EMERGENCY VEHICLE OPERATOR
CLASS “B”
Module 4
Managing Risk – The Driver & The Situation
OVERVIEW

• Driver fatigue
• Driver impairments
• Emotions

• Operational Situations
  o Intersections
  o Arriving
  o Railroad crossings
  o Tight clearance
  o Parking lots
  o Around the station
**Driver Fatigue**

- Not just falling asleep at the wheel
  - Falling asleep is an extreme form of driver fatigue
- Fatigue is tiredness, weariness or exhaustion
- Behavioral signs
  - Changes in mood and motivation
  - Failure to complete routines and
  - Slower responses to questions or requests
Driver Fatigue Causes

- Stress
- Lack of quality sleep or interrupted sleep patterns
  - apnea
- Substance abuse
- Prescription medications
- Irregular work hours
- Irregular meal times/eating habits
Driver Fatigue Effects

- increasing reaction time
- degrading attention and vigilance
- increasing distractibility and confusion
- decreasing motivation, and
- increasing the probability of driving performance errors
**Driver Fatigue Prevention**

- **Sleep schedule**
  - Have a routine

- **Sleep environment**
  - Remove distractions
  - Dark, cool, clean

- **Pre-bed snacks/drinks**
  - No heavy foods or alcohol
  - No caffeine

- **Exercise**
  - Allow 3 hours for cool-down

- **Diet**
  - Avoid fatty or sugary food

- **Naps**
  - Not a substitute for night sleep
  - 20-30 minutes is good
  - >45 minutes is not good

- **Shift schedule**
  - Should you be working OT?
Driver Fatigue On the Road

- Get fresh air into your vehicle
- Keep your eyes moving
- Vary the siren pitch
- Maintain a conversation
- STOP

No remedies fully offset the need for restful sleep!
OTHER IMPAIRMENTS

• Substance abuse
• Prescription medications
• Over-the-counter medications
• Physical issues
  o Vision
  o Hearing
  o Orthopedics

YOU judge your readiness to drive.

Remember – it is not just YOU who is effected by your driving – it is your crew and the other vehicles around you. Don’t be selfish.
EMOTIONS

- Aggressive drivers/Road rage
- Response to siren – “sirencide”
- Call type
- State of mind/Outside influences
- Shift dynamic/communication skills

CHECK YOURSELF BEFORE YOU WRECK YOURSELF!
**Emotions**

When emotions overwhelm the operator:

- Tunnel vision/mission fixation may develop
- Vehicle speed increases
- Ability to prioritize actions appropriately is lost
- Communications break down

*A little stress is good – a lot is not*

Smith System “E.D.G.E.” DVD
Operational Situations

Intersections, Tight Clearance, Night Driving, Fire Stations, Positioning, Railroad Crossings
INTERSECTION BEHAVIORS

• Approaching
• Entering
• Jumping
• Other units

Most likely location for an apparatus crash.
**INTERSECTIONS APPROACHING**

- One of the best proactive driving tactics is to reduce speed
- Adjust your speed to the available space cushion
  - Intersections are fixed object that as you close the gap you need to also reduce the stopping distance
- Reducing your speed gives other vehicles time to react to your approach
  - Let the play develop
- Change your siren cadence
INTERSECTIONS
APPROACHING

• Search ahead and identify potential hazards
  o Other vehicles
  o Pedestrians
  o Bicycles
  o Blind spots – buses, trees, buildings
  o Status of control devices – traffic lights, pedestrian crossing signals

• Identify the path of least resistance
  o Lane patterns
  o Avoid opposing traffic

• Cover the brake
INTERSECTIONS
SEARCH & IDENTIFY

#1

#2
INTERSECTIONS
SEARCH & IDENTIFY

#1

#2
INTERSECTIONS
ENTERING

• Entry occurs as soon as your front bumper crosses into cross-traffic

• If you cannot positively identify that right-of-way has been yielded to you, you must stop
  o Must do this for each individual lane

• Make eye contact with other drivers
  o Are other cars “acting” like they see you?

• Even when entering with the green light remain vigilant of other vehicles entering the intersection

• Avoid using the apparatus as a moving roadblock – this is aggressive driving
• Operator depresses the accelerator hard from stopped position
• Vehicle jerks or jumps forward
• Hard on the apparatus
• Jumps before other vehicle moves forward is a common low speed, at-fault collision
• Smooth starts allow for decision space
INTERSECTIONS
OTHER UNITS

• Zone of confusion - Created by two or more emergency vehicles responding together
  o Civilian driver sees one emergency vehicle, but hears a different one at the same time
  o Civilian driver thinks the coast is clear but pulls into your path
  o Elderly and teenagers are especially susceptible

• High-risk situation
• Anticipate other vehicles to make mistakes during the confusion
INTERSECTIONS
OTHER UNITS
It happened here.

Engine 23 struck Ambulance 21 as they both entered an intersection enroute to a Hazmat Box.
INTERSECTIONS
PROCESSION RESPONSE

• Travel single file with largest vehicle leading to create a path
• Maintain space cushions
  o Expect the leading unit to stop
• Each vehicle must use the normal precautions
  o Proceed as though no other units already entered
• Use contrasting siren tones
  o electronic siren with alternating or pulsing tone.
Case Study #1

- Contributing Factors?
- MCFRS Guidelines
- Civil suit - 2014
  - Wrongful death
  - $186,000

July 26, 2010
Two FF killed
ARRIVING

• Deceleration
• Finding the address
• Apparatus positioning
• Parking
ARRIVING DECELERATION

- Allow the auxiliary braking systems to work
- Hard stops
  - Harsh on apparatus, equipment, crew
  - Indicates operator was not scanning ahead
- Smooth deceleration stops
  - Plan ahead
  - Good visual lead time – ¼ mile ahead
  - Pick your stopping point on horizon
  - Decelerate early

Deceleration Video
ARRIVING
FINDING THE ADDRESS

• Common element leading to crashes is passing the address
  o U-Turns in traffic
  o Backing against traffic
  o Operator gets frustrated
• Preplan & teamwork
• Know block numbers
• Know the cross street before the target block or identify “catching features”
• Reduce speed on the target block
• Use scene lighting
• Stop and read the map book

Class B apparatus are not simple to turn around!
ARRIVING POSITIONING

- Approach the final spot slowly
- Spot for tactical advantage
- Leave clear space around vehicle
- Compartment doors
- Walking paths
- Outriggers
- Drive out instead of back out
- Leave access for incoming companies
ARRIVING
POSITIONING CONSIDERATIONS

• Assume passing motorists do not see the apparatus or the personnel on the roadway
• Situational positioning
  o Action areas
  o Cast a large shadow
  o Pump panel area
  o Smoke conditions
  o Hazmats
• Do you need to be on the road at all?
ARRIVING BEACHING

• Some situations encourage leaving the roadway
  o Tactical advantage for operations
  o Leaving space for other units

• What advantage is being gained by leaving the roadway?

• Will the surface support the apparatus?

• Will the entire apparatus be off the road or just some of the wheels?

• Can the apparatus get far enough off the road to actually offer a tactical advantage?
ARRIVING PARKING

- Come to a complete stop
- Transmission to neutral
- Set the spring brake
- Place a wheel chock
  - Redundant parking brake
  - Downgrade side
  - Required for parked vehicles either attended and unattended
  - Light vehicles can use parking brake
  - Turn wheels toward curb
  - Mark of a professional operator
LIMITED ACCESS ROADS

• Higher speeds
  o Less reaction time
  o Greater reaction forces
  o Less siren distance
  o Being out run

• Driving on the shoulder
  o Anticipate other vehicles moving into your path
  o Slow down
  o Siren or no siren?
RAILROAD CROSSINGS

• MCFRS policy requires stops at unguarded crossings
  o Approach guarded crossings with skepticism
• Stop, look, and listen in both directions
• Trains may travel in either direction on all tracks
• Wait a moment to proceed after a train passes
• Never park or stop on train tracks
• More than one railroad or agency may operate on a set of tracks
  o Halting train traffic may be difficult
Tight Clearance

• Public roadways are typically 9 to 12 feet wide dependent upon speed and traffic volume

• Apparatus widths are:
  o 2008 Crimson – 9’ 9”
  o 2016 Freightliner EMS Unit – 9’ 6”
  o 2016 Pierce Arrow – 9’ 8”
  o SUV – 7’

• Private driveways, alleys, and other non-public roadways have no standard
Tight Clearance

Connecticut Avenue – Chevy Chase

9’ 8”

?????
Tight Clearance Turn Lanes

10’

8’ 1”

9’
Tight Clearance
Your margin for error with a 20 or 35-ton vehicle can be inches.

- How fast should you be going?
- How important is it to squeeze through?
- Will the situation clear if you wait?
TIGHT CLEARANCE
WHEN YOU MUST GO

• Expand your “look ahead” distance
• Use spotters to assist the driver
• Crowd or change lanes
  o Must know what is going on around the vehicle and have complete situational awareness
  o Do not run other vehicles out of their lane
• Use appropriate speed
  o Time to identify obstacles, decide options, and execute the maneuver
• Best visibility for the driver is the driver’s side of the apparatus
  o keep the driver’s side of the apparatus as close as reasonable to the fixed objects
  o Use mirrors to watch clearances as fixed objects are passed.
UNDERBODY CLEARANCE

• Angle of approach
• Angle of departure
• Underbody clearance
• Clearances can vary
  o Unit to unit
  o Same unit; different conditions
  o Prior damage
Apparatus components may drag when transitioning between surfaces
  o Parking areas
  o Driveways
  o Curbs
  o Medians – paved or unpaved

Damage prevention
  o Signs of prior damage on pavement
  o First due knowledge
  o Approach or depart at an angle

UNDERBODY CLEARANCE
Night Driving

- All of the same hazards as daytime driving, but with less visibility
- Most drivers use the same approach to driving day or night
- Night-time driving problems are not recognized or understood
- Fatal collision rates are 3x higher at night
- More encounters with impaired drivers
- Prime time for road closures or work
Night Driving Challenges

- Difficulty with visual perception
- Eyes adapting to changing levels of brightness
  - Other drivers blinding you
  - You blinding other drivers
- Visual “cues” at darkness are eliminated
- Shorter and narrower fields of vision
- Limited or no visibility in mirrors and to the rear
- Reduced level of alertness (fatigue)
- Seniority
The human eye takes about 7 seconds to fully recover from being blinded by bright light.

In 7 seconds, a vehicle traveling 60mph will travel 616 feet.
**Night Driving Precautions**

- Know the range of your headlights
- Reduce speed and increase following distances

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**AAA testing found that, at speeds greater than 45 mph,* headlights may fail to safely illuminate unlit roadways.**

*By the time the driver sees something, or someone, in the roadway, it may be too late to stop.*

**Perceive** **React** **Brake**

- Low Beam Range: 400 feet
- 55 mph

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**NewsRoom.AAA.com**

*Halogen Projector Headlamps  **AASHTO*
**Night Driving Precautions**

- Avoid driving while fatigued whenever possible
- Keep your eyes moving to avoid glare and fixating
- Recognize that your warning lights and floodlights will create glare for other drivers
- Reduce glare inside the cab by using red overhead lights, dimming the MDT screen, and dimming the panel lights
  - Communicate to the crew when lights in the rear of the cab are a problem
- Keep your windshield, headlights and warning lights clean
Parking Lots

• Immediately limited clearance
• Physical Hazards
  o Tight corners
  o Landscape trees overhanging lanes
  o Protective bollards
  o Light poles
  o Landscape rocks
  o Illegal parking – fire lanes
• Pedestrians
• Distracted drivers
• Adjust time of day if possible
• Avoid entering parking lots whenever possible
• Choose your parking spot
• Should you park?
Leaving the Bay
• Complete a visual check
• Disconnect shorelines
• Verify the door is fully open
• Verify the crew is ready
  o Seated, belted, doors closed
• Leave slowly
• Engage any traffic control

Overhead Doors
• When the door is in motion you should be stationary
• Do not rely upon collision sensors
• Sensors are for human safety
  o Too slow to avoid apparatus
• Know how your doors work!
SUMMARY

• Apparatus operators must judge their own ability to perform when faced with fatigue or emotional stress
  o Do not be selfish – other people’s lives are relying upon your readiness

• Fire apparatus face a variety of situations that increase the risk of collisions
  o Intersections pose the most serious and frequent threat for a severe collision
  o Congested areas restrict your ability to act so you must slow down
  o Know the six sides of your apparatus – not just the height and width
  o Everyday errands can lead you into collision-prone areas and combine with complacency due to familiarity