Chapter 7
Advanced Driving Locations
Content Notes

Approximate time required to complete this chapter: Two hours

7.1 Curves and Hills
7.2 Passing
7.3 Freeway Driving
7.4 Driving at Night
7.5 Inclement Weather Conditions

7.1 - Curves and Hills

The most frequent location of single car crashes for young drivers is a CURVE! So, what is the problem? Curves aren't straight and hills aren't flat. Inertia, momentum, vehicle balance, and traction come into play in a big way.

All drivers need to recognize that a curve is a high-risk location and need to be alert to the potential dangers that exist. Drivers also need to have the capability to place the vehicle in the best possible position to negotiate the curve safely without being deceived or misled by the "The Okay Expectancy." The Okay Expectancy occurs as the result of an action by a driver for which there is no negative consequence. As a result, the driver feels that what she or he did was okay. But knowing what to do, (using the correct lane position or speed control technique for example) can help a driver detect a small error before it can become a contributing factor in a collision.

Inertia

Inertia is the tendency of a moving body to continue at the same speed and in the same direction unless another force is applied. (The term also applies to a body at rest and is a significant factor in acceleration.) All things have inertia. As the vehicle was moving, so were your books on the back seat. When you brake, a force is exerted to make the vehicle stop; your books keep moving forward in a straight line and fall to the floor.

Momentum

Momentum is the product of weight and speed. All objects in motion have momentum. As such it can be stated that momentum is a measure of inertia. The greater the momentum of the vehicle is, the greater the damage will be in a collision. A vehicle's momentum depends on its weight and its speed. If either the weight or the speed doubles, so does the vehicle's momentum. As speed increases, so does the likelihood of damage in case of a collision.

Traction (Adhesive friction) is essential to vehicle control

Traction or adhesion is the grip between the tires and the road surface, which allows a vehicle to start, stop, and/or change direction.

Curves

Speed may need to be reduced when taking a curve due to shortened sight distance, momentum, and inertia forces (these forces want to make the car go straight). Therefore, when entering a curve, focus on the farthest clear travel path possible by continually looking into the curve. While looking into the curve you

will be using your central vision to see any changes to your travel path, and your fringe vision should keep account of your tracking path. As you become more confident in the use of reference points, your fringe vision will be more comfortably and efficiently used. By searching into the curve, you are able to evaluate any problems to your sight line or travel path at a time when you may need to avoid a surprise crash situation.

Looking into Curves

Looking into a curve before making the turn means that the driver has an actual view of what the space area conditions are before adjusting speed or steering movements.

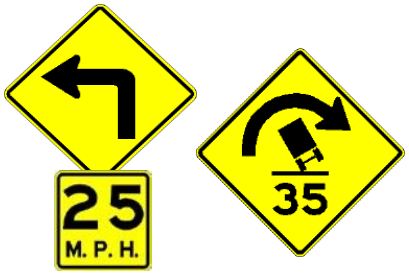
Engineering Design

Most of the fundamental safety components of any road are established in the overall engineering design.

This sign warns drivers that the roadway has either a negative or flat camber. While it is true that vehicles with a higher profile will have greater problems in these types of curves than vehicles with a lower profile, the main message is “Warning - negative camber!” All drivers should see these warning signs as a clue that a speed reduction is needed.

Speed Limits

Watch those speed limit signs! Speed limits are not just randomly picked. They're calculated based on road and traffic conditions. They're out there for a reason, so follow them. If you don't, you run the risk of losing control.



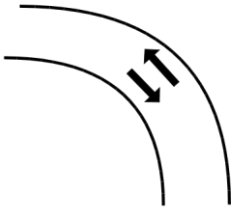
Approaching Curves

1. **See Curve in Target Area**
   The initial detection of an approaching curve is seen in your target area.
2. **Check Rear**
   An immediate check of the mirrors gives you time to control the rear.
3. **Evaluate Traction Envelope**
   A curve places a high demand upon your vehicle's traction. Be conscious of the condition of the road surface.
   Check traction/adhesion while there is plenty of sliding space straight ahead.
   Surface Conditions: Flat, blacktop, oil, banked + or -, leaves, polished, ice, concrete, snow, gravel, crowned, water, sand
4. **See a Left or Right Curve**
   Determine if it is a left or right curve and prepare for an effective drive line into the curve.
5. **See Radius of Curve**
   The size of the curve's radius will help to determine an effective speed selection.
6. **Get Best Speed Control**
   The sharper the curve, the smaller the radius, and the slower our speed must be. When braking is necessary, brake before going into the curve and hold some of the brake pressure until the transition peg aligns with the new target area
7. **Look for Oncoming Traffic**
8. **Look into Curve to See Exiting Path-of-Travel**
   Look into the curve, much as you look into a turn, by turning your head before you turn the steering wheel. Attempt to see if your exiting path is open.
9. **Evaluate New Target Area**
   Evaluate your new target area to see what your front condition is.
10. **Evaluate Path-of-Travel**
    Evaluate your targeting path for any line-of-sight and/or path-of-travel changes.

Types of Curves

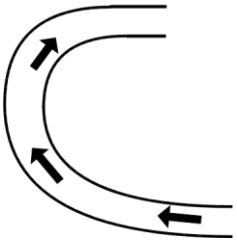
There are different types of curves. One way to describe a curve is by its radius. Every curve follows part of the circumference of one or more circles (an arc), and the radius is the distance from the center of the circle to the curve itself. The larger the radius, the gentler the curve and the easier it is to negotiate.

Constant Radius



A curve that follows the circumference of just one circle is called a constant-radius curve.

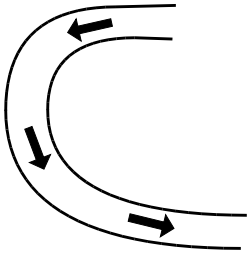
Decreasing Radius



This type of corner is very deceptive and dangerous. The further the car goes into the curve; the more steering is needed. When the driver realizes the need to slow down, he takes his foot off the gas pedal. Many curves have several changes of radius, further challenging the driver.

Some curves that have a decreasing radius are even more dangerous because it is not obvious. The problem with a decreasing radius turn is that you can find yourself going too fast to exit it safely even though you were not going too fast for the first part of the curve.
Unlike a constant radius turn, there is not one smooth line through this kind of curve which has a single apex to it that allows you to pick a single stable lean/speed through it. On any unfamiliar road, avoid trying to take the curves as fast as they look to be.

Increasing Radius



The radius of the curve as you enter it is smaller than the radius of the curve as you exit. The angle of this corner opens progressively after the apex.

Uphill

In this type of curve, the car will naturally try to lose speed. Most drivers would respond by pushing more on the throttle pedal, which could result in loss of steering control.

Downhill

In this type of curve, the car will naturally try to pick up speed. Selection of lane position for best line-of-sight is important.

Camber (or Bank)

Camber is the "tilt" of the road surface. Some road corners are designed with a little bit of "banking" to assist cars by improving cornering force and traction.

Positive camber allows centrifugal force to squeeze the tires into the asphalt. Most freeways and their entrance and exit ramps are built this way.

Negative camber means the opposite; the corner actually tilts in a way that reduces cornering force and traction. Centrifugal force reduces gravity's pull on the tires into the asphalt which can lift tires off the roadway.

Conditions of the Roadway Limit Traction

Flat, blacktop, oil, banked + or -, leaves, polished, ice, concrete, snow, gravel, crowned, water, sand

Approaching Hills

Hills require adjustments in your driving because of shortened sight distance near the crest of the hill and because there is a tendency for the vehicle to slow down when going up a hill. When approaching the crest of a hill, be in lane position 1, but if there is a problem caused by oncoming traffic moving in the left front space, be ready to move into lane position 3. Slow down if you are in an area where there is a chance that animals, farm vehicles, or other obstacles could be on the road.

The problem most drivers have is that most often they don't have problems! Think about that for a while. Who really expects a problem over the hillcrest or around the curve? For the previous 9,000 times going into the curve or over a hillcrest, there weren't any problems. Drivers feel comfortable going a little faster than they perhaps should, but still there is no problem. However, when the problem does occur, a driver can be surprised. This means that a driver must see the curve and a hillcrest as a sight line and target area change, then aggressively look for the actual travel path which is available or not available.

1. **Hill Approach LP 1**
   When approaching a hill, take LP 1.
2. **At Hillcrest, Evaluate Path-of-Travel**
   Search over the hillcrest to see if you have an open path-of-travel.
3. **Hillcrest LP 1 (LP 3 for Escape)**
   Look for the option of moving into LP 3 if there is a problem.

Techniques for Approaching Curves and Hills

Explain to students that if they approach a curve with too much speed, a braking action will be needed. They will have to use some traction for turning and some for braking. Point out that they should always slow down for a curve ahead of time. By seeing the curve in their target area, there will be plenty of opportunity to get good car control. It is easier to get a proper speed before going into the curve than it is to regain control of the car if speed was too fast while entering the curve.

Searching into a curve or hill

Seeing the curve and/or grade 15 seconds ahead as a front space change or a limitation in the path-of-travel will cause less stress and give the driver more control because he/she will have time to get the best speed and lane position to negotiate the curve or hill.

Curves and hills block line-of-sight

Drivers are unable to see what they are driving into; therefore, they can't know the path-of-travel. Use central vision to look 15 seconds ahead into the curve. Look through the curve; try to see to the end of the curve as soon as possible. Look to see if the path-of-travel is open or closed.

Searching into the curve lets drivers immediately evaluate any line-of-sight or path-of-travel problem to avoid a surprise situation.

1. After seeing a curve in the roadway, make a mirror check for rear space condition.
2. Check the left, front, and right spaces to know what your options are.
3. To evaluate the path-of-travel, search into the curve before turning the steering wheel.
4. Search ahead for new line-of-sight or path-of-travel changes.

Looking for Problems

Ask these questions to avoid problems:

- Is there a problem over the hillcrest or around the curve?
- Is there a car stalled while backing out of a driveway into the intended path-of-travel?
- Does the roadway curve to the left or right?
- Can the exit of the curve be seen ahead?

- What is the sharpness of the curve?
- What is the lane width, shoulder conditions, posted speed, or traffic volume?
- Is the curve on grade, up or down hill?
- Is the field of view restricted?
- Can an apex point for exiting the curve be determined?
- How is my rear space?

Answering these questions gives time to determine the best speed and lane position for negotiating a curve. Driving with headlights on during daylight hours helps other drivers see oncoming vehicles.

Lane Position

The outside road position on entry to a curve allows for a longer smooth braking on entry and improves the opportunity to establish an open line-of-sight to the apex and exit of the curve. Entering from the outside of the curve, moving to the apex, and then leaving the curve at the outside of the curve allows the driver to maintain the best sightline and requires the least amount of steering through the curve, by straightening out the curve.

Basic Cornering/Braking

As you approach a curve, use controlled braking before reaching the curve. Trail brake to the transition point where the new target area aligns with the transition peg. Trail braking will keep the weight over the front tires, giving steering control to the driver. Then accelerate. Use these techniques to help maintain vehicle balance and traction control when entering a turn without stopping.

Driving in Curves

The sharper the curve, the more traction vehicles need to grip the road. Energy of motion in a curve change in proportion to the square of the increase or decrease in speed. The energy of motion (inertia) attempts to continue traveling in a straight line, giving the driver the feeling of being “pulled” outward when rounding a curve in a car. Simply reducing speed in half will reduce the pulling force four times.

7.2 - Passing

The act of passing has the potential to be the most dangerous action a driver can take. The decision to pass should be very deliberate and well calculated. Passing and being passed are maneuvers which can involve high risk. These behavioral patterns will enable you, the driver, to reduce the risk.

Passing

1. Why Pass? - Evaluate Risk vs. Gain

Before deciding to pass, evaluate whether there is anything to gain. Often there is nothing to gain. If you pass one car, only to get to the rear of ten other cars, there is nothing gained by passing.

2. Keep at Least 3 Seconds Following Time

When you are certain you will be passing and there will be opportunities available, keep at least 3 seconds of following space. This will give you room to move into the passing lane and have space to return if you detect a problem that was not seen initially.

3. Select Best Passing Location

By keeping at least 3 seconds of following space, you will best be able to search for a low-risk passing location.

4. **Mirrors - Over Shoulder Checks -Signal**
   Check the outside mirror on the side you will be entering; make an over-the-shoulder; and put on the signal before moving into the passing lane.
5. **Check Front and Side Spaces**
   See at least 20 seconds beyond the vehicle to be passed to see how your front and side spaces will be.
6. **Avoid Hesitation**
   Once the decision is made to pass, it should be done without delay.
7. **Accelerate Smoothly (You are not allowed to exceed the speed limit to pass}**
   By going 10 mph faster than the passed car, it will take about 10 seconds to complete the pass.
8. **Keep Searching**
   This is a high-risk moment. Keep searching the front. Especially look for cars that may be entering from side streets or driveways.
9. **See Headlight in Rear-View Mirror**
   Being able to see only one headlight on the car you are passing will allow you to get out of the dangerous passing lane sooner and in a safer manner.
10. **Return to Original Lane - Cancel Signal**
    Avoid a slowdown while reentering the travel lane in front of the passed car to prevent it from gaining on you.

Explain Avoidance of Road Rage Incidents while Passing or Being Passed

Explain that to avoid a situation of road rage, it is best not to blow the horn or to flash headlights before passing a vehicle, even though the intent of using the horn or the headlights is to communicate to the driver that you will be passing to prevent him/her from being surprised by the pass. Therefore, it is especially important that a driver initiate a pass only when certain there is adequate space to complete the pass, and that the driver being passed is not likely to move into the passing lane.

Being Passed

1. **Plan Ahead for Passing Location**
   Look ahead to your target area to see what opportunities there will be for someone to pass you.
2. **Select the Passing Location**
   You can select the best opportunity for someone to pass you.
3. **Adjust Lane Position**
   When you want to be passed, moving into lane position 3 will communicate that message to the car in back and give the driver additional space to separate from the side of your car.
4. **Communicate if Needed**
   The use of the right signal light, in conjunction with moving into lane position 3, will be an effective communication to the car in back.
5. **Adjust Speed**
   The quicker the car in back passes you, the less risk you are exposed to. As you reduce your speed, you make the car passing you complete the pass in a shorter time.
6. **Adjust Following Time/Space**
   As the car completes its pass, there most likely will be less than four seconds of following time from your car to theirs. The few moments that it will take for the passing car to accelerate away from your car are very risky moments. The driver that passed may suddenly make a speed reduction, because of a number of circumstances, forcing you to brake to avoid rear ending them. The best habit is to reduce your speed, as needed, to control your following time.

Multi-Lane Highways

Sometimes when driving on multi-lane highways, passing on the right may be necessary. Point out that the driver should signal for the lane change and check the mirror's blind spot. If traffic is clear, the driver should change lanes smoothly and cancel the turn signal.

7.3 - Freeway Driving

Unlike City Driving

- No traffic lights
- No crossing traffic and railroads
- No stopping
- No pedestrians
- Limited access

Principles of City Driving Also Apply to Freeway Driving

- Use SIM searching patterns and space management techniques
- Everything happens at a faster speed

Safety Design Features

Though rarely given much thought, elimination of intersections, wide clear shoulders, and wide lanes all contribute to the low crash/injury/fatality rate on the Interstate Highway System. Other occupant protection design features include, but are not limited to:

- Rumble strips installed at the road edge to alert drivers that they are drifting off the roadway onto the shoulder
- Median barriers and guard rails
- Breakaway sign support posts

Expressway Driving Is Challenging

High speeds, traffic flow, types of traffic, and driver interaction all make expressways unique. Search patterns need to be lengthened as potential clues approach more quickly with higher speeds. Any actions taken with the vehicle need to be smooth and timed. Sudden changes in speed or direction could cause conflicts.

Planning Needs

To prepare your car for any trip on the expressway, be sure to check the important mechanical components such as windshields, windows, lights, tires, fluid levels, belts, hoses, brakes, and load distribution.

- Plan your route ahead of time to familiarize yourself with the route
- Know what to look for on signs so they will not be confusing
- Aim to the target area to give yourself lots of time to respond

Entering, Using, and Exiting on Ramp Behavior

1. Check the Rear: When planning to enter a limited access highway, be aware of the status of your rear space. Where there is a closed rear, slow down to avoid abrupt stops.
2. Keep 4 Seconds of Space: If there is a vehicle in front, keep 4 seconds or more following distance for independent action.

3. Maintain a Slow Speed on the Ramp: Slow down to avoid slowing down or stopping while in the acceleration lane.

Acceleration Lane

4. Search for Gap to Enter: With a slower speed on the ramp, you have more time to find a suitable gap to enter.
5. Blind Spot Checks: An over-the-shoulder check is needed.
6. Signal Light On: Turn on your left signal light.
7. Accelerate Briskly: Once a gap is found, accelerate rapidly to enter the traffic flow at highway speed.

Highway Entry

8. Precision Lane Entry: Use precision lane positioning to occupy the least amount of lane space necessary.
9. Mirror checks: Immediately after entering, check the mirrors to update rear space status.

Left Side Entrance Ramp

Some entrance ramps enter from the left instead of the right. This means that traffic is entering the far-left lane, usually reserved for higher speed traffic. The potential for conflict is greater. The search pattern is different, in that the search is directed to the right and over the right shoulder instead of over the left. Additional lane changes to the right may be necessary once on the expressway if your planned speed is less than traffic traveling in the left lane of the expressway.

Weave Lane

A “weave” lane is both an entrance and an exit for an expressway. Traffic may come onto and leave the expressway at the same location. This traffic weave causes conflicts for both drivers using a weave lane. It also causes conflicts for drivers on the expressway and on the entrance ramp in terms of speed and space adjustments. The driver entering from the entrance ramp shall yield the right-of-way to the driver leaving the expressway.

Changing Lanes

The need to change lanes on the expressway occurs often. It can be more dangerous when there are more than two lanes going in the same direction because several vehicles may want to move into the same lane. Search techniques for changing lanes become even more important in these situations. Some reasons for changing lanes on the expressway include:

- Entering or exiting
- Allowing someone else to enter
- Following large or slow-moving vehicles
- Lane ahead becomes blocked
- Passing

When changing lanes, change one lane at a time; do not cross several lanes at once. Adjust speed to the flow of traffic (do not exceed the speed limit) once in the new lane.

Lane Choice, Speed and Following Time and Space

Lane choice is dependent upon several factors, including volume of traffic, type of traffic, speed, and the planned exit. The far-right lane has potential for conflicts with drivers entering and leaving the expressway. The center and/or far left lanes are reserved for passing and high-speed traffic. Trucks and buses may use the far-right lane when climbing hills, as their speed is usually slower going uphill.

Following distance is critical on the expressway. It is important to maintain 6 seconds following distance. Keeping an open area to at least one side of your vehicle gives an escape route if the lane ahead becomes blocked. Increase following distance when following large trucks, buses, or motorcycles, or when driving in bad weather, being tailgated, and entering/exiting the expressway.

Exiting Highway

1. Plan 15 Seconds to Exit: Plan for your exit as soon as possible. By using 15 seconds, you should have all problems associated with exiting solved easily.
2. Check Rear Space Status: Once your exit is located, evaluate the condition of your rear space.
3. Communicate: Using the signal lights and/or a tap on the brake pedal will alert rear traffic that you are exiting.
4. Change Lane, If Needed: Use correct precision lane changing techniques if a lane change is necessary.
5. Test Brakes Before Exit: Before you are committed to the exit ramp and while in the deceleration lane, apply the brakes to feel their effect. If there is a problem, you can stay on the highway.
6. Controlled Braking: Use a constant pressure on the brake pedal for controlled braking.

Possible exiting problems include:

- "Weave lane" conflicts - search early and communicate with the other driver
- Traffic on the exit ramp - search early, prepare to slow or stop
- Short deceleration lane - search rear, slow more on expressway
- Very slow ramp speed - slow more in deceleration lane

Special Expressway Conditions

- Expressways through cities - The volume of traffic may increase dramatically. Speeds may slow to a crawl. Drive in the left or center lane to avoid merge conflicts in rush hour. Search for exits early and adjust position for exit.
- Disabled vehicles - When seeing a disabled vehicle ahead, reduce speed and increase the space between your vehicle and the disabled vehicle. This may involve changing lanes. Be alert for pedestrians, tow trucks, and/or police vehicles. If your vehicle becomes disabled:
- Pull off as far as possible onto the shoulder or median
- Turn on emergency flashers
- Raise the hood to signal for assistance
- Stay in the vehicle and lock doors
- Ask anyone who stops to go to a phone and call for assistance
- Do not get into a stranger's vehicle
- Construction areas - Search ahead for warning signs. Slow your speed. Adjust position to maintain a space around your vehicle.
- Tollbooths - Search well ahead for tollbooth signs. Begin reducing speed early, as traffic may be backed up at the booth. Search for green lights or signs of an open booth. When exiting, search traffic to both sides for merging potential. Accelerate smoothly and adjust speed.

Special Freeway Problems "Emergency and Official Vehicles Only" Crossover

This is a transverse roadway or opening that connects the separate roadways of a divided highway. It is to be used by emergency and official vehicles only. Watch for vehicles entering the roadway from a crossover.

What can it be like when you pass a large truck, or a large truck passes you?

Large trucks force air like a gust of wind. Move to a good lane position and hold the wheel steady.

Which lanes are for slower traffic, and which lanes are for faster traffic?

Inside for faster vehicles that are passing
Middle lanes for faster vehicles at posted speed
Outside lanes for slower vehicles

What is highway hypnosis? How can you avoid it?

Highway hypnosis is a tendency to tune out when driving for a long time on easy-to-drive roads

What is Velocitation?

Velocitation is the tendency to drive fast on city streets after getting off a freeway. Use your speedometer to make sure you are not speeding.

7.4 - Driving at Night

Tips for Safe Night Driving – What you need to know from The Motor Vehicle Lighting Council

If you plan on driving after the sun goes down, it's important to remember that driving at night presents different challenges than driving during the day. Traffic death rates are three times greater at night, yet many of us are unaware of the hazards that night driving poses or effective ways to handle them.

Night Driving Conditions

Everything is more difficult to see in the dark: lines, signs, pedestrians, animals, and more. Late night hours increase the chances that a driver will be fatigued. At the end of this section, the learner will be able to explain problems and procedures for effective night driving techniques. Various preventive and readiness skills will be demonstrated to prepare the driver for effective night driving tasks such as vehicle readiness, driver readiness, environmental problems, searching at night, and interacting with others in a nighttime environment.

Background

During reduced light conditions - such as fog and nighttime - vehicles seem to be further away than they actually are. Most of the time a driver is able to see when traffic ahead is stopped or when it is moving. And when stopped traffic is identified, the driver is able to put a series of risk prevention behaviors into action. However, a serious problem occurs when a driver perceives a stopped vehicle as moving during low light conditions or when the driver becomes distracted. Then the moment of awareness is in direct proportion to the driver's ability to find accurate information in the target area and 15-second ranges and his/her following distance habit. Having the habit of searching beyond the range of the headlights helps a driver to be more aware of how speed affects their ability to gather accurate information. Having the habit of keeping four or more seconds of following space gives a driver time to become conscious of when there is a rapid closure rate.

In all reduced visibility conditions drivers have more "alert time" when they habitually

- drive at lower speeds
- refrain from engaging in various distractions
- search far ahead for the most accurate information
- keep four or more seconds of following space

Difficulties of Nighttime Driving

Drivers face a combination of factors, such as low visibility, oncoming drivers' headlights, and the presence of other drivers who might be tired or who might have been drinking. In situations where visibility is low, a driver might have difficulty seeing and judging distance. This combination causes many chain-reaction collisions.

Driver Readiness

- To see effectively at night, avoid exposure to the sun's rays and wear sun glasses during the day.
- Depth perception is altered at night. Test your ability to judge distance by taking a guess at what is 15 seconds away. See how accurate your estimates are compared to those you make during the day.
- At night, you are more likely to be fatigued, which could cause eye fixations. When you feel your eyes getting sluggish, move them more by checking your rear-view mirror, then looking out to the target area. When you find yourself not wanting to move your eyes, it is time to pull over and take a break.
- After coping with the day's problems, your emotional balloon could be full; be aware, do not explode!

Environmental Problems

- Illumination is reduced when there is a new moon as compared to a full moon.
- Change in temperature and early morning dew can result in "black ice" on the freezing road surface.
- Rural roadways may offer no street lighting, making you more dependent upon your headlights.
- Urban areas often have many distracting neon signs that could prevent you from seeing traffic lights and lights from other vehicles.

Night Driving and Headlights

High beam headlights in good condition illuminate approximately 350 ft.
Low beam headlights in good condition illuminate approximately 182 ft.

Traveling at 50mph with low beam headlights, a driver is able to see approximately 2½ seconds of illuminated roadway (182 feet) and needs a total of 190 feet to stop the vehicle.

At 30mph driver is able to see a little more than 4 seconds ahead with low beam headlights and 8 seconds ahead with high beam headlights.

Traveling at 60mph with high beam headlights, a driver is able to see only 4 seconds ahead.

To gather critical information and make low risk decisions, drivers need to see 15 seconds ahead. Look well beyond the headlights in illuminated areas. In rural areas, choose speeds that afford you the best opportunity to get the information you need to make critical decisions. Do not overdrive your headlights!

Safe Speed with No Other Light Source

- Properly aligned low beams allow for a maximum safe speed of 40 - 45 mph.
- Properly aligned high beams allow for a maximum safe speed of 55 - 60 mph.

Searching at Night

- Look beyond range of headlights. See at least 15 seconds ahead.
- Look to target area for clues that will tell you if it is open or closed. Evaluate your intended path-of travel.
- Use high beams when there are no cars passing you, no cars you are following, no oncoming cars, and you are not on an urban (city) roadway.

- Glance to right when oncoming headlights create a glare problem.
- Look for cars without headlights. They may be entering the roadway from gas stations and other illuminated parking areas.
- See curves and intersections early (in your target area), to know what decisions you will need to make.

Interacting with Others

- Look for pedestrian locations. Use association skills to anticipate where pedestrians may enter your path.
- Dim high beams with a car in front and when being passed. Oregon law requires that you dim your lights when vehicles are approaching at 500 feet and when you are following someone at 350 feet.
- Use other cars' headlights/taillights to tip you off to curves, intersections, and other problems you will approach.

Driving at Night

Reduced lighting results in reduced visibility at night. Not only can a driver not see ahead as clearly, he/she cannot see to the sides of the road as well. Drivers have difficulty seeing objects approaching from their left or right into their path-of-travel. Strategies for night driving include:

- Use high-beam headlights when safe and legal to do so
- Use low-beam headlights in bad weather or when following or meeting another car at night

Sources of Glare

- Oncoming and following vehicle headlights
- high beams
- misaligned
- Dirty windshield
- Paper on dashboard
- Snow-covered landscape
- The sun at dawn or dusk (ahead or behind)
- Flashing advertisement signs
- Rain amplifying glare
- Flood lights on businesses next to roadway
- Failure to dim own headlights in the fog

Countermeasures

- Keep all glass, lights, and windows clean
- Do not place paper or other objects on dashboard
- Adjust sun visor and mirrors
- Sit as high in the seat as possible
- Wear sunglasses during the day
- Adjust speed to visibility conditions
- Look to the right edge of the roadway, away from headlights

To improve your night vision and driving ability after sunset, the Motor Vehicle Lighting Council (MVLC) offer drivers these tips:

1. **Use your lights courteously –** Turn your headlights on one hour before sunset to make it easier for other drivers to see you in early twilight. Keep your headlights on at least one hour after sunrise. Refrain from flashing your high beams at a vehicle with its high beams on, this will only increase the chance that drivers will not be able to see. In fog, use low beam headlights; high beams reduce your own ability to see and may temporarily blind other drivers. If your vehicle is equipped with fog lamps, use them with your low beams only when there is fog or inclement weather.
2. **Make it easy for others to see you –** Be sure all exterior vehicle lights work properly. In case of a vehicle breakdown, pull completely off the road beyond the end of the guardrail, if possible, and turn on emergency flashers.
3. **Avoid glare –** Instead of looking at oncoming headlights, look toward the right side of the road toward the white line marking the outside edge of the traffic lane. When headlights from vehicles following you reflect in your rearview mirror, use the "day-night" feature on the mirror or adjust your mirror to cut out as much of the light as possible.
4. **Adjust your vehicle's interior lighting –** If streetlights cause a lot of glare, dim your dashboard lights, and use your sun visor. Avoid using any other light inside your vehicle
5. **Keep all windows and headlights clean –** Dirty windows can increase glare, making it more difficult to see, while dirty headlights can reduce efficiency by as much as 90 percent. Be sure to clean the inside and outside of your windshield, as well as your headlights.
6. **Increase your following distance –** Increasing your distance by four to five seconds can make it easier to spot potential problems on the roadway and give you more time to respond. In addition, proper lighting will enable you to react quicker and stop at a safe distance from the vehicle in front of you.
7. **Regulate speed –** Driving too fast is more dangerous after dark than during the day because of decreased visibility. Traveling at high speeds doesn't allow you enough time or distance to stop when you see something dangerous on the road ahead.
8. **Prevent fatigue –** Night driving can be tiring, so ensure good ventilation inside the vehicle and take frequent refreshment breaks to give your eyes a chance to recover. Take a short nap or a brisk walk, or have some caffeine to help you stay alert.
9. **Use vehicle mirrors to your advantage –** Exterior mirrors that are properly aligned not only reduce blind spots; they also reduce glare from vehicles behind you. The outside rear-view mirrors should be adjusted so that the bodywork of the vehicle is just outside of the driver's view. In addition, the rear-view mirror can be flipped to its "day night" setting, which changes the angle of the reflective surface and appears to dim the mirror.

In addition, here are some general practices you can follow to help ensure safe night driving:

1. **Align your headlights correctly –** Properly aligned headlights will help you see the road better and will help other drivers avoid glare.
2. **Have your vision checked regularly –** The American Optometric Association recommends that everyone under the age of 40 have a thorough eye exam at least every three years; drivers 41 – 60 every two years; and drivers over 60 every year. Age can make eyes more sensitive to glare. In addition, certain medical conditions, such as encroaching cataracts, will increase eye sensitivity.
3. **Look into anti-reflective eyeglass coating –** Many eye care professionals strongly recommend eyeglasses that have an anti-reflective (AR) coating. This ultra-thin film reduces internal reflections in the lenses. AR-coated glass actually transmits more light than regular lenses, improving vision at night and helping to distinguish fine details during the day.

7.5 - Inclement Weather Conditions

Winter weather and poor driving conditions create special problems for all drivers. Poor conditions can happen any time of year. Fog, rain, wind, or blinding sunlight can make driving more difficult and dangerous.

Visibility is limited by adverse conditions

- Reduce speed to limits imposed by visibility
- Turn on headlights to low beams
- Turn on emergency flashers if necessary
- Maintain lane position 1 - there may be a vehicle on the shoulder you do not see or oncoming traffic that does not see you
- Turn on windshield wipers and defroster
- Be alert for vehicles stopped in roadway
- Be prepared for effects of gusting or strong steady crosswinds
- Make steering, acceleration, and braking actions gently and smoothly

Fog Lights

Fog lights are designed to be used at low speeds in fog, heavy mist, and snow situations where visibility is significantly reduced. Front fog lights are generally aimed and mounted low to increase the illumination directed towards the road surface. In low visibility situations, fog lights should be dimmed or turned off when an oncoming vehicle approaches. In normal visibility conditions, fog or auxiliary lights should be turned off.

According to Oregon law, auxiliary and/or fog lights must be used like the high-beam headlight system of your car. They must be dimmed or turned off within 500 feet of approaching an oncoming vehicle and 350 feet when following another vehicle. The color of auxiliary and/or fog lights is also regulated. Fog lights may be either white or amber (yellow). Rules prohibit other colors such as blue.

If your car came equipped with auxiliary lighting, you should know where the switches are and how to use them. If you don't want to deal with dimming them, leave them turned off.

Suggestions for Winter Driving

It is important that drivers are aware of outside temperature changes. Having a thermometer in the car that measures outside temperatures is helpful. When a driver is able to see that temperatures are changing, moving above or below freezing, they are better prepared to detect locations and conditions where the road surface can be most dangerous. Closely monitor temperature changes during potentially freezing weather. What is especially dangerous to the formation of "black ice" is when warm sunny daytime conditions melt snow and cause water to run onto the road surface. Then, when temperature drops at sunset, the run-off water has a high potential to become black ice.

- Maintain an adequate line-of-sight and path-of-travel
- Listen to weather reports before starting out
- Allow extra time for reaching your destination
- Keep moving in snow
- Use a lower gear on slippery roads
- Avoid cruise control
- Remember that it takes three to five times farther to stop on icy pavement as on dry pavement
- Ice or snow covered with a thin layer of water can be especially dangerous

- For greater visual awareness use all scanning skills, because vision to the front and rear may be impeded by steam from engine exhaust, frosted windows, etc.

In Extended Cold Weather Periods

- Add or install enough antifreeze. Check all hoses and connections for cracks or leaks.
- Check defroster and heater hoses. Be sure that the blower fan for the defroster is working.
- Gasoline may need a dryer additive to remove water or moisture from the tank and fuel lines so they do not clog with ice. Diesel fuel should be purchased locally in cold areas.
- Keep proper tire inflation, use snow or all-weather rated tires.
- Use thinner oil (lesser viscosity) such as 10 wt., 20 wt., or 5w-20 multi-grade oil. (Check your owner's manual.)
- Don't race the engine. Drive with a slow to moderate speed until the engine is completely warmed up.
- Some special equipment may be needed, such as an engine heater, chains, ice scraper, and shovel.

Clear Snow off the Vehicle

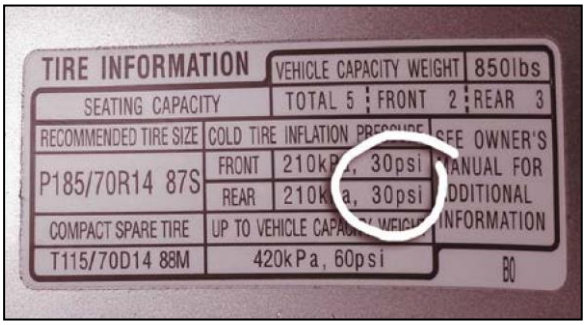
Explain that snow should be brushed off the roof, hood, and trunk. Snow could slide down from the roof to cover the windshield or rear window when the car is in motion. Also, snow that blows off the car is a distraction to drivers following and may blow against their windshield, blocking their vision. When clearing the snow from a vehicle, it is best to start the engine and turn the heat on high in the defrost mode before beginning to clear the snow. This will aid in the snow and ice removal and clear the windows most effectively.

Traction

Traction is the ability of the tires to grip the surface of the road. Conditions of tires, the roadway, and vehicle speed, along with pitch and roll forces, limits the ability of the tires to grip the surface. The amount of friction between two surfaces is called coefficient of friction. Coefficient of friction is calculated by dividing the amount of force necessary to pull one surface over another by the amount of force (weight) pressing the two surfaces together. The tread of a tire is designed to work on wet surfaces. A bald tire can work on dry pavement, but will slide on a wet surface. Also, a bald tire is more likely to blow out. Uneven levels of traction (inflation) among tires or uneven braking power can decrease car control. If a car pulls right or left while braking, the driver will only be able to use part of the car's braking power. When it is raining, unlike when it is snowing, drivers don't perceive the road surface as being slippery. Many drivers fail to reduce speed to cope with the rain-slicked roadways. Therefore, when a quick braking action or a quick steering action is taken, there is not adequate traction and the car goes into a skid.

Tire Pressure

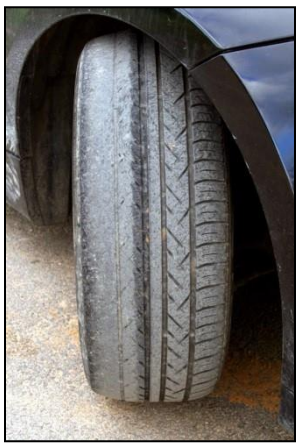
It is best practice to keep a tire pressure gauge in your vehicle at all times. They're available at tire dealerships, auto supply stores, or other retail outlets. Because tires may naturally lose air over time, it's important to check tire pressure on all tires, including your spare, **at least once a month**. There's nothing wrong with checking more frequently, before a long trip, for instance. To get an accurate reading, measure tire pressure when the tires are "cold," meaning when the vehicle has not been driven for at least three hours. Even driving one mile can heat up your tires, making obtaining an accurate "cold" measurement difficult.



The vehicle manufacturer determines the correct pressure for your vehicle's tires. This information is listed as **p**ounds per **s**quare **i**nch (psi) and can be found on the vehicle's tire information label and in your owner's manual. The label is typically located on the inside of the driver's side doorframe or doorpost. It can also be on the inside of the glove box door or trunk lid. Take a minute and look at this label next time you get in your vehicle. Underinflated tires and overloaded vehicles are the leading causes of tire failure. Always inflate your tires to the recommended tire pressure on the vehicle's tire information label. Some vehicle manufacturers may also provide a lower recommended tire pressure for lightly loaded vehicle conditions (e.g., if there are only 1-3 occupants in the vehicle). However, lowering tire pressure to give a more comfortable ride without following the loading guidelines is an unsafe practice. **Always follow the tire pressure and loading guidelines on your vehicle's tire information label or in your owner's manual.**

Tread Wear

Tires should be replaced when the tread wears down to 2/32 (or 1/16) of an inch. Tires also have built-in tread wear indicators, or "wear bars," that let you know when the tread reaches this mark. You can also use a Lincoln penny to test your tire tread. Simply turn the penny so that Lincoln's head is pointing down – and insert it into the tread. If you can see all of Lincoln's head, it's time to replace your tires.



Uneven tread wear is usually the result of wheel misalignment, improperly balanced tires, or the need for tire rotation. But it is generally not an immediate safety concern. Follow the guidelines in your owner's manual for proper tire rotation and check with your tire dealer if you're experiencing uneven tread wear. If your tire treads are worn in the middle, this is usually a sign of over inflation. Note the middle of the tire is worn and the outside treads are still in good shape. The tire's middle treads wore out because the tire only contacted the road in the middle due to over inflation.

1. If your tire treads are worn on the outside, this is usually an indicator of under inflated tires. The middle treads were not touching in a straight line due to the fact they were away from the road surface folding upwards in a concave way.
2. If your tire treads are worn on the outside edges, this is usually a sign of toe alignment wear. Your vehicle may need an alignment to correct the problem.
3. If your tire treads are worn on the inside, this is an indication of caster and camber alignment wear. Again, a wheel alignment may need to be done soon.
4. If your tire tread wear is choppy, it may be due to tire balance, bad shocks, or other loose steering components. In this case you should have your front-end inspected by a good mechanic. http://www.compareautomechanics.com/auto-repair-articles/tire-wear-on-the-sides-middle-orchoppy-tire-wear/

Old Tires

Tires should be changed if they are older than six years due to dry rotting of the rubber. You could have plenty of thread left; however, the integrity of the tire could fail, leaving you and your family stranded. Dry rot can be claiming your tire's life and performance due to age and exposure to the atmosphere's U.V. rays and other natural aging processes. The safety of dry rotted tires and can be just as dangerous as a tire with no thread left on it.

Reduced Traction Conditions: Gravel, wet leaves, sand, and other loose materials on the roadway can reduce traction just as snow and ice do. Many drivers encounter these reduced traction situations more frequently than when they drive on ice or snow.

Surface irregularities: caused by broken pavement, potholes, frost heaves, a washboard effect on dirt roads, or foreign substances such as mud or manure on the road can cause bouncing wheels, which can result in unequal friction and braking.

A wet road, especially within the first 15-20 minutes of the beginning of the rain: Water mixing with dirt and oil on the pavement creates a slippery road surface until the pavement is washed clean. When it starts to rain, slow down, because a wet road can be slippery. Also, temporary conditions such as standing pools of water and patches of wet leaves also make the road slippery. Depending on the amount and depth of the water on the road, hydroplaning could result.

Loose surfaces such as gravel: While attempting to slow down or stop on gravel, the gravel may roll with the wheels, causing a loss of friction and traction. This means that stopping distances will be longer, and brakes will need to be applied more lightly and gradually than on pavement. Avoid driving on the ridge of gravel build-up between the tire tracks.

Asphalt roads bleed in hot weather: This occurs when the oil rises to the surface, making the road extremely slippery. On a hot day, if the road looks shiny, slow down immediately.

Raised pavement markings: Slow down - the smooth top of the markings reduces friction, especially when wet.

Packed snow: Slow down because the friction of traffic can melt the snow enough to form a layer of moisture that makes the surface as slippery as ice.

Ice and black ice: Patches of ice tend to settle in shady spots, at intersections surrounded by tall buildings or trees, on the north and west sides of hills, on bridge floors, around underpasses, and at the bottom of banked curves and crowned roads. Seemingly clear roads can have invisible dangers such as black ice (ice which takes on the color of the road). Remember that black ice can form even in dry weather. Extreme caution should be used. Snow storms can be accompanied by wind, which can decrease visibility and cause drifting. Carry an emergency kit composed of a blanket, flares, flashlight, shovel, water, food, etc.

Roadway camber: Adverse camber of the road and a flat curve, which can cause a vehicle to slide sideways.

Hydroplaning: Hydroplaning takes place while driving on wet roads and can occur at speeds as low as 35 mph. Most tires will wipe the roadway surface (in much the same manner as a windshield wiper clears the windshield) of up to about 1/4 inch of water. However, as the speed increases, the tires cannot wipe the road as well and they start to ride up on the water, just like a set of water skis. In a standard passenger vehicle, partial hydroplaning starts at about 35 mph and increases with speed up to about 55 mph, at which point the tires can be totally up on the water. In a severe rainstorm for example, with less than 1/8 inch of tire tread, the tires may not touch the road at 55 mph. If this is the case, there is no friction available for braking, accelerating, or steering. A gust of wind, a change of road camber, or a slight turn can create an unpredictable and uncontrollable 4-wheel skid.

With today's lesser crowned roadways, especially freeways, hydroplaning is an increasingly important factor in automobile accidents. A driver can normally predict areas where hydroplaning will occur, but not always; you

may suddenly find yourself in a hydroplaning situation. If you do hydroplane, the best thing to do is to take your foot off the accelerator and allow the vehicle to slow down without braking. If you skid while your vehicle is only partially hydroplaning, you should be able to regain control by correcting (steering towards open travel path) for the particular type of skid that occurs. On the other hand, if you're totally hydroplaning, all you can do is release the accelerator and ride out the skid without braking.

To prevent hydroplaning, reduce your speed on wet roadways. You also need to have properly inflated, good tires with deep tread, at least 1/8 inch. The tread allows the water to escape from under the tires and tends to prevent complete hydroplaning at normal highway speeds. However, when the depth of the water exceeds the depth of the tire tread, complete hydroplaning can be expected at speeds from 50-55 mph, so slow down even when it appears no one around you is!

Skids

Traction is limited, even on dry roadways. When your front and /or rear tires exceed that limit, there's a skid, and it can happen in the blink of an eye.

It is almost impossible to predict when an emergency situation will arise, especially those associated with car control when a driver is faced with conditions which can cause a loss of traction. While it is not always possible to provide the learner with in-car experience in these situations and conditions, they do need to beware of the strategies and steps that can be taken when they do occur.

Winter driving conditions create special problems for all drivers. During cold weather, keeping your gas tank full (or nearly full) helps to give you better traction because there is more weight over your rear tires.

Loss of Traction

The causes of traction loss can be divided into three groups:

1. Condition of the Road
2. Condition of the Vehicle
3. Actions of the Driver

Condition of the Road

- Surface irregularities
- A wet road, especially within the first 15-20 minutes of the beginning of the rain
- Loose surfaces such as gravel
- Asphalt roads bleed in hot weather
- Raised pavement markings
- Packed snow
- Ice or black ice
- Adverse camber

Condition of the Vehicle

- Brakes out of adjustment
- Front wheels being out of alignment
- Tires with badly worn tread, tires which are mismatched or under or over-inflated

Actions of the Driver

- Sudden steering action on a slippery surface
- Abrupt or sudden changes in the vehicle's speed

- Panic stops and applying the brakes too hard, especially on hills, curves, or wet surface
- Sudden engagement of the clutch when on a slippery surface
- Excessive speed, coupled with too sharp a turn for the vehicle or braking when turning; or normal speed coupled with ice, snow, or gravel on the road

Skid Prevention, Detection, and Correction

Loss of traction resulting in skidding plays a big role in traffic crashes. Since tires are the points where the vehicle comes in direct contact with the road, anything the vehicle does, including skidding, is ultimately translated through the tires. For this reason, the tires need to have the best possible tread and need to be inflated to the manufacturer's recommended pressure.

Although there is no one way to handle a particular skid, there are certain rules and techniques that can be applied to help control skidding. Three basic rules are:

1. Release the pedal you are using to regain vehicle balance.
2. Steer to get the front of the vehicle heading toward your open path-of-travel, the target area.
3. Don't give up until the car comes to a halt.

Everybody that is acted upon by gravity has an imaginary point upon which the mass of the body is concentrated. This imaginary point is called the center of gravity. There are three rotational axes that run through the center of gravity. If it were possible to run a *vertical axis* from the top of the car to the bottom through the center of gravity, the car would rotate to the left and/or to the right of our intended targeting path. The motion around the vertical axis, which results in a deviation from our intended path, is called **YAW**. For our purpose, we'll refer to the vertical axis as the Yaw Axis, as shown in the photo to the left. A *lateral axis* passes through the center of gravity from one side of the car to the other. Rotational motion around the lateral axis is called **PITCH**. A *longitudinal axis* runs from the front of the car to the rear while passing through the center of gravity. Rotational motion around this axis is called **ROLL**.

Acceleration, braking, and steering forces act upon the balance of the rotational axes. When a braking action is taken, there is a change in the Pitch Axis. The force of motion is increased to the front of the car causing it to pitch down. Acceleration with a rear-driven powered car changes the Pitch Axis to cause the rear of the car to pitch down. Use of acceleration, deceleration, braking, and shifting has an effect upon the Pitch Axis.

Use of the steering wheel has an effect upon the Roll Axis. When the steering wheel is turned to the left, there is a roll force to the right. When the wheel is turned to the right, the roll is to the left. As speed increases and/or steering increases, roll force will increase.

When the rear wheels of the vehicle lose traction, there is a rotation about the Yaw Axis. The faster the vehicle is traveling, the greater the rotation rate of the yaw.

The increase of weight to the vehicle will change the car's center of gravity, which will affect the roll and pitch forces. When there are passengers in the back seat, the pitch axis will be rotated in a rearward direction, which can have two effects upon the vehicle. In a critical traction situation, usually caused by excessive speed, the rearward pitch will decrease the weight to the front wheels, reducing the steering effectiveness. And, with the shift in weight to the rear wheels, the demand for traction can be increased beyond the available traction envelope. If the car is also approaching a curve, there will be a rotation of the roll axis as steering begins, further reducing the available traction. Most likely, the driver will be surprised by the way the car fails to perform.

We may never know all of the forces that work for or against vehicle control. However, we know that we need road traction for vehicle control. Acceleration, braking, and steering forces must not compete for traction.

A reduction of speed before steering takes place will prevent an overload of traction requirement and aid in keeping the vehicle's rotational axes in balance.

Three Skid Types

- Loss of Traction to the Front Wheels
- Loss of Traction to the Rear Wheels
- Loss of Traction to Front and Rear Wheels

Loss of Traction to the Front Wheels

Causes:

Commonly occurs when the brakes are applied to the point of wheel lock-up (ABS braking eliminates this type of skid). Excessive speed with a front-wheel drive car could lose traction to the front wheel while attempting to negotiate a turn or a curve.

Effects:

The vehicle doesn't respond to a steering input. There is an understeer. The vehicle continues to travel in a straight-ahead direction. Hydroplaning is one example of a front wheel skid.

Loss of Traction to the Rear Wheels

Causes:

Changing the pitch force will increase or decrease weight to the rear wheels, which changes the traction adhesion. A braking action will decrease rear-wheel traction, as will excessive speed when driving a rear powered vehicle while approaching a curve or decelerating when driving a front-wheel powered vehicle.

Effects:

The vehicle will spin about its yaw axis, resulting in movement of the front of the vehicle off-target. The vehicle's front moves to the left or to the right of the intended travel path.

Loss of Traction to Front and Rear Wheels

Causes: Excessive speed while going into a curve causes a change in the roll force, resulting in reduced tire grip to the front and rear wheels on one side. The vehicle then slides. Also, when a rear-wheel skid develops and the driver is able to stop the yaw by rapidly steering to get the front tires pointing towards the target area, the rear wheel skid is converted into a four-wheel slide.

Effects:

The vehicle will slide in a yaw angle with the front of the car pointing to the left or to the right of the target area. Look for the front of the car to begin moving towards the target area. At this moment the steering wheel must be straightened to prevent the front of the car from violently swinging past the target into a secondary skid.

Actions to Take to Prevent Any of the Three Skids:

Good Driving Habits work interdependently to prevent most problems. Of course, the vehicle's steering system, suspension system, and braking system should be in proper mechanical condition. Tires should have good tread with a firm inflation pressure. Driving action should separate the demand for traction by preventing a large steering force from combining with a high acceleration force. Avoid the need to take a large steering and braking action at the same time. The faster the vehicle is traveling, the smaller the steering action must be.

Avoiding impact means taking all possible actions to prevent a collision. However, when this becomes impossible, a driver should make every effort to minimize the impact because the greater the impact, the greater the changes for a fatality, serious injuries, and extensive damage to property. To minimize the impact forces, aim the car for something “soft” to hit, which will slow the car down more gradually, and try to keep the crash away from the driver’s compartment — the left-front quarter of the vehicle. This means that when a collision is unavoidable, the driver chooses a path-of-travel which will cause the least impact. For example: choosing to run off the road into a row of hedges rather than rear-ending a stalled vehicle, or sideswiping the passenger’s side into a stone wall on the right side of the road rather than impacting the driver’s side into an oncoming vehicle. Most of all, “stay with it,” meaning continue to take evasive action by whatever is appropriate in steering, braking, or accelerating until the car is stopped.

The problem is that in the face of any potential threat, many drivers, even experienced ones, succumb to natural fears and use “the 3-P technique” - they “Panic, Pray, and Pass Out.” It is almost natural for a new or untrained driver to focus their central vision on the object of their fear during an emergency situation or skidding condition. They may look directly at an oncoming vehicle, a light pole, a barrier, or revert to a passive rider in the car and watch the skidding action of the vehicle. To be successful throughout their lives, drivers must be trained to use their vision correctly so they can, by habit, maintain control of their vehicle rather than succumb to their natural fears. If the car has lost traction, and you don’t seem to be able to get control back, keep working.

Actions to Take if a Skid Occurs:

- Keep your head and eyes focused on the target area
- Take your foot off the pedals - no gas, no brake
- Steer to the target - Use the least amount of steering and move the wheel as rapidly as possible to get the front of the vehicle, or at least the tires, pointing towards the target area. If a rear-wheel skid is to be controlled, the tires must be fully turned towards the target area before the vehicle gets more than 25-30 degrees off-target (at the transition pegs).
- When the skid yaw is stopped but the car is still sliding, keep your head pointing at the target area and look for the front of the car to begin moving toward the target, which indicates that the front tires are regaining traction. When the front tires do regain traction, you must immediately neutralize the steering.

Secondary Skids

When the rear skidding action is stopped, but the front of the car is not pointing towards the target area, there is a high risk for a secondary skid to occur. Often, when the skidding action has momentarily stopped, the car is at a 40-degree angle to the targeting path with its tires fully turned pointing towards the target. (It was necessary to fully turn the tires towards the target to stop the skidding action.) Now, during this brief pause of skidding, all four wheels are sliding with the front of the car off-target. The driver at this moment relaxes, thinking the car is under control. As the sliding action reduces the car’s speed, the front wheels come back within the envelope of traction and are able to re-grip the road. With the tires fully turned, the car begins to move very violently towards the target area. The driver must be aware that at the beginning of the car’s movement towards the target area, steering must be neutralized before the front of the car swings past the target area into a surprised "secondary skid." By keeping your head and eyes pointing towards the target area, you are most easily able to see when the front of the car begins to move, to give you time to quickly straighten the tires.