



Safety Corner

Topic: Defensive Driving

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Learning Objective:

Students will be able to problem solve ways to drive defensively and avoid unsafe risks that could cause crashes or injuries.

Note: There are reference materials located at the end of the article for handouts.

A good defensive driver is not going to let the circumstances or any other driver prevent them from their goal of arriving safely to their destination. So, you think you are good defensive drivers? Let's see how well you do with the following circumstances!

Scenario One

Demetrius is known for being a safe driver. His dad started teaching him to drive when he was just 14 years old because his dad knew how treacherous the mountain roads could be. Now Demetrius knows the roads around Leadville like the back of his hand! One winter afternoon while approaching a curve on Highway 91, the car in front of him swerves sharply to avoid an elk but loses control. The car is now spinning out of control toward Demetrius.

What is the best defensive driving action Demetrius can take?

Answer for Scenario One

First, as a defensive driver, Demetrius should have been following at a safe distance from the driver ahead. In icy, snowy, or mountain conditions, it is wise to give drivers even more distance than you might in dry road conditions. With the other car spinning out of control, slow to a stop and apply your emergency brake. Wait for the car to stop spinning. If the car hits you, remain calm. It's always good to have an escape plan in your head when you are traveling on a road with limited maneuverability. Be aware of your surroundings and know how you can avoid or minimize a collision in the event of an emergency traffic situation.



Scenario Two

70 on I-70 is Cassie's motto. When she drives I-70 to work, Cassie is rolling at no less than 70 mph! One day while driving I-70 near Golden, the car in front of her brakes without warning and makes an abrupt stop - in the middle of the fast lane! The cars beside her continue to zoom by.

What are her best options to avoid a crash?

Answer for Scenario Two

Cassie has a problem. She is traveling too fast to be able to respond safely in this traffic situation. Her best option is to brake immediately and gauge if the car will stop before hitting the next vehicle. If it appears a collision is imminent, she may check the adjacent lane for availability. Traveling the speed limit may eliminate the urgency of the situation she finds herself in. If her driving behavior results in a crash, she will be issued a citation. Her gravest risk, however, is the risk of injuring herself, her passengers, or the people in the vehicle ahead. The next precaution she can take as a defensive driver is to always look far ahead and note things that are happening well in front of her. A good defensive driver is looking at both their immediate surroundings and their distant traffic conditions.

Scenario Three

Ursula goes nowhere without her dog, "Ugly". Ugly is actually a pretty cute little fellow, even if he is hairless with gray and peach spots. This morning as Ursula was merging onto I-25, Ugly leaped in her lap unexpectedly, knocking her hands off the wheel and making her lose her immediate concentration.

What defensive driving action should she take immediately?



Answer for Scenario Three

Ursula should secure her pet in the vehicle to where its movements are minimized. There are several restraint products available that she can obtain from a pet supply retailer. These kinds of distractions cause accidents and put her life and the lives of others in danger. Under the circumstances, Ursula needs to refocus on her driving until she can exit the interstate and safely secure Ugly. When merging onto the interstate, you need to be focused not only on the traffic in your lane but the oncoming traffic. It deserves your full concentration. Let nothing and no one disrupt your concentration during these critical moments. Don't be afraid to turn down the music, ask friends to be quiet, or ask them to help you look for oncoming traffic. And as for Ugly, if you can sit with a seat belt on, so can he!

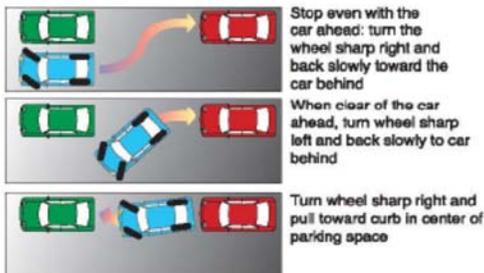
Defensive driving is not so much about being a good driver, as it is about how to respond to conditions that occur outside of your control. You have no idea what might be happening to someone in the car next to you or if the weather shifts dramatically or any number of situations that can impact your driving. Good defensive drivers know and practice a plan B for situations outside of their control.

Sources:

Colorado Driver Handbook, 2015,
<https://www.colorado.gov/pacific/sites/default/files/DR2337.pdf>
National Safety Council, www.NSC.org



- On a crosswalk, sidewalk, bridge, elevated structure, railroad tracks, or any controlled access highway.
- Within 30 feet of a traffic signal, stop sign, railroad crossing or within 15 feet of a fire hydrant.
- Within an intersection, tunnel, runaway truck ramp, on/off ramp, or blocking a driveway.



When you pull away from a parallel parked position, you should follow all the steps for changing lanes; signal, glance in the mirrors, look over your shoulder and pull away only when it is safe.

Where parking is permitted, your vehicle must be within 12 inches of the curb or as close as possible to the outside edge of the shoulder, so that traffic will not be impeded.

Leave the car in low gear if headed uphill and in reverse gear if headed downhill or in park position if your vehicle has automatic transmission. Set the emergency brake and remember to remove the ignition key when leaving the car.



Downhill: When you stop your car headed downhill, turn your front wheels toward the curb. Let your vehicle roll slowly until the front tire rests against the curb using it as a block.



Uphill: When headed uphill at a curb, turn the front wheels away from the curb and let your vehicle roll backwards slowly until the rear part of the front wheel rests against the curb using it as a block.



No Curb: When headed uphill with no curb, always turn your front wheels to the right so that if your vehicle moves, it will roll off the highway, not into traffic.

11. Safe Driving Tips

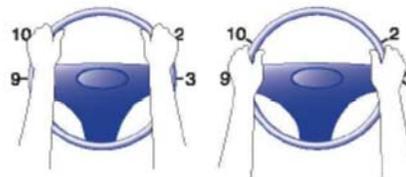
Everything that is contained in this manual is for the purpose of eliminating driver error. If you obey every

highway rule and regulation, your chances of being involved in an accident will be greatly reduced. However, can you be certain that other drivers are following every rule and regulation? It is important that you become a defensive driver.

Defensive driving is driving to protect yourself and others from dangerous and unexpected driving situations as well as everyday driving.

11.1 Steering

Keep both hands on the steering wheel. The two most effective positions are 10 o'clock and 2 o'clock for vehicles without airbags and 9 o'clock and 3 o'clock for vehicles with airbags. When turning corners, use the "hand-over-hand" or grip and slide method. Do not turn the wheel with the palm of your hand. Letting the wheel slip through your fingers could be dangerous.



Steering Lock: Never turn your vehicle's ignition to the "lock" position while it is still in motion. This will cause the steering to lock if you turn the steering wheel and you will lose control of your vehicle.

Steering Lock Operation:

- The Transmission Park System - Park. Shift the transmission into the "park" position. Turn key to **LOCK** and remove.
- The Two-Hand Button System - Park. This system requires two hands. Depress button below the steering column. Turn key to **LOCK** and remove.
- The Lever System - Park. Depress lever located near the ignition. Turn key to **LOCK** and remove.
- The One-Hand Button System - Park. Depress button located near the ignition. Turn key to **LOCK** and remove.
- The Push-In System - Park. Turn key to OFF, push in. Turn key to **LOCK** and remove.
- The Turn and Remove System - Park. Turn key to **LOCK** and remove.

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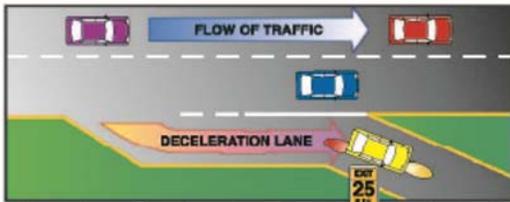
11.2 Scanning

To be a good driver you must know what is happening around your vehicle. You must look ahead, to the sides, and behind the vehicle. When you are turning, driving through, or entering an intersection always look left, right, and left again. Scanning helps you to see



- Traffic moving at less than the normal speed should always use the right lane.
- To be courteous to vehicles entering the freeway, you should change to the left (or center) lane, if you can do so safely and without slowing the traffic flow.
- Observe the movement of traffic well ahead of you, around you, and behind you. Be particularly aware of any vehicles traveling in your **blind spots**.
- Plan ahead, look for directional signs and guidance signs.
- Signal at least 200 feet before you change lanes, avoiding frequent lane changes.
- Do not drive across, over, or within any median or island.

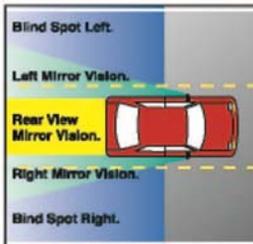
11.6b Leaving The Freeway: When exiting the freeway, you must use the deceleration lane. This lane is designed to allow you to slow down before reaching the exit ramp without being a hazard to other vehicles on the freeway. Enter the deceleration lane at approximately the speed you were going on the freeway, then slow down after you have entered the deceleration lane to the advisory speed.



Do not slow here on freeway. Slow down after turning into Deceleration Lane. Do not make last minute turnoff. Check posted safe speed for exit ramp.

11.7 Changing Lanes

You must check for possible hazards or vehicles in the lane you want to enter. This means you must check for traffic ahead, to the side, and behind your vehicle before you change lanes. Changing lanes includes: Changing from one lane to another, passing another vehicle, merging onto a roadway from an entrance ramp, and entering the roadway from the curb or shoulder.



Be aware of the blind spots. Blind spots are areas slightly to the sides and the rear of your vehicle that you can not see in your rear view or side view mirrors.

When changing lanes, you should:

1. Turn your signal on.
2. Check your mirrors.
3. Check your blind spot. (Look over your shoulder.)
4. If it is safe, you may change lanes.
5. Turn off your signal after completing the lane change.

11.8 Passing

Whenever signs or road markings permit you to pass, you will have to judge whether you have enough room to pass safely. If you do, follow the 5 steps for changing lanes. Return to the driving lane when you can see both headlights of the other vehicle in your inside rear view mirror, using the 5 steps for changing lanes again. Do not count on having enough time to pass several cars at once. To be safe, as a general rule, only pass one vehicle at a time.

DO NOT PASS...

- If you cannot safely return to the right-hand side before coming within 200 feet of an oncoming vehicle, including a bicyclist in the oncoming lane or shoulder.
- If you cannot safely return to the right-hand side before the solid yellow line begins. If passing a bicyclist you can briefly cross a solid yellow when there is no oncoming traffic and you have a clear view ahead.
- On a curve or hill when your view is obstructed.
- Within 100 feet of a marked or unmarked intersection, or railroad crossing.
- Within 100 feet of any bridge, viaduct, or tunnel when view is obstructed.
- A bicyclist unless you can allow a minimum three foot buffer zone between your vehicle, including mirrors, and the bicyclist.

You may pass another vehicle on the right side on a one-way street or on a roadway with two or more lanes of traffic in each direction. At no time shall such pass be made by driving off the pavement of the main-traveled portion of the roadway.

11.9 Hills And Curves

You may not know what is on the other side of a hill or just around a curve, even if you have driven the road hundreds of times. If an obstruction is in the road just over a hill or around a curve, you must be able to stop.

A vehicle can travel much faster in a straight line than it can in a curve. If you go too fast, the tires will not be able to grip the road, and the vehicle will skid.

Always slow down before reaching the curve, and accelerate only after passing the middle of the curve.

11.10 Night Driving

Driving in the evening, at dusk, at night, and just prior to sunrise is normally more hazardous than driving during daylight hours. This is due to limited visibility, the limited area illuminated by your headlights and the blinding



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effect of high beam lights or low beam lights with fog lights.

Colorado law requires you to drive with your headlights on from sunset to sunrise or when visibility is less than 1,000 feet.

Parking lights must be illuminated on any vehicle parked alongside the roadway, whether attended or not from sunset to sunrise or whenever visibility is less than 1,000 feet.

Tips for driving at night...

- Use your bright lights when driving in rural areas and on open highways away from urban and metropolitan areas.
- If you are driving with your high beam lights on or your low beam lights with fog lights on, you must dim them before coming within 500 feet of any oncoming vehicle so the oncoming driver is not blinded by the glare.
- When following another vehicle, you must use your low beam lights, with your fog lights off, if you are within 200 feet of the vehicle ahead of you.
- Never look directly into an approaching car's headlights. As the car draws near, watch the right edge of your lane, noting the position of the oncoming car out of the corner of your eye.
- When driving through fog at night it is best to use your low beam lights and fog lights, if you have them. Driving with high beam lights is like shining your lights on a mirror.
- Be alert to vehicles, particularly darker vehicles, traveling after sunset without their headlights on.

11.11 Bad Weather

In bad weather conditions such as rain, fog, ice, wind, and dust you should slow your speed and drive at a speed that is safe for conditions. When roads are wet they may become very slippery when water mixes with oil, grease, and exhaust particles on the roadway. These conditions affect ALL types of vehicles including: Front wheel drive, sport utility, 4-wheel drive, and all-wheel drive vehicles.

Hydroplaning is a natural phenomenon whereby the water forms a very thin, but very strong, film on the highway. This film can actually support your vehicle. Your tires may have absolutely no contact with the roadway. This is extremely dangerous for you have little or no control of your vehicle. A vehicle may hydroplane at speeds as low as 50 m.p.h. in water one-eighth of an inch deep. If it feels like your tires have lost traction with the surface of the road you should:

- Ease your foot off the gas pedal or,
- If engaged, immediately turn off your cruise control and allow your vehicle to slow down and regain traction. If the highway is wet or icy, do **not** use cruise control.
- Keep the steering wheel straight.

- Do not try to stop or turn until your tires are gripping the road again.

An increasing number of new vehicles are equipped with rear fog lights. These lights help to reduce rear-end collisions in severe weather conditions. If your vehicle is equipped with rear fog lights use them while driving in heavy fog, rain or similar weather conditions. Be sure to switch them off once the conditions clear.

11.11a Snow And Ice: Streets and highways covered with snow, snowpack or ice are extremely hazardous. They are most hazardous when the snow or ice begins to melt. The slush or wet surface acts as a lubricant and traction is reduced. Overpasses, bridges, shaded areas and snow packed portions of the road can be icy even when other pavement is not.

If you begin to skid, let up on the accelerator and turn the front wheels in the direction of the skid.



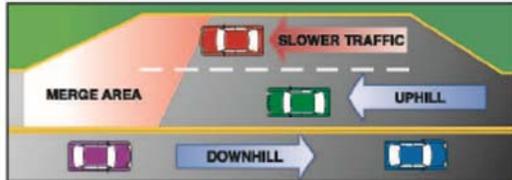
Here are a few simple precautions which you should follow:

1. Make sure your tires have good tread for adequate traction. In winter, chains or snow tires are certainly preferable. (However, remember that even chains and snow tires will slip on slick pavement.)
2. Make sure your brakes are in good condition and properly adjusted so that the braking power of each wheel is uniform.
Anti-Lock Brakes: Apply the brakes with hard firm pressure from the start of the skid and maintain this pressure until you have stopped. You may feel or hear vibrations and/or pulsations. This is normal.
No Anti-Lock Brakes: Threshold breaking: Apply the brakes just hard enough to not lock the wheels, release and apply the brakes the same way again.
3. Keep the windows clear by making certain the defrosters and windshield wipers are working properly. Use a good window scraper to remove all ice, snow, and frost even if you are just traveling a short distance. Fogging or condensation of moisture on the inside of the windshield can quickly be removed by opening the side vent windows.
4. Be alert for snow plows and sanding trucks. They use flashing yellow and blue lights as a warning for you to use extreme caution when approaching or passing them.
5. Maintain an extra large space between you and the car ahead.



- 6. Start gradually by using a low gear and accelerating gently.

11.12 Mountain Driving



Mountain driving can be very different from normal driving conditions. Some hazards you should be aware of are steep hills, changing weather, wildlife, and rocks in the roadway. If your vehicle experiences difficulty traveling up steep roadways, pull off the road at the first place you may do so safely, or stay in the right lane to allow other vehicles to pass.

Here are some added tips:

- Pay special attention to speed limit signs and warning signs, such as those warning of curves, steep hills or other hazards.
- Watch for bicyclists near the right side of the road.
- Use a lower gear to control speeds while going up or down long, steep hills.
- You must yield to vehicles going uphill if you are traveling downhill on a narrow road.
- Do not coast downhill by shifting into neutral or disengaging the clutch.

11.13 Rural Driving

When driving in rural or country areas, there are a number of special situations that require attention. Watch for driveways, farm equipment, railroad crossings that might not be marked, and bridges that are narrow and poorly surfaced. Some intersections may be hidden by trees, brush and crops. Animals often are found wandering along the roadway.

Extra care and slower speeds should be used when driving on gravel roads because of the reduced traction due to the road surface. The road surface can be affected by loose gravel, slippery conditions after rain or snow, ruts in the driving lanes, and washboard conditions. When approaching oncoming vehicles, watch for soft shoulders or the absence of shoulders.

11.14 Construction Zones

Every year drivers are faced with highway construction and maintenance projects, which are designed to improve the efficiency and safety of our transportation systems. Every construction or maintenance operation creates a work zone with equipment, workers, and, in some cases, daily changes to the road that you may be used to driving. In advance of these projects are signs, cones, and other devices designed to warn you of the

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upcoming changes and hazards associated with the road construction. These changes and additions require you to stay alert and focused at all times while driving.

Large construction projects can have complex work zones with flaggers, portable concrete barriers, complicated directional signing, and reduced speed limits to safely direct you through the work zone. The reduced speed limits are critical because they give drivers more time to understand and react to the information and reduced speed allows more time to safely drive through the complex assortment of devices, workers, and equipment. Unfortunately, there is no way to completely separate drivers from these work zone hazards, which places the construction crews at additional risk. Not only are these workers dealing with construction dangers associated with heavy equipment, excavation, power lines, and other activities but they are constantly on guard for vehicles that may stray into the work area. Your safety, your passenger's safety, and the safety of these workers depends on you.

Of the 1267 road construction related deaths nationally since 1992, 147 happened in Colorado. Because of this, increased police enforcement is routinely added to construction projects. In order to ensure drivers understand the importance of complying with signs and directions given in work zones, the fines have been doubled for most of the violations that occur in these work zones.

So, remember when driving on Colorado's highways, if you encounter a work zone, for your own safety and the safety of the workers:

1. Pay attention, use extra caution and stay focused on the driving task
2. Obey all construction signs (including work zone speed limit signs) and flagger instructions
3. Watch the vehicle in front of you (most work zone crashes are rear-end collisions due to an inattentive driver)
4. Drive calmly and avoid entanglements with aggressive drivers
5. Remember to require all occupants to buckle-up. This includes making sure children are in the back seat and also properly secured in the vehicle.

12. Sharing The Road

Sharing the road means "getting along, not ahead." A courteous, alert, and knowledgeable driver will make the highways safer for all. Bicycles, motorcycles, buses, trucks, and truck tractors each have unique operating characteristics. Let's share the road safely with trucks and buses.

12.1 Large Trucks And Buses

Due to their size and weight, large trucks and buses present unique problems to motorists who share the highway with them. A loaded truck with good tires and properly adjusted brakes traveling at 55 m.p.h. on a



Six Things Defensive Drivers Do

1. Follow at a safe distance.
2. Have an escape plan when traveling on roads with limited maneuverability.
3. Drive the speed limit but adjust your speed when road conditions require it.
4. Be aware of your immediate surroundings as well as traffic conditions in the distance.
5. Note the driving patterns of drivers around you. Avoid drivers that behave erratically or drive unsafely.
6. Eliminate distractions that may impede your concentration.

