

## Module 5 – Visual Search

About 90% of the decisions you make while driving are based on what you see. Good vision is critical to gather all of the information needed to make accurate, timely decisions before reacting to your environment.

What you can see without obstruction is called the “line-of-sight.” The best condition for a thorough visual search is when your line-of-sight is not obstructed around *all* sides of your vehicle. You need to be able to see well *ahead, behind, and to the sides* to help you identify hazards, predict the conditions that you might encounter and prepare to execute the appropriate driving maneuvers.

When you drive, wherever you drive, be aware of your line-of-sight quality. Look ahead and to each side of your path of travel utilizing an orderly search pattern. As you move your eyes, focus quickly and keep your eyes moving. To ensure you detect hazards in all directions, do not stare at anything or in any one direction for more than a fraction of a second.

At the conclusion of this module, you will be able to identify techniques and reasons why it is important to conduct a thorough visual search. The topics that will be covered include:

- Search ahead;
- Search to the sides;
- Search behind;
- Night driving;
- Visibility in the rain; and
- How to improve your vision.

Many drivers involved in crashes say “it happened so fast”, “I didn't see” or “I couldn't stop in time.” As a driver, you are often forced to respond quickly to an unexpected traffic situation.

To have adequate time and space to avoid obstacles in your path you need to search the traffic environment as far ahead of your vehicle as possible. Make every effort to establish a clear line of sight so you can search the traffic environment about 30 seconds ahead. This should give you plenty of time to recognize obstacles ahead and maneuver around or away from potential traffic conflicts.

To help judge how far ahead you need to look for the 30-second visual lead, pick out a fixed object like an overpass well down the road and start counting. If you reach the object before getting to one-thousand and thirty, pick out another object further down the road and try it again until you are able to identify the 30-second distance.

The distance equivalent of 30 seconds down the road ahead will vary depending on your vehicle's speed. When traveling at 25 mph you are covering 36 feet per second. In 30 seconds you will have traveled the equivalent of 3 and a half foot ball fields.

When traveling at 55 mph you are covering 80 feet per second. In 30 seconds you will have traveled the equivalent of 8 foot ball fields.

When traveling at 70 mph you are covering 100 feet per second. In 30 seconds you will have traveled the equivalent of 10 foot ball fields.

With a well developed 30 second scan technique, you will pick up visual cues, process information and have time to decide what to do next. This mental process takes time to develop.

The following are indications that you are not looking far enough ahead when you are driving:

- You make frequent, quick stops.
- In traffic, you often find yourself boxed into a slow moving lane - this indicates you have not spotted problems ahead well enough in advance to avoid them.

When approaching areas where others may cross or enter your path, search to the sides for clues to prevent a collision with other road users. Conduct your search to the sides by scanning such areas as intersections, limited access exits and entrances, driveways, alleys, controlled multi-lane roads, crosswalks and roadside areas, railroad crossings, parking lots, school zones, and residential areas.

Before you enter an intersection, search for threatening objects and conditions by looking to the left, looking ahead, and then looking to the right. Drivers often fail to see vehicles and pedestrians to the right. Look again to the left and enter the intersection when your path of travel is clear.

Do not rely solely on traffic signals at an intersection. Look to the left and right even though other users have a red light or stop sign. It is estimated that as many as two out of three drivers fail to stop for stop signs, and in many areas, several vehicles may run red lights at the completion of their green cycle.

Before crossing an intersection, be sure you have an adequate view. If your line of sight is blocked, slowly edge forward until you can see into the intersection. If other vehicles are blocking your view of another lane, it is best to wait until they move out of way.

As you turn a corner, watch for bicyclists and pedestrians about to cross the street and into your path. When a right-turn-on-red is permitted, always yield to any pedestrians in or entering the crosswalk this requires searching to your right, not just to your left. Remember, Florida law requires that you must first come to a complete stop before attempting to turn right on red.

Whenever there is a lot of activity or roadside business entrances along the side of the road, use active scanning to the sides. Be extra cautious for conflicts to the side in or near when you are traveling near areas such as shopping centers, parking lots, construction zones, playgrounds, school yards, busy sidewalks, and residential areas.

Approach a railroad crossing with caution. Search and roll your windows down to listen for warnings or approaching trains, and be prepared to stop. Note: It is always a good idea to have your window at least slightly open to hear emergency vehicles, etc.

Search as you approach a railroad crossing and look both ways using the right, left, right technique. Even when warning lights are not flashing - the signal may not be working. If signal

and bells are flashing and ringing, do not try to cross the tracks. Do not try to beat the train. Never stop your vehicle straddling the railroad crossing or between the gates. When approaching a railroad crossing with more than one track, make sure you have a clear view well down the track in both directions before attempting to cross.

Our natural tendency is to concentrate on what is going on ahead in the direction of travel. However, trouble can come from any direction - check your mirrors whenever you plan to change speed or vehicle position. Be aware that standard rearview and side mirrors do not provide a complete view of everything behind and to the sides of your vehicle, even when properly adjusted. When changing lanes, check for traffic behind you, glance in your rearview and side mirrors to make sure no one is preparing to pass you. Also, before you change lanes glance over your shoulder to check the blind areas to be certain no one is near the left-or right-rear corners of your vehicle.

If you have a stiff neck or even a bit too much weight, looking over your shoulder can be difficult. If you experience problems with visibility, you can install large side mirrors on each side of your vehicle to reduce your blind areas. You can also attach a small convex curved mirror in the corner of a flat mirror. This will help you see into blind areas, but will not help you gauge distances. By using both mirrors together, you can detect other vehicles with the curved surface and judge how close they are with the standard mirror.

You should always check your mirrors:

- Before you slow down, stop, or when anything in the lanes ahead suggests a change of speed or your vehicle's position;
- When you have to slow;
- When you prepare to turn into a side road or driveway, especially if the driveway is just before an intersection;
- When maneuvering to pull into a parking space; and
- When traveling on a long or steep incline.

When you detect an obstacle in your mirror, adjust your speed or vehicle position to avoid any conflicts. Remember, it is most difficult to manage the space *behind* your vehicle. If there is someone tailgating, position your vehicle as far away as you can from the aggressive driver. Signal and maneuver to another lane if available and if there is a safe gap in traffic.

Backing is often a dangerous maneuver because it is hard to see behind your vehicle. Whenever you have to back up your vehicle, check behind it before getting in. Children or small objects are hard to see from the driver's seat.

Back up slowly because your vehicle is much harder to control and stop while you are backing. Avoid backing into traffic if possible. If you can do so safely, back into a driveway or parking space so you will be facing forward when you leave.

As this driver exits the driveway, the child approaching on the bike is hidden. By exiting forward, the driver has less risk of not seeing the child and increased ability to reduce the chances of conflict.

Driving at night is challenging because darkness limits what you can see. If you can't see well, driving is more difficult and dangerous. Be aware of how darkness affects your vision, especially as you get older.

Darkness and dim light can:

- Decrease depth perception;
- Reduce your ability to distinguish colors;
- Slow glare recovery; and
- Cause visual fatigue of your eyes. (Eye muscles continuously adjust to changes in darkness and exposure to the brightness of oncoming headlights.)

Your vehicle's external lighting system is designed to communicate with other drivers and help you to "see and be seen" by others. Your headlights and tail lights increase your chances of being "seen" by other road users. Travel even in daylight with your headlights on if your vehicle is not equipped with daytime running lights.

On highways, or when there is no opposing traffic, use your high beams whenever possible. Be sure to switch to your low beams if there is opposing traffic or when you see tail lights of vehicles ahead. Use your low-beam headlights in fog, snow or rain. The water droplets in rain and fog reflect the light of your high-beam headlights back into your eyes and make an already poor visibility situation even worse.

It is against the law in Florida to drive with your "flashers" on.

If an oncoming vehicle has its high-beam lights on and the driver does not switch to low beams, slow down and visually locate the white lane marking that designate the right edge of the roadway. Use this marking as a guide to maintain your lane position. Check oncoming traffic with quick glances to the road. Do not stare into the oncoming headlights and do not repeatedly flash your high beams, you can cause blindness to the oncoming driver. One flash from a distance frequently alerts the opposing motorist to dim their high beams.

If you do not have an auto adjust mirror, remember to set your rear-view mirror in the night setting position. This setting is designed to reduce glare, but might hamper your ability to correctly judge the distance of traffic following you. Also, if this setting or bright lights from behind continues to blind you, check your speed and look for a place to safely pull over and let the following vehicle by.

When the sun is rising or setting, you can become blinded by its glare. During these times, the road is dark and the sky is bright in one direction and partially dark in the opposite direction. At dawn and dusk, this is an issue you need to be prepared to deal with. If you are driving on a roadway with multiple curves and changes in direction, do your best to protect or shield your eyes.

Light and lighting conditions may make the color of traffic signals difficult to see, so use caution when approaching intersections.

The faster you travel, the longer it takes to stop. If you are traveling so fast that you cannot see past the location where you would come to a complete stop, you are "over-driving" your headlights. If you "over-drive" your headlights, and you see an obstacle in your path, it will be difficult to stop and avoid a collision.

When driving in an area with multiple curves, your headlights are pointing straight ahead, not into the curve. Try to search into curves beyond the illuminated path to the best of your ability. Reducing your speed will help.

Driving in rain can be dangerous, SLOW DOWN! It is hard to see and avoid pedestrians, bicyclists, stalled vehicles, livestock, and wildlife.

Here are a few tips for safe driving in the rain:

- Make sure to periodically replace windshield wiper blades.
- If at all possible drive in the middle lanes—water tends to pool in outside lanes.
- Maintain a safe following distance (at a minimum apply the 3 second rule); the distance will need to be increased as your visibility is reduced.
- Don't follow large trucks or buses too closely, their vehicle spray created by their tires can impair vision.
- Be more alert watching for brake lights in front of you.

More tips that may make your drive in the rain safer include:

- Avoid using your brakes. If possible, take your foot off the accelerator to slow down;
- Turn your headlights on in rain, gloomy, foggy, or overcast conditions;
- Avoid off-road driving; it's hard to judge the actual depth of puddles and standing water;
- Never drive beyond the limits of visibility;
- The glare of oncoming lights, amplified by the rain on the windshield, can cause temporary loss of visibility while substantially increasing driver fatigue;
- Never drive through moving water; and
- Avoid driving through deep water because it can cause serious damage to a vehicle's electrical system.
- It is against the law in Florida to drive with your "flashers" or "hazard lights" on. Keep your hazard lights off unless you are stalled or sitting on the side of the road. Hazard lights are only supposed to be used when you are stationary.

If possible, stay off the road during heavy thunderstorms. Flashes of lightning can temporarily blind and disorient drivers, and the accompanying high winds and heavy rain can create deadly driving conditions.

When you need to stop or slow, do not brake hard or lock the wheels and risk a skid; maintain mild pressure on the brake pedal. Do not use your cruise control during we weather conditions.

Watch the contours not only of the road, but also the fences, trees, hedges, and buildings at the side of the road ahead. If they appear to be unnaturally low, slow down at once, because the road is probably flooded.

Watch out for places where floodwater collects, particularly low-lying roads adjacent to streams, and dips under rail or highway bridges.

The most important thing you can do to improve your vision is to have regular eye examinations and wear corrective lenses if you need them. Normal eyes are at their peak performance when you are in your early teens. Your visual acuity begins to decline around the age of 15.

If you have not yet experienced any noticeable changes in your vision, be aware that it will happen. Watch for warning signs such as blurry objects far away and difficulty judging distances at night.

Additional age related changes in vision include: poor vision in dim light, difficulty seeing in glare conditions, and reduced peripheral vision. These changes require more time to effectively search the traffic environment.

It doesn't have to be pitch black for light levels to be inadequate. To help you see better in low-light conditions:

- Recognize your eyes need to adjust to darkness after entering the dark from a brightly lit area. Your eyes also need time to adjust to other low-light conditions such as twilight, fog, or haze.
- Use all available light. If you are driving in the city, use low-beam headlights and stick to well-lighted streets.
- Make sure you get full use of your headlights. If you think your headlamps are not projecting light far enough ahead, have them checked and adjusted if necessary.
- Keep headlights clean. Dirty lenses can cut the amount of light your headlights emit by as much as 90%.
- Wear sunglasses during the day so your eyes are rested if you have to drive at night.

It is just as important to be seen as it is to see. You share the road with many others who have declining vision. Remember a large population of other drivers and road users may not see you clearly even though you can see them. Notice the one car without headlights on can barely be seen.

Do not make the assumption that other drivers see you and will stop in time to avoid hitting you.

Let's see if we can remember some important points. You will now be asked some review questions based on this CBT. You may select your answer by choosing the corresponding button or by pressing the corresponding letter on your keyboard.

1. As you approach a railroad crossing you should look:
  - a. straight ahead in case a bus is stopping
  - b. to the left because trains always come from the left
  - c. to the right because trains always come from the right
  - d. both ways using the right, left, right technique

The answer is d. both ways using the right, left, right technique.

2. When you are driving make every effort to establish a:
  - a. Clear line of sight
  - b. crash buffer
  - c. open line of communication with other drivers
  - d. All of the answers are correct
  - e.

The answer is a. clear line of sight.

3. Driving at night can cause which of the following?
  - a. High levels of mental fatigue
  - b. A decrease in depth perception
  - c. A sharpening of color definition
  - d. A propensity for nearsighted trouble

The answer is b. A decrease in depth perception.

And now let's review the lesson.

What you are able to see without obstruction is called your "line-of-sight." When you can see well ahead, behind and to the sides, you can identify hazards, predict the conditions that you might encounter and be ready to execute the required driving maneuvers.

We discussed many safe techniques to improve your visual search patterns and help you manage the risks associated with poor visibility conditions. Use a well developed a search pattern ahead, to the sides, and behind you. When driving at night, recognize your limited vision and don't "over drive" your headlights. It is important to slow down and drive a speed that is safe for your limited vision in wet weather. If possible, don't drive during thunderstorms.

And remember, get regular eye exams, wear sunglasses, and never assume if you see others well, that they will see you. Drive defensively.

The next module presents information on impaired driving and how to be focused, recognize the situation, and react quickly. This concludes the module on Visual Search.