<table>
<thead>
<tr>
<th>Strathcona County Emergency Services</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Level</strong></td>
</tr>
<tr>
<td>RED</td>
</tr>
<tr>
<td><strong>SOP#</strong></td>
</tr>
<tr>
<td>276A</td>
</tr>
</tbody>
</table>

**Reference**
- This Appendix is attached to SOP 276 Traffic Management
- Traffic Safety Act, Revised Statutes of Alberta 2000, Chapter T-6, September 2011
- Field Level Risk Assessment

Attached are the Traffic Management Guidelines for emergency scenes.
TRAFFIC MANAGEMENT GUIDELINES
FOR EMERGENCY SCENES

April 2013
TABLE OF CONTENTS

CREATING A SAFER WORKING ENVIRONMENT .................................................................4
GENERAL OVERVIEW .......................................................................................................5
RESPONSE .........................................................................................................................6
RESPONSIBILITIES ............................................................................................................8
TRAFFIC MANAGEMENT GUIDELINES ............................................................................9
COMPONENT AREAS OF AN EMERGENCY TRAFFIC CONTROL ZONE .......................10
TYPICAL EMERGENCY SET-UPS ...................................................................................13
EMERGENCY INCIDENT COMMAND SET-UP ................................................................19
APPENDIX A – SPECIAL CONSIDERATIONS .................................................................22
The guidelines were created to reduce the negative effects of the response to emergency roadway incidents on the motoring public and to provide an increased level of scene safety to responders through the organized placement of emergency vehicles and traffic control devices.

The guidelines are not to be considered a textbook, or a substitute for technical knowledge, experience, or effective judgment. The guidelines cannot cover all incidents or unique site-specific conditions. The Incident Command (IC) of each situation will require an individual assessment and Initial Action Plan (IAP), which may require periodic reevaluation to ensure that apparatus positioning and warning device placement, are adequate.

The guidelines may be revised and updated periodically to keep pace with technology.

Recognition is given to the work of Captain Rick Elvey of the Calgary Fire Department and John Morrall, P Eng., Professor of Civil Engineering, University of Calgary, in authoring the “Calgary Fire Department – Emergency Traffic Manual”.

Acknowledgement is also given to the Nova Scotia Fire Marshal, Public Safety Division, Province of Nova Scotia, for their commitment to enhancing safety and traffic operations at emergency scenes.

Thank you to Laura Ball and Fire Fighter Jason Ball for taking the time to adapt the guidelines to the Strathcona County Emergency Services (SCES) environment.
CREATING A SAFER WORKING ENVIRONMENT

Working in or near moving traffic is extremely dangerous. Strathcona County fire fighters have dealt with numerous emergency situations where vehicles have driven over traffic cones or through an incident, compromising scene safety. SCES apparatus have also been struck by passing motorists during incidents.

Goal To mitigate the potential risks with a systematic approach to emergency traffic management.

Purpose To deliver appropriate equipment and manpower to the scene of an incident in an efficient and timely fashion for the purposes of rescue, fire suppression, hazardous materials containment, and environmental protection.

To establish and maintain emergency scene safety for the victim(s), the public, and all emergency responders.

The organized placement of emergency vehicles and traffic control devices on a roadway can create safer working conditions for emergency responders. While these guidelines attempt to warn or direct approaching motorists, they do not guarantee that the approaching driver will take the correct action in every instance.

2008 marked the highest numbers of collisions and fatalities in Alberta’s construction zones with 1,072 collisions resulting in 229 injuries and killing seven people. Thankfully those statistics are decreasing. In 2009, there were 952 collisions in construction or maintenance zones resulting in 187 injuries and killing three people.

In North America, there are line of duty deaths recorded far too frequently affecting police officers, firefighters, and paramedics who were operating in, or near that same traffic environment.

The greatest risk to emergency responders occurs during two phases of traffic management: set-up and takedown.

In the set-up phase, emergency vehicle staging and the placement of equipment establishes an emergency traffic control zone. Until warning devices are in position, approaching motorists may not expect to find SCES members and apparatus on the roadway.

During the takedown phase, tasks are performed under non-emergency conditions, yet the removal of equipment and members is just as critical as the set-up. The IC should develop a plan to re-establish normal traffic flow and communicate that plan to all members working at the scene. Emergency vehicles should be used to shield responders during the removal of equipment from the roadway. The RCMP or Enforcement Services (ES) should remain on scene until all responders have departed.

The risk associated with working in moving traffic and the constantly changing emergency scene environment, can be reduced through awareness, training, teamwork, and communication. Each situation must be evaluated individually and an IAP, including a field level risk assessment, created to perform each task as safely as possible.
GENERAL OVERVIEW

DRIVING TO THE SCENE

The first priority of any response is the safe arrival of emergency vehicles and members at the emergency scene. To accomplish this, members must:

- follow the requirements of applicable Alberta Legislation, department policies and safe work practices (SWP) with due regard to safety
- follow department Standard Operating Policies (SOPs) if more stringent than the Motor Vehicle Act for the response of emergency vehicles
- always endeavor to take the most efficient route that will effectively position the response vehicles to provide the best protection for the incident, while giving consideration to its operational function

ARRIVAL AT THE SCENE AND DURING THE OPERATIONS

Whether responding to an incident, approaching the scene, securing the scene or assisting the casualties, safety must be a major consideration of the responders. Safety and rescue priorities come before any other response function.

In addition to responding to motor vehicle collisions, performing rescue, fire suppression, hazardous material containment or providing medical assistance to the casualties, the responders are also responsible for providing emergency traffic management.

SECURING THE SCENE

To provide safety at the scene, the following is required:

- secure the incident site to protect emergency members, equipment, and the public, from hazardous conditions at the scene and throughout the traffic control zone (the point from where normal traffic flow is diverted to the point where traffic returns to normal)
- establish traffic control set-up that gives motorists adequate warning and reaction time
- separate pedestrians from vehicular traffic to a safe location
- limit access to the site to authorized personnel only
A secure or well-defined incident scene (traffic control zone) will command the attention of motorists and pedestrians, and clearly guide them around the incident scene without confusion.

It is extremely difficult to establish a clearly defined traffic control zone under emergency conditions, especially upon arrival. Securing the scene takes time and set-up should be a progressive activity defined by the IC based on responders, equipment, and the critical needs of the incident.

**INCIDENT TAKEDOWN**

The IC should develop an IAP for the systematic takedown of the emergency traffic control zone. All agencies involved in the incident must be included in the plan; the plan should include the safe removal of responders and equipment.

**RESPONSE**

*NON-EMERGENCY RESPONSE*

Code 1 responses are where life, property, or the environment is not directly endangered. Emergency vehicles, when responding to a code 1, shall not use lights and sirens. All vehicles will be operated in accordance with posted speed limits and obey all traffic control signs and devices.

When responding to a code 1, and it is not possible to park in compliance with posted signs, or when emergency vehicles encroach upon a roadway to the extent that they present a hazard, the IC should consider the following actions:

- take precautions to ensure the safety of the emergency responders and citizens in the area in which operations are being conducted
- activate emergency lighting for blocking the right-of-way
- reduce headlight glare during night-time operations when stopped; after emergency lighting has been activated, apparatus headlights should be turned OFF; parking lights should remain on
- activate the turn signal on the desired “traffic flow side” of the emergency vehicle or the hazard warning flasher
- have the crew exit the curb-side or the non-traffic side of the vehicle, whenever feasible
- place traffic cones on the approach to the emergency vehicle as soon as possible to provide motorists with adequate warning to stop or guide their vehicles around the emergency vehicle; cones should be removed when the need for such protection has terminated

Emergency lights should be turned off after the conclusion of the operation and when the need to warn traffic of the position of the emergency vehicle has ceased.
EMERGENCY RESPONSE

Code 3 situations are where life, property, or the environment is directly endangered. When responding during staging, or while operating at roadway incidents, the IC should consider the conditions present at the time and the options available to:

- take precautions to ensure the safety of the emergency responders and any citizens in the area in which emergency operations are being conducted
- ensure that all emergency warning devices (lights and sirens) remain in continuous operation while responding; air horn may be used in conjunction with the siren
- emergency lighting must remain in continuous operation until the conclusion of the emergency

Care must be taken when entering intersections even under green light situations. Emergency vehicles approaching a controlled intersection with a stop sign or red light must come to a complete stop. The vehicle operator may proceed, with due regard to safety, when all lanes of traffic have been accounted for and all traffic in, or approaching the intersection, has yielded the right-of-way.

On approach to the incident, it is recommended that a buffer zone (figure 1) of four (4) metres for every 10 km/hr of posted speed, be maintained between the incident scene and emergency vehicles which are not being directly used for rescue operations. Squads may be required to operate closer to incident scenes.

Upon arrival, an apparatus operator should attempt to evaluate the situation (size-up), so that the emergency vehicle is placed in a position that provides the best protection to the incident, while still considering its operational function. The preferred method is the fend-off position (pulled as far to the right or left as possible, then turned sharply back to position the vehicle at 20 to 30 degrees to the roadway (figure 1). This allows approaching motorists a wide view of the emergency vehicle’s side while attempting to provide them with recognition and direction in regards to the incident or hazard. This positioning may deflect any high-speed impact of a vehicle that would otherwise crash through the scene.

Fire apparatus should reduce encroachment into the designated traffic lanes by providing a lateral buffer of at least 0.6 metres. This area should be enhanced by the use of a traffic cone and strobe light combination (figure 2).

During nighttime operations, apparatus headlights should be turned OFF and the parking lights should remain on.

The traffic director signal should be activated, flashing the lights in the direction of the desired “traffic flow side” of the emergency vehicle. In addition the hazard warning flashers may be activated.

Responders should maintain an awareness of the high risk of working in or around a moving traffic environment. Whenever possible, exit the curb side or non-traffic side of the vehicle wearing the personal protective equipment (PPE) necessary to protect against all foreseeable hazards. The use of reflective traffic vests is mandatory for all SCES staff operating in a traffic hazard environment.

Ensure that traffic warning devices (cones) are placed on the approach to the emergency vehicle and alongside the area where emergency operations are being conducted. These cones should provide motorists with adequate warning of the emergency operation, so
that they may stop or guide their vehicles around the incident. The cones should be removed when the need for such protection has terminated.

Where provided, wheel chocks are to be properly utilized when an apparatus is parked and the driver is out of the seat.

The use of warning signals should be discontinued after the conclusion of the operation and when the need to warn traffic of the position of the emergency vehicle has ceased.

RESPONSIBILITIES

ENROUTE and ON SCENE

IC Responsibility
- to effectively direct resources
- to ensure emergency vehicles are operated in accordance with Alberta Legislation and department SOPs and SWPs
- to correct the unsafe behavior of any responder
- to ensure responders are acting in a manner that does not create an undue hazard to the health and safety of any person

Apparatus Operator Responsibility
Drivers are responsible for the condition, contents, and safe handling of the apparatus. The driver’s duty is:
- to combine safe driving practices with a timely response
- to ensure safe driving practices are in accordance with applicable Alberta Legislation and department SOPs and SWPs
- make certain safety takes precedence and, regardless of contrary orders
- to ensure there are no undue hazards created towards the health and or safety of any person, regardless of contrary orders

Apparatus that have been downgraded while responding to an emergency incident, must discontinue the use of the warning devices when safe to do so.
TRAFFIC MANAGEMENT GUIDELINES

Traffic management guidelines provide direction to secure the scene and establish an effective traffic control zone. This set-up takes time and should be a progressive activity defined by the IC and based on the availability of resources and equipment, and the critical needs of the incident.

Company Officers shall:
- ensure all emergency lights are operating approaching the scene
- conduct an initial scene survey to identify hazards and evaluate the situation
- communicate a brief radio report as per IC procedures
- begin the establishment of an emergency traffic control zone (figure 1) by slowly coming to a stop, ensuring that the emergency vehicle is parked to provide initial safety to the scene. (e.g. fend-off, buffer zone, and lateral buffer - figure 2)
- if applicable, report to the agency in COMMAND at the time of arrival; if first on scene, perform a size-up as per SOPs and initiate an IAP
- give directions to the responders
  - IC to communicate to any incoming safety support unit (SSU), the traffic transitional goals, so the unit can be positioned appropriately the first time (e.g. transitioning traffic from L3 to L1, or transitioning traffic from L1 to L2 both directions)
  - all responders leaving emergency vehicles must wear appropriate PPE, including traffic vests
- consider implementing traffic management procedures to enhance initial set-up
- if required, call for additional resources to secure the scene (e.g. safety support vehicle, traffic cones)

After the initial size-up, the IC must evaluate the priorities of the situation and direct the placement of appropriate warning devices on the approach to the emergency vehicle as soon as possible. When determining cone placement, consider roadway speed and surface condition, view obstructions, reduced visibility, and glare.

At any incident, the RCMP or ES shall be notified that traffic control is required. The IC should also consider the use of Transportation and Agriculture Services (TAS) resources for extended traffic control.

When the estimated on-scene time is anticipated to exceed one (1) hour, the incident is considered to be a “long duration incident”.

All safety procedures must remain in place until
- the incident is terminated
  - all responders, hazards, emergency and related vehicles and equipment are removed from the roadway, or
  - until a designated agency arrives on scene, provides a complete traffic control set-up and/or assumes responsibility for the incident.
COMPONENT AREAS OF AN EMERGENCY TRAFFIC CONTROL ZONE

A well-designed emergency traffic control zone should reflect five (5) distinct component areas. These areas are described below in the order in which drivers will encounter them.

ADVANCE WARNING
- should alert motorists of a traffic situation or difficulty ahead which will require some action on their part

APPROACH
- should identify the nature of the equipment or vehicle that the motorists are about to encounter and allow them to analyze the situation

TRANSITION
- should provide an indication to the expected action for motorists to execute safe driving techniques prior to entering the activity area

ACTIVITY
- immediately surrounds the incident scene

Components of the Activity area include:
  - fend off - position of the emergency vehicle
  - buffer zone - scene protection between the first emergency vehicle and the incident site
  - incident site - restricted to authorized personnel only
  - traffic space - where traffic is allowed to pass by the activity area
  - staging - emergency vehicles not immediately required to perform a function or shielding at the incident scene should be directed to stage either downstream or upstream of the incident site where the location will not create a traffic hazard or obstruction
**TERMINATION**

- where traffic returns to its normal path; extends from the downstream side of the staging area to the point where normal traffic is able to resume. Where motorist safety is compromised in the Termination area, such as access to off/on ramps, traffic control may be required.

*figure 1 – Termination area*
## Component Areas of an Emergency Traffic Control Zone

<table>
<thead>
<tr>
<th>Table 1</th>
<th>POSTED SPEED (km/h)</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
<th>110</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BUFFER ZONE (m)</strong> Functional zone 4-7m</td>
<td>20 steps</td>
<td>24 steps</td>
<td>28 steps</td>
<td>32 steps</td>
<td>36 steps</td>
<td>40 steps</td>
<td>45 steps</td>
<td></td>
</tr>
<tr>
<td><strong>TAPER LENGTH (m)</strong></td>
<td>20 steps</td>
<td>24 steps</td>
<td>28 steps</td>
<td>32 steps</td>
<td>36 steps</td>
<td>40 steps</td>
<td>45 steps</td>
<td></td>
</tr>
<tr>
<td><strong>CONE SPACING (m)</strong></td>
<td>5 steps</td>
<td>7.5 steps</td>
<td>10 steps</td>
<td>12.5 steps</td>
<td>15 steps</td>
<td>20 steps</td>
<td>25 steps</td>
<td></td>
</tr>
<tr>
<td><strong>DRY PAVEMENT (m)</strong> (Squad lengths)</td>
<td>50 steps</td>
<td>5.5 steps</td>
<td>60 steps</td>
<td>70 steps</td>
<td>80 steps</td>
<td>90 steps</td>
<td>100 steps</td>
<td></td>
</tr>
<tr>
<td><strong>WET PAVEMENT (m)</strong> (Squad lengths)</td>
<td>7.5 steps</td>
<td>8 steps</td>
<td>90 steps</td>
<td>105 steps</td>
<td>120 steps</td>
<td>135 steps</td>
<td>150 steps</td>
<td></td>
</tr>
<tr>
<td><strong>SNOW COVERED (m)</strong> (Squad lengths)</td>
<td>100 steps</td>
<td>11 steps</td>
<td>120 steps</td>
<td>140 steps</td>
<td>160 steps</td>
<td>180 steps</td>
<td>200 steps</td>
<td></td>
</tr>
</tbody>
</table>

*Denotes cone spacing for tangent areas. Cone spacing in tapers will be shortened such that the taper provides clear guidance to approaching motorists to move to adjacent lane.

- average step = 2 steps per metre
- one squad length = approximately 9 metres (30 ft.)
  - one skip line (dash) is 3 metres and the space between the skip lines is 6 metres
  - 3 metres + 6 metres = 9 metres or approximately one squad length
- additional response units may be used as a supplemental supply for traffic cones or staged for additional warning, fend-off positions
- another method to use for calculating approximate distance is relating it to surrounding objects or markers when visible
TYPICAL EMERGENCY SET-UPS

TWO LANE – TWO WAY HIGHWAY – ROAD CLOSED

Figure 2 diagram illustrates the buffer zone, positions of emergency vehicles, and areas for cone placement. All traffic lanes have been closed off on a two lane – two way section of highway. Conditions affecting cone placement are an 80 km/h speed limit and dry pavement. Combining warning device placement with traffic cones form tangent and taper sections and forewarn motorists of the STOP condition ahead.
**TWO LANE – TWO WAY HIGHWAY – ONE LANE CLOSED**

*Figure 3* diagram illustrates the buffer zone, position of emergency vehicles, and areas for cone placement. One of the traffic lanes has been closed off on a two lane – two way section of highway. Conditions affecting cone placement are a 50 km/h speed limit and dry pavement. Combining warning device placement with traffic cones, to form tangent and taper sections, the set-up efficiently directs traffic around the incident. Note: ES are required to provide traffic direction and control for a well-defined traffic control zone.

*figure 3*

*Two Lane – Two Way Highway – Lane Closed -*

<table>
<thead>
<tr>
<th>Posted Speed (km/h)</th>
<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
<th>110</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buffer Zone (m)</td>
<td>20</td>
<td>25</td>
<td>25</td>
<td>30</td>
<td>30</td>
<td>35</td>
<td>40</td>
</tr>
<tr>
<td>Taper Length (m)</td>
<td>20</td>
<td>24</td>
<td>28</td>
<td>32</td>
<td>36</td>
<td>40</td>
<td>45</td>
</tr>
<tr>
<td>Cone Spacing (m)</td>
<td>5</td>
<td>7.5</td>
<td>10</td>
<td>12.5</td>
<td>15</td>
<td>20</td>
<td>25</td>
</tr>
</tbody>
</table>

Support unit providing advanced warning

Not to Scale
MULTI-LANE HIGHWAY – ONE LANE CLOSED

Figure 4 diagram illustrates the buffer zone, position of apparatus, and areas for cone placement. One of the traffic lanes has been closed off on a multi-lane section of highway. Conditions affecting cone placement are a 110 km/h speed limit and dry pavement. Combining warning device placement with traffic cones, to form tangent and taper sections, the set-up efficiently directs traffic around the incident.

<table>
<thead>
<tr>
<th>Posted Speed (km/h)</th>
<th>Buffer Zone (m)</th>
<th>Taper Length (m)</th>
<th>Cone Spacing (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>60</td>
<td>25</td>
<td>28</td>
<td>5</td>
</tr>
<tr>
<td>70</td>
<td>28</td>
<td>32</td>
<td>6</td>
</tr>
<tr>
<td>80</td>
<td>30</td>
<td>38</td>
<td>7</td>
</tr>
<tr>
<td>90</td>
<td>32</td>
<td>40</td>
<td>8</td>
</tr>
<tr>
<td>100</td>
<td>34</td>
<td>42</td>
<td>9</td>
</tr>
<tr>
<td>110</td>
<td>36</td>
<td>44</td>
<td>10</td>
</tr>
</tbody>
</table>

Not to Scale
**MULTI-LANE HIGHWAY – TWO LANES CLOSED**

*Figure 5* diagram illustrates the buffer zone, position of emergency vehicles, and areas of cone placement. Two lanes of traffic have been closed off on a three lane section of a multi-lane highway. Conditions affecting cone placement are a 110 km/h speed limit and dry pavement. Combining warning device placement with traffic cones, to form tangent and taper sections, the set-up efficiently directs traffic around the incident.

<table>
<thead>
<tr>
<th>Condition</th>
<th>Cone Spacing (m)</th>
<th>Tangent Length (m) - Dry Pavement</th>
<th>Tangent Length (m) - Wet Pavement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Buffer Zone (m)</td>
<td>5, 7.5, 10, 12.5, 15, 20, 25</td>
<td>50, 60, 70, 80, 90, 100, 110</td>
<td>75, 90, 100, 105, 120, 135, 150, 165</td>
</tr>
<tr>
<td>Taper Length (m)</td>
<td>20, 24, 28, 32, 36, 40, 45</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*figure 5*

**Multi-lane Divided Highway – Two Lanes Closed**

*Not to Scale (a) (b)*
**TWO LANE – TWO WAY HIGHWAY – DETOUR TRAFFIC**

*Figure 6* depicts a traffic control set-up for an emergency situation where it is necessary to detour around the incident site. The IC should request RCMP or ES assistance with traffic control.

To detour traffic to protect responders or casualties, the entire road should be blocked with emergency apparatus as illustrated and traffic redirected onto an intersecting road and around the incident site. Emergency apparatus should be placed in the fend-off position. Traffic cones should stretch across the entire width of the road from shoulder to shoulder (curb to curb in an urban setting). Emergency lights should remain operational while traffic is being detoured to draw motorist attention to the fact that a change in travel direction is required.

*figure 6*

Two-way Highway – Detour Traffic
CONTROLLED ACCESS HIGHWAY – DETOUR TRAFFIC

When a traffic incident occurs within the limits of an interchange, or when an incident occurs between interchanges on a controlled access highway, it may be necessary to detour traffic to the adjacent highway system. Emergency apparatus may be used to block the travel lanes as depicted in figure 7, directing traffic onto the interchange ramp.

When the incident permits, the IC should disrupt traffic to the least extent possible. To detour traffic to protect responders or casualties, block off the entire road width with emergency apparatus as illustrated, thus directing traffic to the interchange ramp. The IC should request RCMP or ES assistance with traffic control.

All travel lanes can be blocked by positioning emergency apparatus in the fend-off position. Traffic cones should form taper and tangent sections according to Table 1 to guide traffic around the apparatus in the direction of travel. All emergency lights should remain operational while emergency equipment is functioning in traffic control.

figure 7

Controlled Access Highway – Detour

Rule of thumb:
50m: 100m: 50M: 500m
Taper:Tangent:Taper:Advanced Warning Area
EMERGENCY INCIDENT COMMAND SET-UP

SCENE AWARENESS

Upon arrival, the IC shall perform a size-up of the situation by evaluating the critical factors such as recognized road/highway speeds, driver’s view obstructions (hills, corners), and reduced visibility, glare and road surface conditions.

The evaluation may identify a potential high-risk operating environment that requires additional safety precautions beyond flashing lights and traffic cones to ensure the safety of emergency responders and those involved in the area of the incident.

Responders and equipment from the roadway may be removed until a safe scene set-up is established.

MONITORING INCIDENT SET-UPS

The IC is responsible to observe traffic flow around and through the scene and, if possible, assign an individual to monitor traffic. It is the responsibility of this individual to advise the IC of situations as they become apparent. It is the responsibility of the IC to maintain safe working conditions at all times. For additional information, refer to Appendix “A”, Special Considerations.

LEVEL 1 STAGING

While the IC completes the situation size-up, arriving emergency vehicles that have not been assigned a task, should stage at a safe and appropriate staging area. While staged, apparatus are to remain as visible as possible. Applicable lights and optical warning devices that provide blocking of the right-of-way should remain on and operating.

LOCATION OF A FORMAL COMMAND POST

Emergency vehicles performing command functions (PC Vehicle, Chief-on-Call, or mobile Incident Command Post ICP) should attempt to park in the designated downstream area of the incident scene or act as a SSU utilizing their traffic directional signals.

NOTE: a flashing green light and/or green flags will signify the ICP at large incidents.

ADDITIONAL PROTECTIVE MEASURES

In emergency set-ups that are required for extended periods of time, or when driving or highway conditions permit, additional protective measures may be required to increase visibility and safety at the incident site.

Additional measures that may be added to the existing emergency set-ups are:
(Any or all are acceptable)

- assign additional advance warning vehicles ahead (before) the SSU when:
  - two or more lanes have to be closed
  - the incident site is located around a curve or at the crest of a hill
  - posted speed, view obstructions, visibility, glare, surface conditions and other factors warrant their use
- if it can be done safely, additional cones may be set up in the traffic control zone - one or both is acceptable:
  - set cones along the skip line between each vehicle preventing motorists from changing lanes into the control zone
- set cones or barricades across the closed traffic lanes beside each vehicle (between the emergency vehicles and the shoulder of the highway) to identify the closed traffic lanes for the motorist.
- strobe lights or flares can be placed on or beside the cones to provide more effective warning to motorists
- during nighttime operations, one spotlight may be directed on the traffic cones in front or back of the apparatus (spot light must not blind approaching traffic)
- turn on pump panel lights
- request support or additional protective measures from outside agencies. Notify Dispatch so that the appropriate agency can be contacted to supply or provide:
  - traffic control devices for a full or partial set-up
  - sanding of slippery conditions in the traffic control zone
  - secure either an overhead message arrow board or a trailer mounted message or arrow board to pose advance warning

NOTE: The RCMP or ES may be able to supply additional units to enhance the effectiveness of the traffic control zone, close traffic lanes, increase site visibility, or provide protection to emergency responders during removal of apparatus and equipment from the highway.

**SET-UP THE EMERGENCY TRAFFIC CONTROL ZONE**

The primary response emergency vehicle is usually the first to arrive at an incident.

The first arriving apparatus should establish a buffer zone between the incident site and the emergency vehicle by setting the emergency vehicle in the fend-off position. Initial security of the area may require a temporary stoppage of all traffic.

The apparatus operator should maintain a lateral buffer zone to reduce emergency vehicle encroachment into a traffic lane. This will also allow the operator safe access to the vehicle cab.

The apparatus officer shall designate a fire fighter to conduct the proper placement of traffic cones. This member, and any assistants, must don the high visibility traffic vests. When safe to proceed, place the cones on the highway in the following areas:

**Advanced Warning area** – alerts motorists of a traffic situation or difficulty ahead that will require some action on their part (recommend Emergency Scene Ahead signs)

**Transition area** – initial cone placement is on the approach to the emergency scene. One of the safest methods of distributing traffic cones is from the shoulder or non-traffic area of the highway outwards. Cones, strobes and or flares are removed from the emergency vehicle and placed on the shoulder of the highway. While facing oncoming traffic and staying on the shoulder or non-traffic area, a reasonable number of cones are carried adjacent to the intended position of the first cone. When safe to do so, the emergency responder steps onto the highway and positions the cone and returns to the shoulder. The fire fighter should continue to distribute the remaining cones in the same manner until all cones designated for this task are positioned. Strobes and or flares can be used to enhance the set-up and increase the fire fighter’s visibility.

**Lateral buffer** – can be enhanced by activating a strobe light or a flare at the traffic cone. The cone is placed along the skip line adjacent to the front corner of the emergency vehicle, next to the traffic flow.
Buffer zone – traffic cones are placed along the skip line between the lateral buffer and the incident to outline the traffic space and secure the incident site.

Members setting up or taking down control measures should NEVER turn their backs to traffic.

The first arriving SSU should be directed to close a designated lane of traffic and enhance the existing traffic set-up. The IC should consider the following:

- vehicle positioning – with regards to tangent length (conditions affecting cone placement) and directional capability of the unit (e.g. arrow stick)
- lateral buffer – to reduce emergency vehicle encroachment into the traffic lane and allow the apparatus operator safe access to and from the cab
- designating a fire fighter for cone placement; responder shall don the high visibility vest and when safe to do so, place cones on the roadway to reinforce the existing traffic set-up with the available warning devices

For two-way lane highways, direct the second arriving SSU to travel safely past the incident if possible. Set up the Advance Warning area for traffic approaching the scene from the other direction. If this operation requires full traffic control, refer to Appendix “A”. Good communication from IC to incoming SSU can ensure the appropriate access is achieved.

**TAKE DOWN – EMERGENCY TRAFFIC CONTROL ZONE**

Take down of the emergency traffic set-up needs to be well organized and coordinated by the IC. The removal of emergency vehicles and equipment from the highway must be a priority in order to provide the required level of safety at each position.

When preparing to terminate the incident, the IC should:

- meet with all agencies on scene to develop a joint procedure for take down and re-establishment of the traffic flow
- give the order to start take down procedures; this will ensure that all responders are aware that the incident is terminated and traffic flow will be resuming.
- Open each lane individually, starting with the lane closest to the center of the highway.

**WARNING! – LEAVE EMERGENCY LIGHTS ON WHILE OPENING LANES!**

NOTE: Due to the non-emergency status of the take down operations, the IC should arrange to have all emergency vehicles shield the responders when they remove equipment from the highway.
APPENDIX A – SPECIAL CONSIDERATIONS

OVERRIDING EXISTING TRAFFIC CONTROL SIGNALS

Whenever possible, coordinate direction of traffic flow with existing traffic control devices (traffic lights). If necessary, request traffic signaling by RCMP or ES. If possible, have the traffic lights put into flashing mode by the authorized agency.

NOTE: ES shall be used to perform manual traffic signaling. If ES are not available – the IC has discretion to shut down all traffic flow.

POTENTIAL HAZARDOUS MATERIAL INCIDENTS

All incidents involving hazardous materials are potentially dangerous and should be handled with caution. Only the very basics are covered here.

Approach considerations:
- actively plan the approach to a scene and consider coming from uphill and upwind when hazardous materials are involved
- identification of placards, signage, or container shape should be done from a distance, using binoculars if necessary, prior to close proximity approach
- avoid any direct contact with the product, product plumes, or pools until identification is confirmed

Once products are identified, emergency responders are to act accordingly to recommendations using available information and methods regarding the products.

TRAFFIC CONTROL AT RAIL CROSSINGS

Traffic control at any railway crossing is managed by the rail crossing signs or signals. SCES can neither stop the train, nor have control over the signals. If an incident affects rail traffic movement or presents a hazard anywhere along the railway right-of-way, contact the Communications Centre, or the appropriate Railway Police Authority (e.g. CNR Police) and have the trains stopped until the hazard has been removed or stabilized. Each railroad crossing is marked with an identification number

Traffic control must be provided to prevent vehicles from stopping on railway tracks
- do not stop or park on the railway right-of-way
- no traffic control devices are to be used on the railway right-of-way

TRAFFIC CONTROL ON HIGH-SPEED HIGHWAYS

High speed limits and volumes of traffic on highways present special problems for emergency traffic control. Always consider moving vehicles as a threat to your safety. Extend tangents and buffers in accordance with speed, road conditions, or cone distance charts in these guidelines. When working on high speed highways, extra care must be taken. Safety is the most important factor. Always treat motorists as if they do not see you.
High speed highways in Strathcona County include:

- Highway 14
- Highway 16 (Yellowhead Highway)
- Highway 21
- Highway 15
- Highway 216
- Highway 830
- Wye Road (twinned section east of Sherwood Park)
- Sherwood Park Freeway (Wye Road west)

Responders should not remain in or position themselves beside the vehicles that are closing a traffic lane. After placing the vehicle in position, the responders are to report to the IC for assignment.

All lane closures are required to start from the nearest shoulder to the incident site and extend across as many lanes as required, closing each lane separately.

Some incident scenes will be located at the end of a curve or near the top of a crest. In these situations, lane closures must be completed well in advance of the view obstruction to provide oncoming motorists with adequate warning. On high speed highways, additional advanced warning devices should also be considered on the approach to the lane closures. Good communication to incoming SSU on traffic flow transitions can speed up the formation of the Advanced Warning area.
Reference

N:\Emergency Services Read Only Files\SOP's & SOG's\SOP Volume 2 - Emergency Operations\Chapter 1 - Fire Operations\Section 17 - Emergency Vehicle Operations\Section 17 - Emergency Vehicle Operations.doc

N:\TRAINING BRANCH\0100 Fire Fighter Skills\Apparatus Operations\Traffic Safety Act 2011.pdf

N:\FORMS\OHS Forms\Hazard Identification Record\FLRA.pdf

N:\Emergency Services Read Only Files\SOP's & SOG's\SOP Volume 2 - Emergency Operations\Chapter 4 - General Operations\Section 16 - Hazard Control Zones\V2C4S16 Hazard Control Zones.pdf

N:\Emergency Services Read Only Files\SOP's & SOG's\SOP Volume 2 - Emergency Operations\Chapter 4 - General Operations\Section 5 - Railway Crossings\Railway Crossings.pdf

N:\Emergency Services Read Only Files\O H & S\OHS MANUAL - THE RED BINDER\8. Management System Administration\Legislation\OHS Code 2009.pdf