



10 MINUTE  
**TRAINING**  
TOPIC

# Driving in Rain and Fog

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**SafetyFirst**

# Driving in Fog and Rain

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# Overview

- **Rain** reduces driver perception in several ways and is especially debilitating at night. It both directly affects perception (seeing through rain) but also produces visibility changes through its action on headlamps, windshields, the road itself and road markings. We normally see an object when light from a source, the sun, streetlamps, our headlights, reflects from the object back to the eye. Rain interferes with this process in several ways.
- **Fog** obviously produces accidents because a driver cannot see as far ahead. However, foggy conditions also promote accidents because they affect perceptual judgments of speed and distance. The effects are the result of reduced contrast. We see objects, not based on their absolute brightness or darkness, but on their difference between the object brightness and background. Fog lowers contrast substantially, causing objects to become fainter and less distinct.



# Statistics

- There are four times as many fatal crashes during rainy conditions than during snow or sleet conditions -- *Bureau of Transportation Statistics*
- The most significant weather condition that leads to fatalities, injuries, and property damage losses is rainfall -- *Large Truck Crash Facts (published by the Federal Motor Carrier Safety Administration)*
- Reduced visibility is a significant factor in 42 percent of all vehicle crashes and contributes to the danger inherent in any maneuver requiring a fast and accurate visual response. Reduced visibility can be caused by lighting and weather conditions such as glare, dawn, dusk, dark, artificial light, rain, sleet, snow, and fog. -- *US DOT*
- *Per the Federal Highway Administration*, visibility distance is reduced by fog and heavy precipitation, as well as wind-blown snow, dust, and smoke
  - Low visibility conditions cause increased speed variance, which increases crash risk



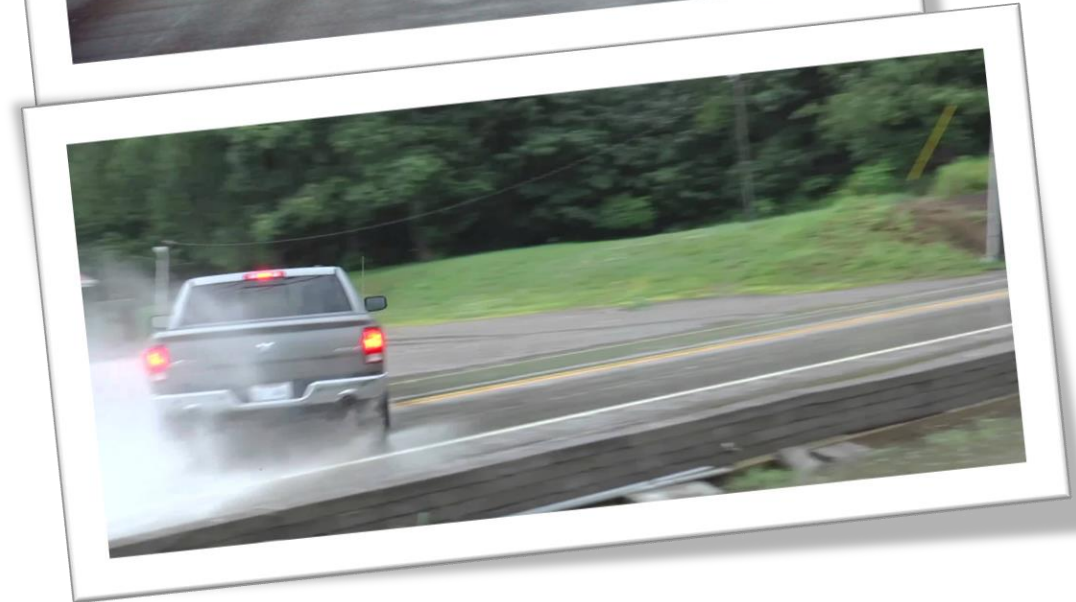
# Pre-trip Preparation

- Rain and fog reduce visibility. Inspect headlights, taillights, brake lights, and turn signals before heading out so others can see your vehicle.
  - Being able to be seen by other drivers may help avoid a collision.
- Check tires for proper inflation and tread condition.
  - Tires that are improperly maintained or have poor treads will generally make handling and stopping more difficult (and potentially more dangerous).
- As a part of your regular maintenance you should fill windshield fluid and replace wipers on a routine/seasonal basis.
  - Taking time to thoroughly clean your windshield (inside and out) can help you have the best visibility possible.
  - Waiting until you can't see through the wash of water on your windshield is usually too late.
  - Visibility is worse for the driver when the vehicle's windshield is dirty.



# Issues with driving in rain

- Rain and fog create several potential problems:
  - Reduced visibility creating a veil between vehicle and driver
  - Reduced traction
  - Less control of steering (hydroplaning)
  - Longer braking distances
- Often, the first rainfall after a dry spell creates the most difficulty for drivers.
  - During dry weather conditions the sun heats the asphalt and keeps oils and grease from passing vehicles on the road surface.
  - Oils become very slick with the introduction of rain (especially at intersections where traffic stops).
  - It is the combination of oil and water that can make it tough to stop or control a vehicle.
- At higher speeds, tires can ride up on top of the water on the road surface. This is called hydroplaning. Tires with very shallow treads hydroplane more easily.



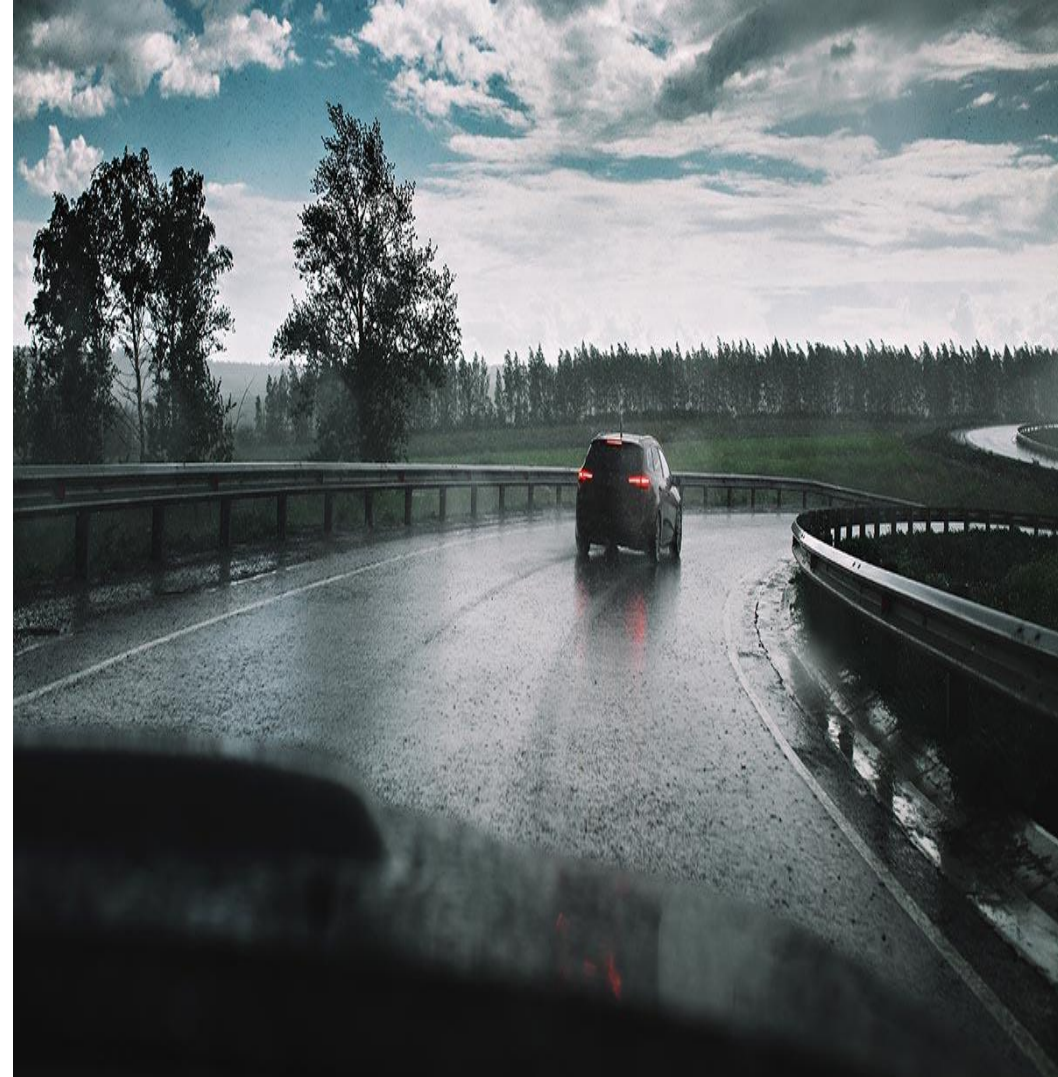
# Issues with driving in fog

- The area in front of your vehicle that is clearly illuminated and visible is your “sight zone”.
  - High beam headlight settings will produce glare that lights up the fog and does not increase the “sight zone” ahead of the vehicle.
  - If an object, person or vehicle enters the “sight zone” in front of your vehicle, you may require a sudden stop or evasive maneuver.
- The average person, who is not drowsy, ill, or distracted, takes 1.5 seconds to recognize a danger and begin to react. This is called the “reaction time”.
  - At 40mph, a vehicle travels 90 feet during the “reaction time” – the 90 ft. covered at full speed before the vehicle begins to slow or steer around an obstacle is called the “reaction zone”.
  - When you are driving so fast that your lights don’t fully cover this “reaction zone”, you are driving too fast to react to a problem.



# Basic tips for driving in the rain

- Allow more travel time and drive slower than normal.
  - This will give you the freedom to allow greater following distances, cope with heavy traffic that is moving more slowly than normal and enable you to navigate any unexpected detours.
  - Turn on headlights (and floodlights).
- Watch out for pedestrians.
  - Pedestrians may be distracted by an umbrella or other rain gear.
  - Falling rain can distort sounds, so pedestrians may not hear vehicles approaching.
- Give large trucks and buses extra room.
  - Truck and bus drivers may have a harder time seeing other vehicles due to blind spots.
  - Large trucks and buses' tires displace more water than other vehicles.





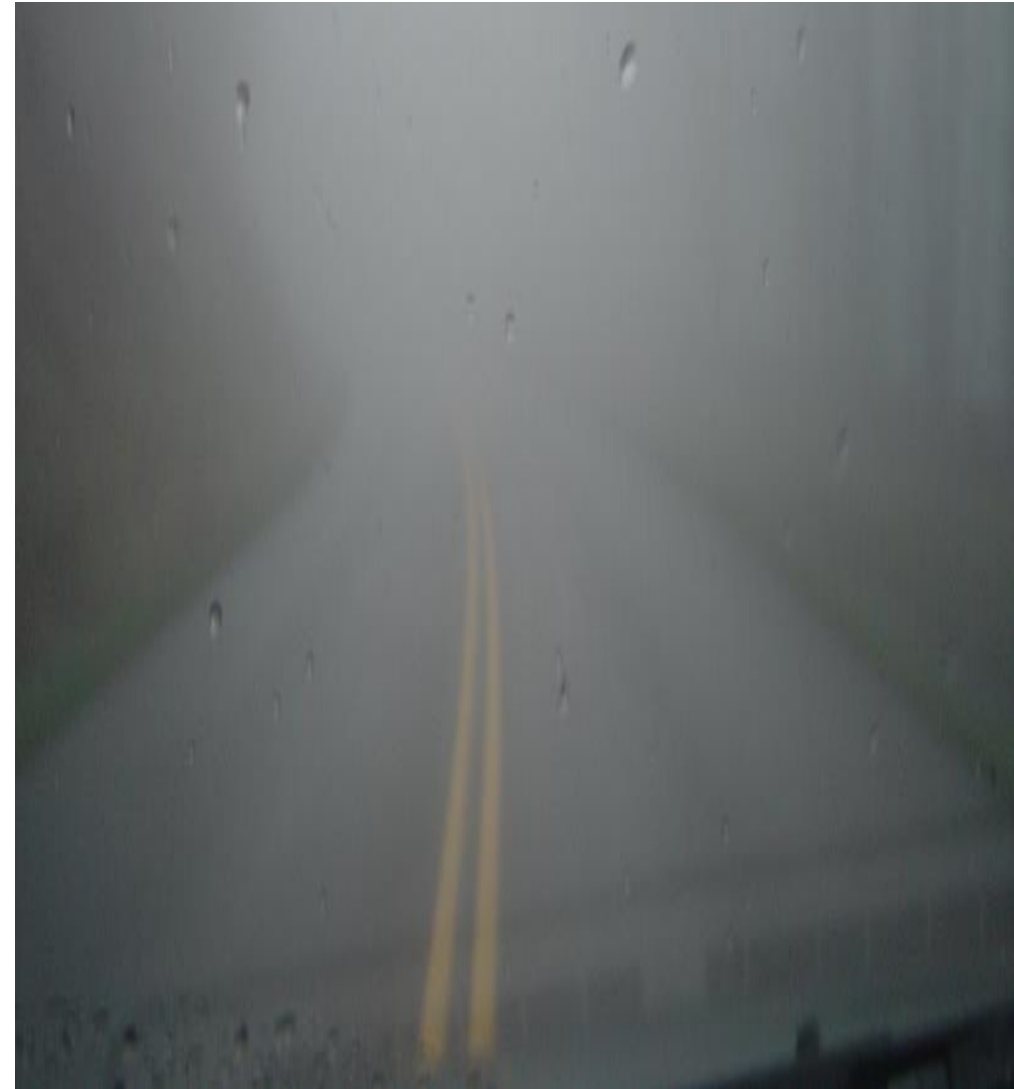
# Basic tips for driving in the rain

- Brake earlier and with less force than normal.
  - Increase the stopping distance between the vehicle in front.
- Use turn signals earlier than normal so other drivers know your intentions.
- Watch out for standing water since this can cause hydroplaning. Hydroplaning occurs at higher speeds when tires ride up on top of the water on the road surface.
- When hydroplaning, don't brake or turn the wheel suddenly.
  - Release the gas pedal and steer straight until the vehicle regains traction.
  - Avoid making sudden turns or slamming on your brakes.
- Ventilate your car.
  - Rain causes humidity levels to increase.
  - You may find that your vehicle's windows become foggy when you operate your vehicle while it is raining.



# Tips for dealing with fog

- Even more time and space are needed to bring the vehicle to a stop or to steer a safe path.
- Only use low beam headlights in fog.
  - If your vehicle has “Daytime Running Lights”, these are not an adequate substitute for turning on your low beam lights (normal setting).
- What is an appropriate speed for rain or foggy driving conditions?
  - Start by increasing following distances from the 3 to 4 second rule to at least 8 seconds and add to it generously.
  - Vehicle size, its braking capabilities, the slipperiness of the road and the driver’s condition are contributing factors to determining the appropriate speed.
- Finally, remember that there may be drivers coming behind you – make sure that they can spot your vehicle by using appropriate flashers or warning lights.



# Driving in rain and fog

- Rainstorms and fog can occur at most any time of the year depending on your territory.
- Basic inspections and preventative maintenance prior to trips can help assure that you'll be able to see clearly while driving.
- Seeing clearly ahead of and around your vehicle is critical to safe operation.
- Many factors contribute to poor visibility: poor weather, smudgy windows, poorly working lights, and weak wiper blades could make seeing clearly ahead of and around your vehicle a challenge.
- Being seen by other motorists also helps to minimize the risk of collisions.
- Leave extra time to get to your destination, and slow down when weather conditions interfere with visibility or your vehicle's control.
- Don't Let Poor Visibility Ruin Your Drive!