

City of Greencastle
Fire Department

Training Division

Instruction page:

January 2013

Fire Suppression: Modern Fire Behavior	Each shift shall schedule this class with Lt. John Shafer also review Fire Development Stages drill below prior to class with Lt. Shafer
EMS: CPR	Each shift shall schedule this class with Capt. John Burgess
Safety/Bluecard: Fit Testing	Done on each shift
Specialized: The Systematic Approach to Vehicle Extrication	Review outline below
Misc.: Highway Safety on MVA	All shifts need to review the two outlines below and to go to https://learning.respondersafety.com/ Log in the user email is: jshafer@cityofgreencastle.com password is firetraining1 Once you have logged in you will need to go to Training Programs: Click on the Blocking Procedures at Roadways Incidents and take this online module.
Hazmat: Site Management & Control DVD	All shifts need to watch the Site Management & Control DVD
Officer: IMT Concepts	Conducted by Chief Newgent at monthly officers meeting

Fuel Controlled Fire Development:

When sufficient oxygen is available, fire development is controlled by the characteristics and configuration of the fuel.

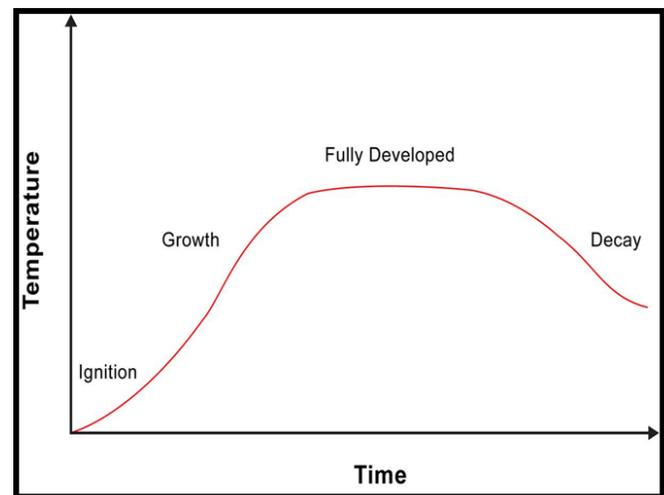
Fire Development Stages

Ignition/Incipient: The incipient stage starts with ignition; ignition describes the point when the three elements of the fire triangle come together and combustion occurs.

Growth: If there is adequate oxygen additional fuels will become involved and the heat release rate from the fire will increase.

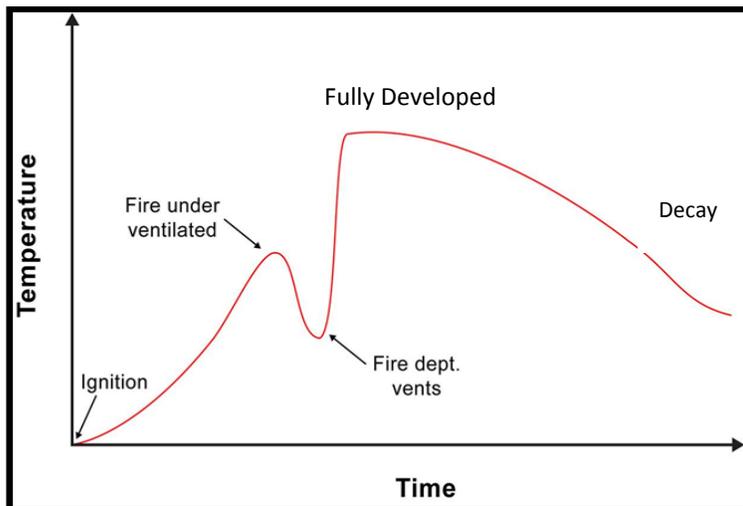
Fully Developed: The fully developed stage occurs when all combustible materials in the compartment are burning.

Decay: Fire Growth will decay as the fuel is consumed or the oxygen concentration falls to the point where flaming combustion can no longer be supported.



Ventilation Controlled Fire Development:

When fire development is limited by the air supply.



Fire Behavior in a Structure

The Fire Behavior in a Structure curve demonstrates the time history of a ventilation limited fire. In this case the fire starts in a structure which has the doors and windows closed. Early in the fire growth stage there is adequate oxygen to mix with the heated gases, which results in flaming combustion. As the oxygen level within the structure is depleted, the fire decays, the heat release from the fire decreases and as a result the temperature decreases. When a vent is opened, such as when the fire department enters a door, oxygen is introduced. The oxygen mixes with the heated gases in the structure and the energy level begins to increase. This change in ventilation can result in a rapid increase in fire growth potentially leading to a flashover (fully developed compartment fire) condition.

The Systematic Approach to Vehicle Extrication

Vehicle extrication, like every other aspect of the fire service, requires a planned and controlled approach. This approach allows for rapid, successful, and safe operations and can be applied to all areas of technical rescue.

1. Preparation
2. Response
3. Assessment
4. Hazard Control
5. Stabilization
1. Primary Access
2. Patient Care
3. Disentanglement
4. Packaging & Removal
5. Clean Up
6. Evaluation



Preparation

Preparation includes every aspect of the incident. People, things, and procedures should be ready for the incident, before it happens. It's too late to learn how to perform an inverted dash roll when you need to perform one.

People

1. Physical
 - a. Heavy equipment
 - b. Requires endurance
 - c. Uncomfortable conditions
2. Mental / Attitude

Training

1. Important to effective rescue operation
2. Never ending
3. Practice Often
4. Consider taking other classes
 - a. Bus Rescue
 - b. Farm Machinery

Equipment

1. Properly equipped response vehicle
2. Equipment that is in proper working order
3. The proper tool for the job
4. Rescue tool technology is always changing



Roles/Responsibilities

Everyone on the scene should know their place on the incident. This is critical to the successful outcome. Freelancing is always counter productive and a safety hazard.

Command

1. Controls the incident
2. Coordinates resources
3. Expands and contracts based on incident needs

Engine Company

1. Size-up
2. Scene safety and stabilization
3. Provide charged hose line
4. Suppression of any fires
5. Assist with EMS and Rescue needs

EMS/Medical Crew

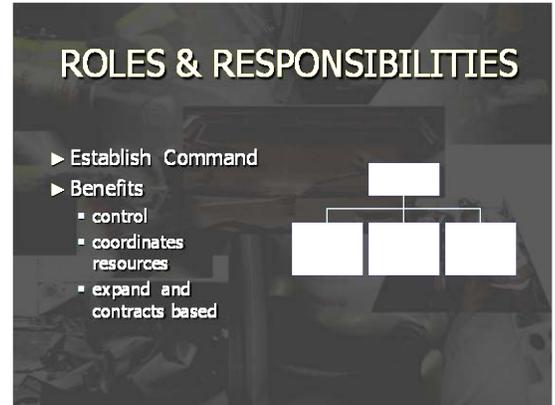
1. Establish and maintain contact with the patient
2. Evaluate patient condition
3. Access need for extrication
4. Package patient
5. Transport patient to appropriate Medical Facilities

Extrication Team

1. Establish Command
2. Assess for extrication needs
3. Provide primary and secondary access
4. Initiate disentanglement procedures
5. Assist EMS

Law Enforcement

1. Investigate the accident
2. Establish and maintains crowd and traffic control
3. Preserves the accident scene for reconstruction teams



Every responder on a scene should know their role and assignment. If a responder or a company does not have a role or assignment, they should be in a designated staging area waiting for one. Freelancing is never acceptable. The key to a successful operation is everyone knowing their role and doing it.

Response/Arrival

Response and arrival to an extrication call, as with any incident, is essential. Apparatus that fails to make it to the scene or is delayed causes stress to everyone involved in an incident. Likewise, arriving on the scene, but positioning apparatus poorly, is equally as stressful and increases the time that is required to remove the victim.

Response route and placement of apparatus is a consideration you should be thinking about as soon as an incident is dispatched:

1. Can you drive a mile further, but make your rescue equipment more accessible?
2. Is the extra couple minutes it takes to drive the mile going to save you time in setup on the scene?
3. Can you add an extra length of hose to leave room for the ambulance and rescue vehicle?

These are just a few examples of forethought that can increase your effectiveness on an extrication scene. As a general rule, the engine should defer the areas closest to the scene for the rescue vehicle and ambulance.

General consideration for incident response and arrival are listed below.

Dispatch

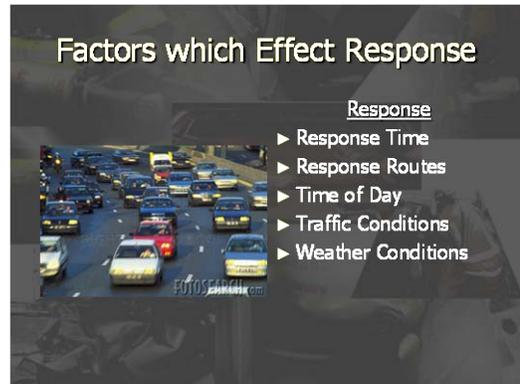
1. Location
2. Number of Vehicles
3. Types of Vehicle
4. Number and extent of Injuries
5. Any Hazards that may exist

Response

1. Response Time
2. Response Routes
3. Time of Day
4. Traffic Conditions
5. Weather Conditions

Arrival

1. 50' if no hazards
2. 100' if fire present
3. 1000' if hazardous materials involved
 - a. Uphill
 - b. Upwind
4. 2 standing poles with pole damage/wires down



When on highway incidents the safest option is to stop the flow of traffic completely. This is not a realistic option for us though. Using the mass of your apparatus, as a barrier, is the next safest method. If you are closing a lane of traffic, it is also advisable to close the next lane, to provide rescuers with a safe working area.

Apparatus wheels should always be chocked, to prevent a vehicle from rolling.

Assessment

Assessment of a crash incident begins with the dispatch information. Dispatchers should be relaying any incident specifics, such as number or patients, hazards, and number of vehicles. This is where you should begin assessing the incident and developing you incident action plan (IAP).

The IAP may be very simple, involving only a single unit, or it could be complex, involving multi-jurisdictional units.

Size-up

1. Facts (what you know)
2. Probabilities (what you think will happen)
3. Your own situation
4. Decide on a plan
5. Plan of action implemented

Initial Assessment

1. Fire and Safety Hazards
2. Fuel leak
3. Down power lines
4. Bystanders
5. Traffic problems
6. Hazardous Materials



Scene Survey

Once you assess the scene safety, for your protection, you must perform your scene survey. Scene survey is the process of systematically looking at the incident close up. You do this by performing the Inner and Outer Circles.

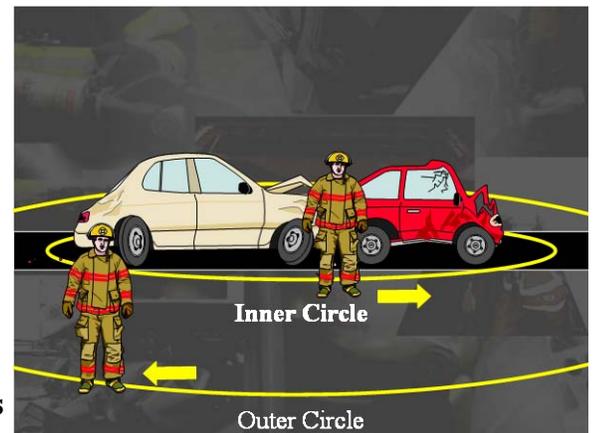
The circles are performed on every crash scene, by separate rescuers, going in opposite directions. This allows a close up view of the incident by two different sets of eyes.

Inner circle

1. **Approx. 5 ft. distance**
2. **Vehicle hazards**
3. **Vehicle type and construction**
4. **Number and condition of patients**
5. **Determine extrication needs**

Outer circle

1. **Approx. 25 ft. distance**
2. **Opposite direction**
3. **Scene hazards**
4. **Looking for additional vehicles and occupants**
5. **Gives a bigger picture of the scene**



You should notice a trend in both circles: looking for hazards. Remember, safety is our number one priority, ours first! Compassion begins in the back of the ambulance.

These factors are what injure and kill most rescuers:

1. Lack of knowledge
2. Lack of discipline
3. Ignorance to the hazards that exist

4. Complacency
5. Compassion

Do not become a statistic, or a name on a plaque!

Full PPE is required for all vehicle extrications, without exception!

1. Helmet
2. Eye Protection
3. Coat (reflective outer garment)
4. Pants
5. Boots
6. Vest
7. Gloves
 - a. Leather
 - b. Latex



Personal Safety

Physical fitness is an important part of vehicle rescue. You are working for long durations, with cumbersome tools. Know your limitations, stay hydrated, and know the tools you are working with.

Scene Protections

It is critical that you ensure a safe scene. There must always be a charged 1 ¾ hose line in place and hazards must be controlled, to ensure you have a safe work area.

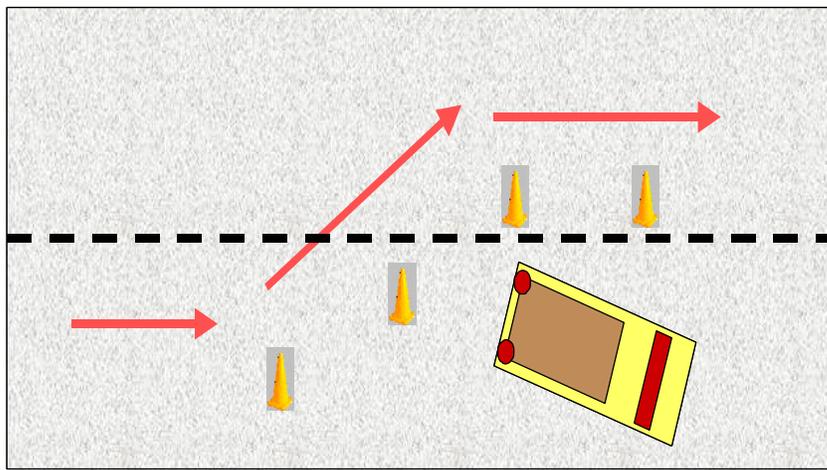
Medical Needs

Medical needs assessment is another portion of the scene assessment.

1. Do you have enough resources?
2. Where are the patients located?
3. Was anyone ejected? (If this is a possibility, consider a 300' survey.)
4. What is the extent of injuries?

Patient assessment is important because this is when you decide if what you have is sufficient, or do you need additional resources.

Roadway Operational Safety



Discussion

Firefighter injuries and fatalities while operating on roadways have increased significantly in the last 2 years. Many requests for emergency service require firefighters to position apparatus, operate apparatus and work near moving traffic. Every effort **must** be taken by the officer and crew to position effectively for operational safety. Using your department SOG's, discuss the appropriate positioning for apparatus at specific operational scenes.

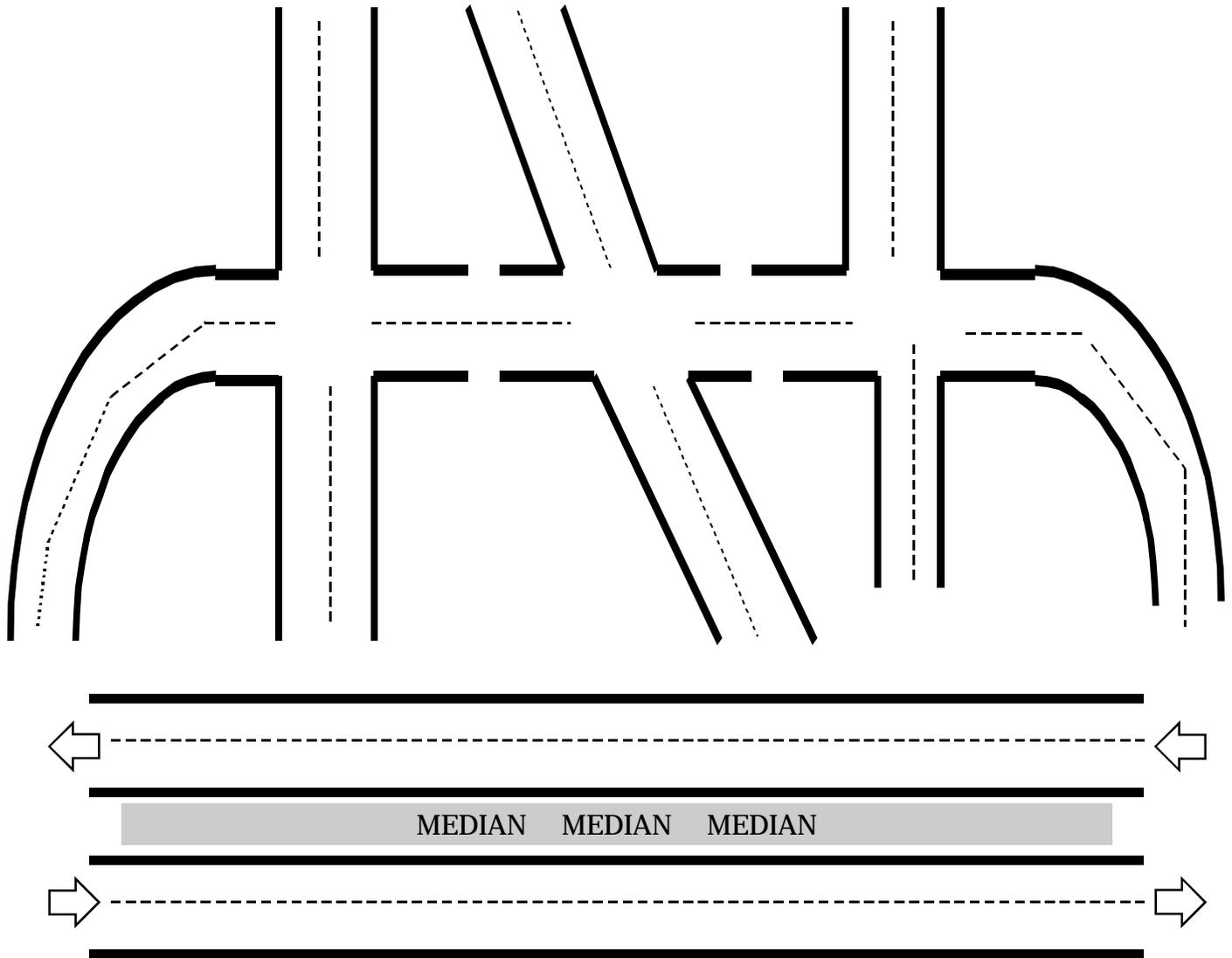
General Considerations

- Use apparatus as a shield
- Utilize cones, flares, and other diversion devices to control traffic flow
- Reposition apparatus/personnel if they are not in a safe position
 - If in doubt, shut down the traffic
 - Look in all directions before you step off apparatus and into traffic flow
- Wear protective clothing with reflective markings

Discussion Questions

Using the roadway diagram on page #2 and an erasable marker, diagram the following incidents and show the proper position of apparatus that would respond to that type of incident.

- Head-on auto accident on highway
- Auto accident in the middle of an intersection
- Car fire on shoulder of expressway
- Grass fire in median of the highway
 - Car off road in ditch
- Ambulance call on the highway



Show typical responding apparatus positions for the following operations:

- Head-on auto accident
- Auto accident in the middle of an intersection
 - Auto accident on a curve
- Car fire on shoulder of expressway
- Grass fire in median of the highway
 - Car off road in ditch
 - Ambulance call on the highway
- Fuel spill or suspected hazardous material incident

Review department procedures or accepted practices for each incident.