incident Management Task Force consider the legal and policy environment in which incident management is carried out.

Set Goals and Objectives: The Traffic Incident Management Task Force should next establish guiding principles for program development. These "guiding principles" most often take the form of a mission statement, backed up by goals and objectives and based on the identified problems. Simply stated, goals and objectives describe what the program is designed to accomplish. Goals and objectives need to be multi-agency in scope; not merely the goals and objectives of individual agencies. Goals reflect long-term aspirations, and may include: reduce secondary incidents, increase safety for responders, increase and improve use of alternate routes, reduce liability for responding agencies. Objectives typically define the specific, often measurable, level of performance that would be required to progress toward a given goal. Objectives could include: decrease detection times, improve response times, increase motorist information, improve clearance procedures, decrease number of lanes closed, and decrease road and lane closure times.

Develop Alternatives: Traffic incident management programs consist of many individual practices, tools and infrastructure elements. Based on the goals and objectives, the group can develop alternatives to combine available traffic incident management tools and techniques into program packages for evaluation. These packages can include those defined in the ITS National Architecture, along with those in Reference 1. In addition to ensuring that the techniques developed are appropriate in terms of covering each of the functional areas of incident management, it is also important that they be suited to the level of interagency coordination that has been established, or that is feasible.



Evaluate and Select Alternatives: The developed alternatives can be evaluated using high-level estimates of costs, expected benefits of each alternative, and prioritization. Successful programs have often used a building-block approach, first initiating low-cost components to demonstrate the benefits of traffic incident management activities. Greater support may then become available for more capital-intensive alternatives. Both short- and long-term strategies can be formulated. Alternatives can then be assigned priorities based on Task Force consensus, or more rigorous cost-benefit studies can be used.

Implement Alternatives: It is at the point of implementation that mechanisms for resolving many of the issues of incident management must be developed. These issues may include: funding sources, jurisdictional boundaries, operational responsibilities, joint training, field communications, on-site command and approval of alternate routes. One mechanism for formalizing understandings among agencies and jurisdictions is an interagency or inter-jurisdictional agreement. The number, formality, and content of these agreements needed are a function of the specific needs and operating environment of a given area.

Reevaluate Alternatives: Traffic incident management is an ongoing process, one that must take into account changes in the local operational, technological, political, and funding environment. Effective program evaluation and the subsequent revaluation of alternatives to refocus or refine an exiting system require the routine collection of appropriate data (e.g., detection time, response time, clearance time, delay and costs). Regular data collection allows program managers to assess the effectiveness of their efforts, to identify areas for improvement, to demonstrate the benefits provided by the program, and to support requests for additional resources. Regular debriefings have also proved effective in continuously reevaluating traffic incident management alternatives.

Refine the System: To continuously improve and adapt a traffic incident management program, effective feedback is needed both from upper management and field-level personnel. Genuine communication and coordination on both levels will continue to improve the traffic incident management process, adapt to the area's changing needs and meet the needs of the participating agencies, affected jurisdictions and the motoring public.

In addition to securing broad stakeholder participation from the relevant agencies and jurisdictions, it is also important to ensure that an adequate amount and the appropriate type of public outreach are pursued. Public outreach serves two primary functions: to make the public aware of the value of incident management, leading to generalized public support; and to help the public better understand how their actions, such as moving drivable vehicles out of traffic, and providing good information in reporting incidents, can support effective incident management (1).

NFPA 1500
Standard on
Fire Department Occupational Safety and Health Program
2007 Edition

8.7* Traffic Incidents.

8.7.1 When members are operating at an emergency incident and their assignment places them in potential conflict with motor vehicle traffic, all efforts shall be made to protect the members.

8.7.2 Each department shall establish, implement, and enforce standard operating procedures regarding emergency operations for traffic incidents.

8.7.3 Apparatus and warning devices shall be placed to take advantage of topography and weather conditions (uphill / upwind) and to protect fire fighters from traffic.

8.7.4 Fire apparatus shall be positioned in a blocking position, so if it is struck it will protect members and other persons at the incident scene.

8.7.4.1 When acting as a shield, apparatus warning lights shall remain on, if appropriate.

8.7.4.2 All additional responding vehicles, when arriving on the scene, shall position beyond the traffic barrier unless their function requires placement before the barrier.

8.7.5* One or more of the following warning devices shall be used to warn oncoming traffic of the emergency operations and the hazards to members operating at the incident:

(1) Fluorescent and retro-reflective warning devices such as traffic cones

(2) Federal Highway Administration (FHWA)-approved 48 in. by 48 in. retro-reflective signs stating “Emergency Scene Ahead” (with directional arrow overlay)

(3) Illuminated warning devices such as highway flares

(4) Other warning devices appropriate to warn oncoming traffic of the emergency operations

8.7.6 Warning devices shall be placed and utilized with proper considerations given to visual obstruction such as hills, curves, blind spots, or unusual localized weather conditions such as fog or rain.

8.7.7 The first arriving unit shall ensure that traffic is controlled before addressing the emergency operations.

8.7.8 Members shall position themselves and any victims in a secure area.

8.7.9 Members shall park or stage unneeded fire apparatus and personal vehicles off the roadway whenever possible.

8.7.10* When members are operating at a traffic incident and their assignment places them in potential conflict with motor vehicle traffic, they shall wear a garment with fluorescent and retro-reflective material visible from all directions.

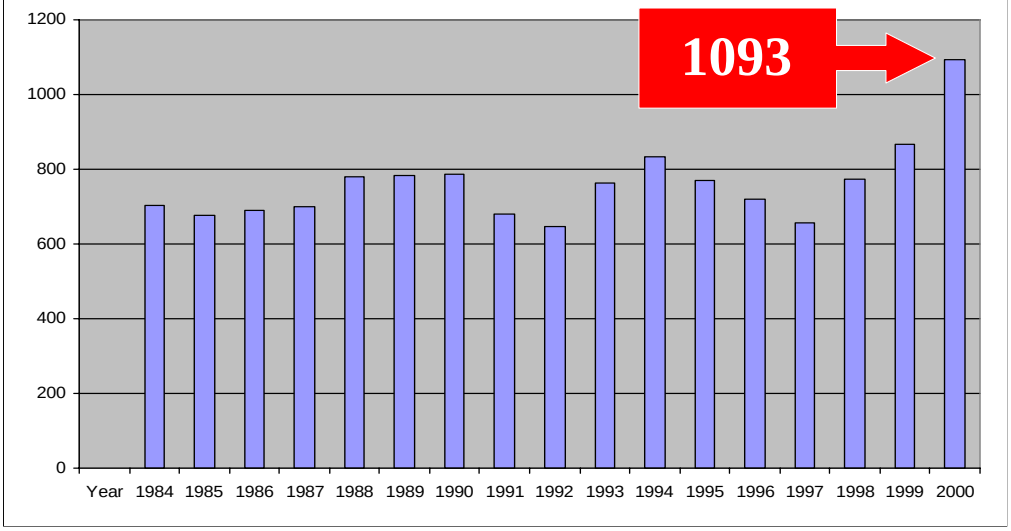
8.7.11* Members used for traffic control purposes shall receive training that is commensurate with their duties and in accordance with any applicable state and local laws and regulations.

19 Aerial / SSV – A0792


WEST
EAST

Barricades

U.S. Work Zone Fatalities



Work Zone Fatalities are deaths that have occurred in areas of construction and/or maintenance. The MUTCD or MUTCDC set the guidelines for equipment placement. .....the actual number is probably higher as many fatalities are recorded as simply on a road not in a work zone.

1093 deaths in 2000, an increase of 26% from 1999 (868). There were 772 in1998.

There is some good news for firefighters in these statistics, 85% of these deaths are drivers.

Over the last five years, the number of persons killed in motor vehicle crashes in work zones has risen from 989 in 2001 to 1,074 in 2005 (an average of 1,068 fatalities a year).