

SA 03 EVOC
Session 1 – Perception, Decision, Reaction
LD 19 Emergency Vehicle Operations Course

Purpose: The purpose of this learning activity is for the students to understand the components of perception, decision, reaction, and the time it takes for each step of the process. The students will also learn the importance of identifying hazards and how speed affects decision making as it relates to the perception, decision, and the reaction process.

Description: Two EVOC instructors will escort the students to the track and stage them in a designated safe zone located alongside the collision avoidance simulator area. The collision avoidance simulator opens into three separate lanes. The lanes are marked and separated by cones. Each lane is equipped with a tri-light signal in a lateral configuration with the ability to display a green, yellow, or red light configuration. The course also is equipped with a radar and trip line. The radar, which is securely affixed above the center lane tri-light, will record the speed of the vehicle as it is approaching the point where the lanes separate into three choices. This configuration is designed to simulate an intersection.

The EVOC instructor will conduct a briefing and explain to the students that they will be expected to visualize the collision avoidance pathway as an intersection. The instructor will further explain that the students will observe three individual passes at 25, 30, and 35 mph. The focus should be on decision and reaction time as well as hazard awareness.

The EVOC instructor who is driving will conduct the first pass at 25 mph and choose the lane with the green light. The instructor who is outside with the students will facilitate a discussion and ask the students to identify the point at which the driving instructor applied the initial steering. Once the group comes to a decision on the point where they believe the steering was initially applied, a cone will be placed adjacent to the course to laterally identify the spot.

The driving instructor will repeat this process with runs of 30 mph and 35 mph. Following the facilitation on both runs, the cones will be placed respectively.

Once the three runs are completed, the instructor will explain that the greater the speed, the greater the distance the vehicle will cover. The faster the vehicle is travelling, the less time a person will have to react to a potential hazard. This is evidenced by the placement of the cones. The faster the vehicle travelled, the closer the cone was to the hazard. The slower the vehicle travelled, the more time the driver had to make the decision and input the steering. As speed increased, reaction time and distance to the hazard decreased.

The instructor will then facilitate a discussion regarding possible options available when approaching a hazardous intersection. Topics will include:

1. Brake
 - Brake before the hazard (normal default response)
 - Becoming the hazard for the vehicles behind you

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2. Throttle
 - Accelerate past the hazard
 - May avoid the hazard; however, if your judgment is incorrect you add more energy to the collision.
3. Steering
 - Steering around the hazard
 - Allows you to clear the hazard
 - May give others following a path of travel
4. Combination of braking and steering input
 - You will slow the vehicle down and use the steering to help you get around the object
 - ESC and ABS allows for electronic interventions
5. Discuss how perception and reaction time affects a vehicle's stopping distance
(LD 19 I. C)

Resources needed:

- EVOC track training vehicle
- Police radios
- Collision Avoidance Simulator
- Stop sign

Key learning points:

- Perception/decision time (3/4 second) and reaction time (3/4 second)
- Importance of hazard awareness identification and decision making
- Speed can impact decision making

Time required: 30 Minutes