

# Defensive Driving

*Managing Visibility,  
Time and Space*



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## Defensive Driving: Managing Visibility, Time and Space

Motor vehicle travel is the primary means of travel in the United States. With all the benefits that come along with mobility, there are thousands of deaths and injuries resulting from motor vehicle crashes every year, according to the National Highway Traffic Safety Administration.

AAA developed this brochure as a way to provide defensive driving tips, which may help reduce deaths, injuries and economic loss due to vehicle crashes.

## Improve Your Defensive Driving Skills

As a defensive driver, you can avoid crashes and increases in your car insurance premium by effectively managing visibility, time and space while traveling America's highways and byways.

Being a defensive driver means that you are aware and ready for whatever happens. You are cautious, yet ready to take action and not put your fate in the hands of other drivers. According to the U.S. Department of Transportation, 90 percent of all crashes are attributed to driver error. Being a safe, defensive driver can cut that percentage significantly.

After reading this brochure, you should be able to:

- Describe how to manage visibility, time and space efficiently.
- Describe how to determine a 3- to 4-second following distance.
- Identify the correct way to use the 3- to 4-second following distance.
- Describe the purpose of the 4- to 5-second rule and 20- to 30-second visual lead-time.
- Describe the three techniques necessary for efficient vehicle placement.

## Safety-conscious Drivers Prevent Crashes

When you drive, you must constantly process and evaluate information to make accurate decisions. To do this you must:

- **Pay attention.** The primary attribute necessary for you to be a safer driver is alertness. Paying attention makes it possible for you to see, recognize and avoid the hazards lurking on the road. This is an important driving task because it helps create the time you need to recognize hazards and avoid a collision.

While it is important for you to be alert and aware when you are behind the wheel of a moving vehicle, it is not an easy task. Many seasoned drivers think driving is something they do automatically, and that their minds are free to wander.

Paying attention needs to become a habit. Work at consciously analyzing what you see while you drive. Driving is the most dangerous thing most of us ever do and it deserves our full attention.

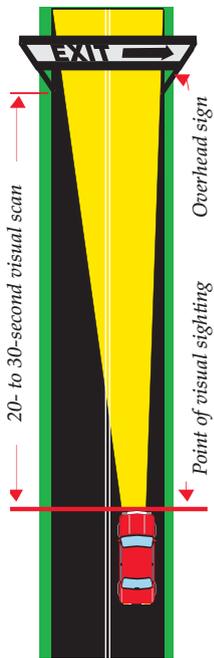
- **Allow enough space ahead.** Thirty percent of crashes involve rear-end collisions, many of which could have been avoided by following at a safe distance. You should allow at least three seconds between your vehicle and the car ahead of you. At highway speeds, lengthen the gap to four seconds or more. If you are driving in the rain or poor weather conditions, lengthen that gap to six or more seconds.

The weight of your car is a major determining factor in how long it takes you to stop. The heavier the vehicle, the longer it takes to stop. On average, at 65 miles per hour it will take you the length of a football field to stop your vehicle completely. Anti-lock braking systems (ABS) only help you stop in the case of wheel lock; they do not help you stop in a shorter distance.

- **Look ahead.** Scan the road and the surrounding area at least 20- to 30-seconds ahead for potential road hazards, conditions and information that can help you plan a clear path to travel. Look around and keep your eyes open for approaching vehicles, pedestrians, or animals that might enter your path.

At highway speeds of 50 to 65 miles per hour, the 20- to 30-second visual lead-time translates to one-third to one-half mile. At city speeds of 30 miles per hour, 20- to 30-seconds equals one-and-a-half to two city blocks.

Establish your 20- to 30 second visual lead-time using the following steps.



1. Find a fixed object in the distance, such as an overhead sign or an overpass.
2. Begin counting "one thousand and one, one thousand and two, etc."
3. You should be able to count to between 1,020 or 1,030 before your vehicle passes the fixed object.

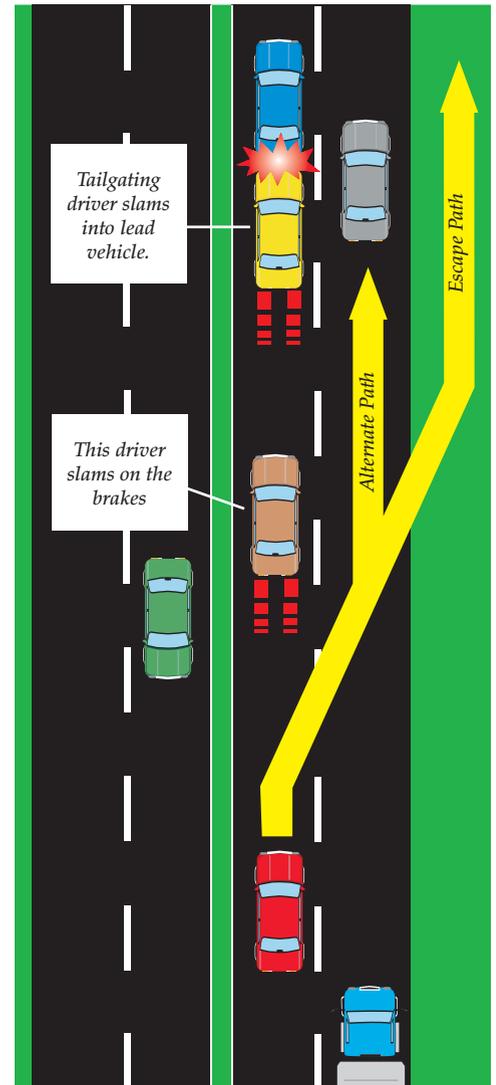
If your car reaches the marker before you have counted to 1,020 or 1,030, you are not searching far enough ahead.

This simple technique helps you:

- Identify objects or conditions 12- to 15-seconds ahead that may interfere with your path of travel;
- Predict actions or changes in conditions on or near the roadway that may increase your level of risk;
- Decide at least four- to five-seconds ahead what actions you may employ to control or reduce risk;
- Execute timely decisions, for example steering around a pothole.

- **Have an escape route.** In all driving situations, the best way to avoid potential dangers is to position your vehicle where you have the best chance of seeing and being seen. Check your mirrors every few seconds to see what is beside you and what is behind you. Having an alternate path of travel is essential, so be sure you take into consideration the position of the vehicles around you and the road ahead before you decide where you can maneuver safely to avoid a crash. If the road is narrow and there is no shoulder, increase your following distance.

What is your alternate path of travel?  
Where would you move if your immediate path were suddenly blocked?



- **Follow the three- to four-second rule.** Since the greatest risk of a collision is in front of you, using the three- to four-second rule will help you establish a safe following distance and provide adequate time for you to brake to a stop if necessary in normal traffic under good weather conditions.

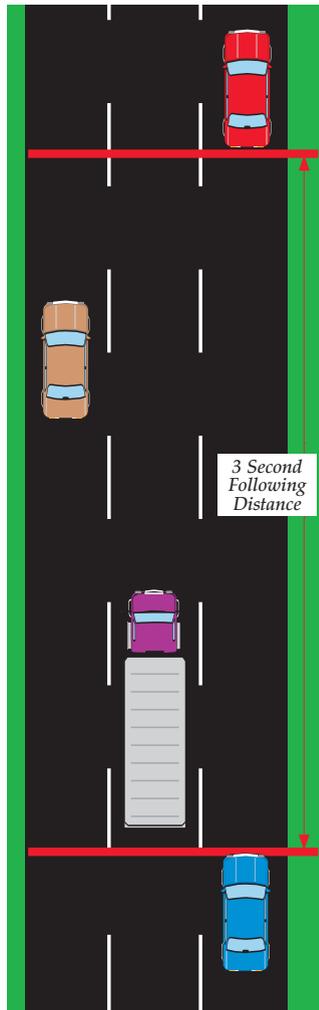
Watch as the vehicle in front of you passes a fixed object or point – for example, a pavement marking or traffic sign. Begin counting as the vehicle ahead passes the fixed object. "One thousand and one, one thousand and two, one thousand and three." If your car reaches the marker before you finish counting, you are following too closely.

How to stay at least 3 to 4 seconds behind the vehicle in front of you.

Choose a fixed road mark, such as a road sign.

Start to count as the vehicle ahead passes the road sign.

You should be able to count 1,001 ... 1,002 ... 1,003 before you pass the fixed point.

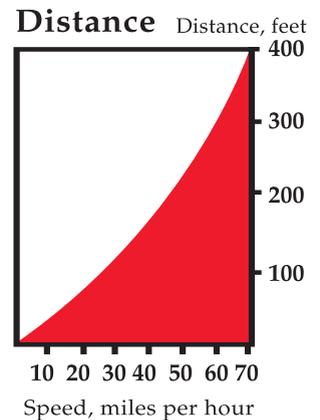
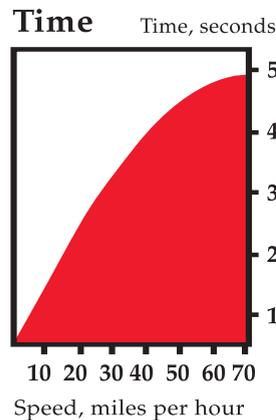


In adverse conditions, use the three- to four-second plus rule. Add an additional one second to your following distance for each adverse condition including:

- driving at night, in fog, rain or snow;
- driving behind a truck or vehicle that makes it difficult for you to see ahead;
- driving behind a motorcycle; and
- driving through an intersection.

The three- to four-second following distance works if you have to stop suddenly because the driver ahead brakes to stop. However, at highway speeds, a three- to four-second following distance will not give you enough time to stop if the road ahead is suddenly blocked by a collision or a vehicle stopped across your lane. At 55 miles per hour, you need four- to five-seconds to stop. Therefore, your position in traffic should be based on availability of alternate paths of travel.

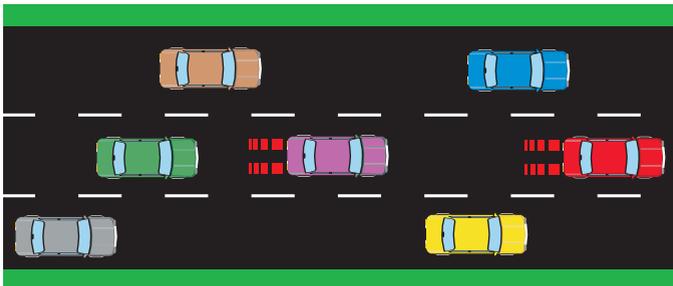
As your speed increases, so does the time and distance required to brake to a stop. Braking distance is a factor of three components — perception time, reaction time and braking distance. The graph on the left (shown below) shows the total time needed to stop. The graph on the right shows the total distance needed to stop, even with anti-lock brakes.



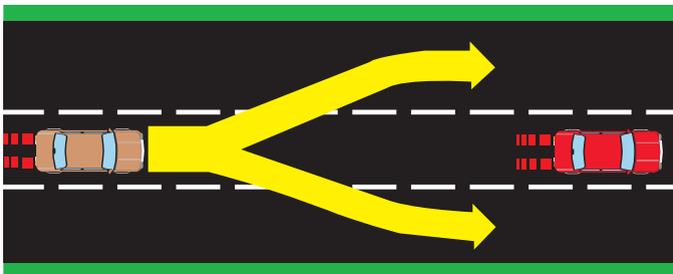
- **Keep your speed down.** Posted speed limits apply to ideal conditions. You are responsible for decreasing your speed to match the conditions. Remember, defensive driving requires careful positioning of your vehicle in relation to front, rear and lateral – or side – traffic. This efficient management of visibility, time and space means selecting:
  - Speeds to position your vehicle between clusters of vehicles to your front and rear;
  - A speed and lane position that provides the greatest visibility and allows you to see and be seen by other drivers;
  - A lane position within groups of traffic that allows the greatest room to maneuver. This is lateral positioning.

Lateral positioning requires you to minimize risk by keeping as much space as possible between your vehicle and other dangers that have collision potential, such as vehicles, pedestrians, animals or obstacles.

Having adequate time and space to maneuver will increase the number of options open to you.



1. Limited time and space

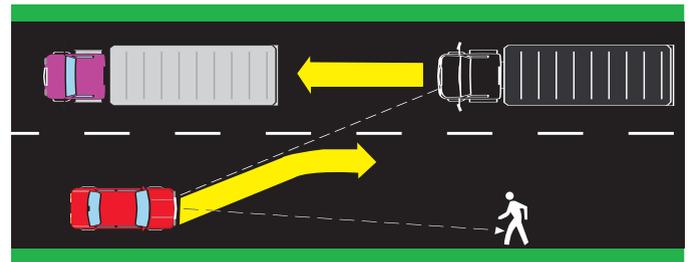


2. Ample time and space

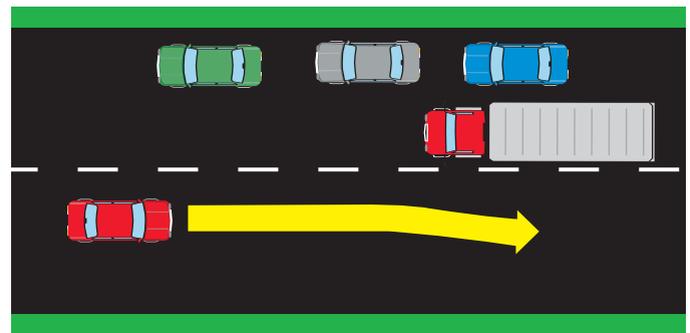
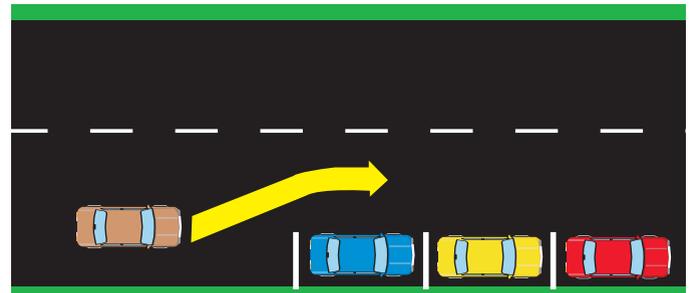
- **Separate risks.** When faced with multiple risks, it is necessary to address them by separating the risks. In these situations, your task is to avoid having to cope with too many risk factors at the same time.

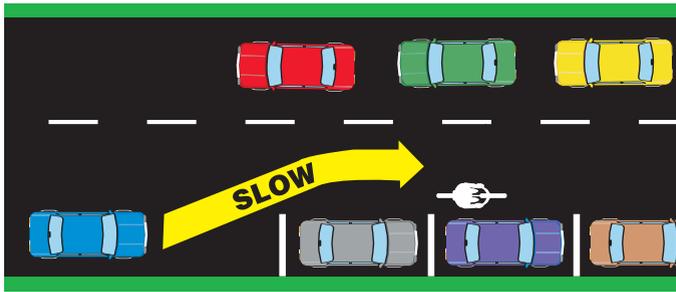
For example, while driving on a narrow two-lane road, you might identify a pedestrian walking on the side of the road and a truck approaching in the oncoming lane. By adjusting your speed, you can avoid meeting the oncoming truck and passing the pedestrian at the same time.

You have simplified the situation by separating one danger from another.



Position your vehicle so that you have the greatest space possible between you and any potential dangers.

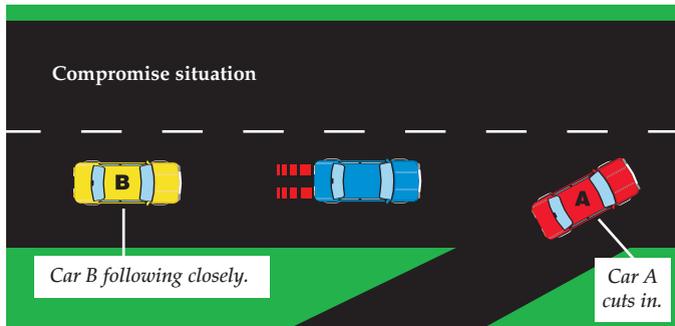
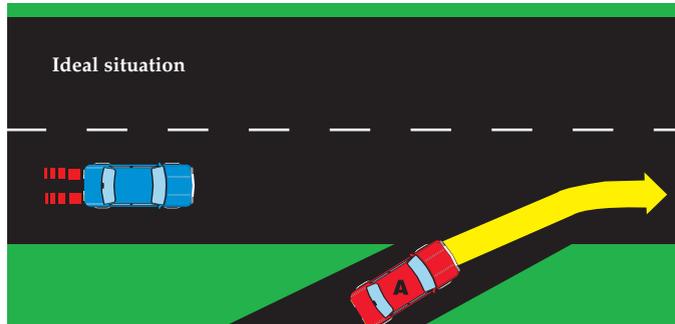




In this situation, the driver of the car compromises by slowing and moving closer to oncoming cars, thus giving the bicyclist more room.

- **Do not depend on other drivers.** Be considerate of others, but look out for yourself. Do not assume another driver is going to move out of the way or allow you to merge. Although we expect other drivers to behave in an appropriate manner, we cannot depend on them to drive as expected. Therefore, it is essential to practice effective visibility, time and space management to achieve efficient driving performance. Plan your movements anticipating the worst-case scenario.

In a compromise situation, you might have to brake enough to avoid a collision with car A, but not so much that you would cause a collision with car B



- **Cut out distractions.** Almost everyone has made a driving mistake that can be attributed to being distracted. Missing a turn, running off the road, reacting too slowly to a driver stopped in front of you ... are usually caused when the driver's attention is somewhere other than on the road.

Scores of drivers conduct business while on the road, rubberneck, adjust the radio, attend to children, eat and drink, use a cell phone, converse with occupants in the vehicle, read a map — all activities that divert your attention from the task of driving. Removing your eyes from the road or breaking your concentration from the roadway can lead to crashes, injury and death.



Using a cell phone, interacting with passengers, even changing radio stations can distract the vehicle operator.

State lawmakers across the United States are cracking down on distracted driving as research increasingly documents the perils of inattentiveness behind the wheel. Many states and localities are banning the use of cell phones while driving and are now enforcing laws that encompass distracted driving in general. Make sure to check the state laws before you begin your driving trip.

## It's all about the attitude!

Although defensive driving includes all of the above considerations, a better description is a realization that driving is a privilege that you share with many others. There are real people in other vehicles – possibly even family members or co-workers – and aggressive, irresponsible driving on your part puts your life and the lives of others in danger.

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