



FACT SHEET

Module 4.2

Techniques for Curves and Hills

Searching into a curve or hill

Seeing the curve and/or grade 12 seconds ahead as a front zone change or a limitation in the path of travel will cause less stress and give the driver more control because s/he will have time to get the best speed and lane position to negotiate the curve or hill.

Curves and hills reduce the Line of Sight (LOS). Drivers are unable to see what they are driving into; therefore, they can't know the Path of Travel (POT). Using central vision to look 12 seconds ahead into curves means directing the eyes through the curve, trying to see to the end of the curve as soon as possible. Look to see if the POT is open or closed.

Searching into the curve lets drivers immediately evaluate any LOS-POT problem to avoid surprises.

1. After seeing a curve in the roadway, make a mirror check for rear zone awareness.
2. Check the left, front and right zones to know what your options are.
3. To evaluate the POT, search into the curve before turning the steering wheel.
4. Search 12 seconds ahead for new LOS-POT changes.

Looking for Problems

Most of the times problems don't exist. Consequently, drivers can be surprised if driving unconscious and not aware of their environment.

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 our 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 zone?



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

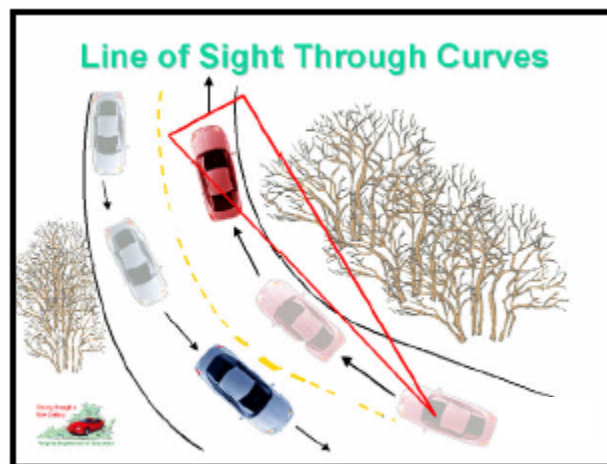
The outside road position on entry to a curve allows for a longer smooth braking on entry and improves the opportunity to establish an open line of sight to the apex and exit of the curve. Entering from the outside of the curve, moving to the apex, and then leaving the curve at the outside of the curve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

Front wheel traction loss when traveling into a curve (under-steer) is often caused by excessive speed, excessive braking, or excessive steering. Traction loss to the rear wheels on the exit of a curve (oversteer) is often caused by excessive acceleration, sudden braking, or sudden steering. The goal of selecting the best lane position is to reduce the amount or suddenness of braking, accelerating, or steering efforts. Speed, the sharpness and bank of a curve, pavement traction, and the car's load, all affect vehicle control.

It is generally best to approach a **left** curve in Lane Position 3, as far away as possible from oncoming traffic. This position also provides the best line of sight to the target area.

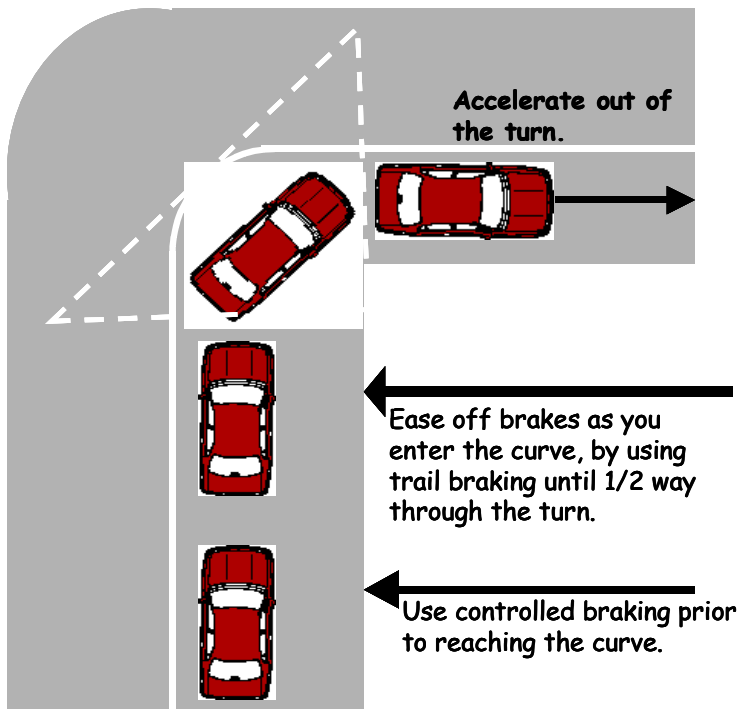
On narrow rural roadways with limited traffic and visibility, curves to the right present special problems because oncoming drivers are more likely to drive over the centerline into your path of travel. Under these conditions, with headlights on and after making appropriate speed adjustments, approach the curve in Lane Position 2, near the center line, to maximize the probability of being seen oncoming drivers and establishing a line of sight to the target area.

Exit in Lane Position 3, near the right edge of the roadway, using the apex of the curve as the target and search and identify road conditions if an escape path is required.



Basic Cornering/Braking

As you approach a curve, use controlled braking or threshold braking before reaching the curve. Trail brake to the apex, or until the exit of the turn and the new target can be seen. Trail braking will keep the weight over the front tires, giving steering control to the driver. Accelerate when reaching about one-half way through the turn, the apex, or when the exit can be seen. 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. The higher the speed, the less traction that is available. Energy of motion in a curve changes 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.

Curves and hills reduce the line of sight. Search 12 seconds ahead into curves and for the exit of the curve.