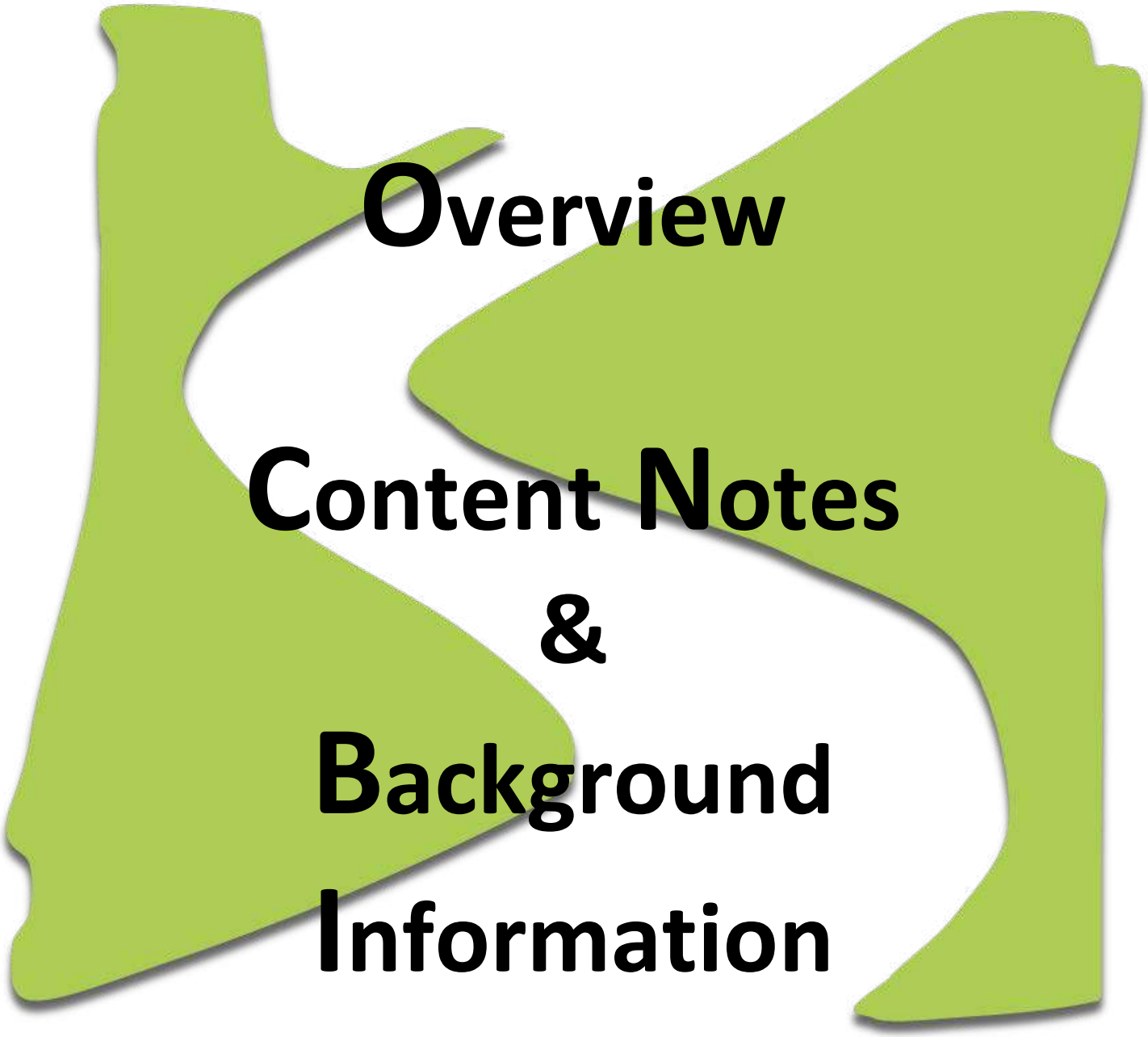
Chapter 7

The Science of Driving



Overview

Content Notes

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Background Information

NDRPC 2014

The Science of Driving - Overview

Approximate time required to complete this chapter: Three hours

Classroom Concepts:

7.1 Responding to Laws
7.2 Curves and Hills
7.3 Following Time and Space
7.4 Commentary Driving

Good Driving Habits - All are Applied and Practiced for Mastery:

1. Driver Vehicle Readiness Skills
2. See Clear Path Before Moving
3. Keep the Car in Balance
4. Use Reference Points
5. Zone Control Searching
6. Take Zone Control Actions
7. Control the Intersection
8. Get Rear Zone Control
9. Get Control with Vehicle in Front
10. Interact Courteously with Others

In-Vehicle Performance:

7.1 Responding to Laws
7.2 Approaching Curves and Hill Crests
7.3 Following Time and Space
7.4 Practice Commentary Driving

Behaviors:

The student must demonstrate knowledge and successful in-vehicle performance of the following behavioral patterns:

- Respond to signs, signals, and roadway markings
- See warning signs as cues, check rear
- Sees and responds to line-of-sight, path-of-travel zone conditions
- Demonstrates yielding laws
- See and respond to curves in target areas
- Evaluate traction grip on straightaway
- Evaluate left/right zones
- Get best lane position, drive line
- Use brake/accelerator effectively
- Look into curves
- Evaluate path-of-travel at hill crests
- Hillcrest lane position
- Keep 4 seconds following space
- Adjust closure rate to front vehicle
- Use practice commentary effectively

Required Equipment, Lesson Resources and Support Materials:

- NDRPC 2014 DVD Interface, computer, projector, screen, and speakers
- Chapter 7 Lesson Plans and Activity Directions, and Overview Notes
- NDRPC 2014 Playbooks
- Simulated steering wheel

- When I Say Stop cards
- Ticket in the Door to 7.3 and Key
- Chapter 7 Exit Exam and Key

Optional Materials:

- Ten Habits Keep the Monster Caged! Using the Dynamics of Zone Control
- Partnership for EXPERT Driving 7th ed. IN-CAR Guides

Learner Assignments for this Chapter:

- Read Playbook Chapter 7
- Ticket to Concept 7.3

Methods of Classroom Assessments:

- Learner will complete Ticket to Concept 7.3 and demonstrate accountability for completing chapter reading assignments. Learner will answer informal questions, and participate in class discussions, demonstrations, and activities.
- Learner will complete Chapter 7 Exit Exam with a minimum score of 80%.

In-Vehicle Assessments of the Key Behavioral Patterns listed above utilize the following performance codes:

1 = Performs well with little or no coaching
2 = Performs fair with coaching, needs guided practice
3 = Performance requires coaching, considerable guided practice required
4 = Unable to perform, required to repeat lesson

On a predetermined route, learner will be assessed on his/her ability to perform behavioral patterns as listed.

Classroom Objectives

7.1 Responding to Traffic Laws
The learner will review basic traffic laws, apply them in more complex driving environments, and demonstrate how to interact effectively within those boundaries.

7.2 Curves and Hills
The learner will understand that curves are high risk locations as well as the most frequent location of single car crashes involving young drivers. They will have a clear understanding that risk factors are generated by the vehicle, the road, and the driver when entering and negotiating curves and hills. They will be able to explain and demonstrate low risk vehicle control techniques used to approach and negotiate curves and hillcrests.

7.3 Following Time and Space
The learner will be able to explain the need for time and space management while operating a vehicle and will be able to explain the benefits gained by using 4 seconds following space. The learner will demonstrate the ability to accurately judge 4 or more seconds of following space for various speeds being practiced. The learner will demonstrate the ability to create, maintain, and/or rebuild 4 seconds of space to the front.

7.4 Commentary Driving
The learner will utilize the Zone Control System to FIND, SOLVE, and CONTROL line-of-sight and path-of-travel problems in a variety of driving situations.

In-Car Objectives

7.1 Responding to Traffic Laws
The learner will explain the correct actions and be able to demonstrate the legal and safe responses to various laws, signs, signals, and pavement markings in complex locations.

7.2 Managing High Risk Locations: Curves and Hillcrests
The learner will demonstrate effective searching techniques for identifying curves and hillcrests and how to get the best control of speed, lane positioning, and communication to minimize the risks involved in negotiating curves and hillcrests.

7.3 Space Management: Following Time and Space
The learner will demonstrate the ability to judge a following distance of 4 seconds for all speeds being practiced. The learner will demonstrate the ability to create, maintain, and/or rebuild 4 seconds of space to the front.

7.4 Practice Commentary Driving
The learner will demonstrate the use of the Zone Control System to FIND, SOLVE, and CONTROL problems while operating a car.

7.1 Responding to Traffic Laws – Content Notes

In a previous lesson, signs, signals, and pavement markings were introduced. This lesson focuses on more complex environments.

Remember, a person doesn't have to be able to read or see color properly in order to obtain a driver license.

However, such drivers must understand the meaning and shape of traffic signs so they can interact on the roadway with other drivers. Stress that this is one reason many traffic signs have pictures, not words, on them.

Distinct Vehicles:

School Buses

School buses have flashing amber and flashing red lights near the top of the bus on the front and rear and are equipped with a stop arm that extends out from the left side of the bus near the driver's window. The stop arm will be extended when the red lights begin to flash. School bus drivers turn on flashing amber lights to warn other traffic that the bus is about to stop on the road to load or unload children. Drivers should get ready to stop. When the red lights begin to flash, drivers meeting or overtaking the bus from either direction must stop before reaching the bus. Drivers must remain stopped until the bus driver turns off the flashing red lights. The school bus stop law applies on any roadway with two or more lanes of traffic. There is one exception to the law: If you are on a divided highway with two roads separated by an unpaved median strip or barrier, you must stop only if you are on the same side of the road as the bus. A painted median strip or a center lane used only for left turns does **not** create two separate roads. Where this situation exists, **all** lanes of traffic must stop. School bus drivers may report vehicles that improperly pass school buses. The report may be forwarded to the local law enforcement agency for investigation. All school buses and some school activity vehicles must stop at railroad crossings. The driver must open the bus door and be sure the tracks are clear before proceeding.

Public Transit Buses

Public transit buses often pull to a curb to load or unload passengers. To help protect these buses and their passengers when they re-enter a traffic lane, drivers of other vehicles approaching from the rear must yield when a bus driver signals to re-enter a traffic lane and there is an electric sign flashing "yield" on the back of the bus. Police may cite a driver who does not yield right of way to the bus.

Yielding to Emergency Vehicles

You must yield right of way to emergency vehicles, such as fire trucks, police vehicles, and ambulances, when these vehicles approach you from any direction using a light or siren. When you see or hear an emergency vehicle warning, you **must** immediately drive as close as is safely practical to the right-hand edge or curb of the road, clear of any intersection, and **STOP**. Stay stopped until the emergency vehicle has passed or until a police officer tells you to move.

Following Emergency Vehicles

Follow no closer than 500 feet behind an emergency vehicle answering an alarm. Do not drive or park in a way that interferes with emergency vehicles responding to an emergency.

Approaching an Emergency Vehicle or Tow Truck

If you are on a road with two or more lanes of traffic and you approach an emergency vehicle, tow truck, or roadside assistance vehicle that is stopped with warning lights on, you must change lanes so you do not drive next to the stopped vehicle. If making a lane change is unsafe or you are on a road with one lane in each direction, you must reduce your speed by at least 5 miles per hour under the posted speed limit and give the emergency vehicle as much room as safely possible. When you approach emergency scenes, slow down and be prepared to stop. Do not drive over unprotected fire hoses unless directed to do so by a fire department official or law enforcement officer at the scene.

Turns on Red Lights

You are allowed to make the following turns on red after coming to a full stop unless a sign or police office states otherwise.

- When entering a two-way street, you may cautiously turn right.
- When entering a one-way street, you may cautiously turn right in the direction of traffic.
- Right Turn: Two-Way Road to One-Way Road
- Left Turn: One-Way Road to One-Way Road

Always yield to pedestrians, bicyclists, and traffic in the intersection when making an allowed turn on red.

7.2 Curves and Hills - Content Notes

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 cam 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.

Kinetic Energy

All objects in motion have kinetic energy as well as momentum. Kinetic energy is the energy of motion. The faster a vehicle moves, the more energy of motion it has. A moving vehicle, just as any other body in motion, possesses what is known a kinetic energy produced by its mass (weight) and its velocity (speed).

- The potential energy stored in gasoline is charged to kinetic energy by the vehicle's engine.
- Kinetic energy (momentum) keeps the vehicle rolling when the foot is removed from the accelerator and there is no help from the engine.
- Kinetic energy increases in a geometric progression (as the square of the speed).
- To stop a moving vehicle, kinetic energy, which cannot be destroyed, must be converted in form to heat by rolling to a stop, braking to a stop, or colliding with an obstacle.

Gravity

Gravity pulls all bodies toward the center of the earth. The driver is most concerned with the effect of gravity when his/her vehicle is on a hill. Many drivers do not realize that more power (hence more accelerator pressure) must be used to go up a hill and less power is needed to go down a hill. As a result, they fail to make the slight adjustments

necessary for slight grade changes, which cause a large deviation from their normal desired speed. Some drivers fail to realize that the vehicle will roll backwards when they stop on an incline.

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. The geometrics of a road (its calculated and measured movement through the landscape) are defined by its alignment and cross section. These, combined, determine both the design speed (the maximum safe speed for which the road is designed) and the posted speed (the maximum legal speed identified—generally lower than the design speed). Alignment is defined as both horizontal (movement to the left or right—a road's curves) and vertical (movement up or down—the road's hills or grades). Alignment is a principal determination of site distance (how far ahead the driver has a view of the pavement). Hills or curves limit site distance. Cross section elements include the width of lanes and shoulders, slope or crown, and super-elevation (the "banking" of curves on higher speed roads).

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 Zone**
   An immediate check of the mirrors gives you time to control the rear zone.
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

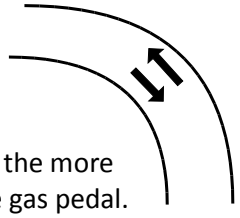
4. **See a Left or Right Curve**
   Determine if it is a left or right curve and prepare for an effective drive line into the curve.
5. **See Radius of Curve**
   The size of the curve's radius will help to determine an effective speed selection.
6. **Get Best Speed Control**
   The sharper the curve, 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. **Get Best Lane Position**
   If there are no oncoming vehicles, the approach into a right curve could be in lane position 2. If there is oncoming traffic, take lane position 1. For a left curve, the approach begins in lane position 3 if the right-front zone is open. If closed, take lane position 1.
9. **See Line-of-Sight/Path-of-Travel at Apex**
   Evaluate the condition of the apex. For a right curve, check the right-front zone to see if it is open, thus allowing you to go into lane position 3. If closed, take lane position 1. For a left curve, check the left front zone for oncoming traffic which could be at the apex as you arrive. Take lane position 1.
10. **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. For right or left curves, exit in lane position 1.
11. **Evaluate New Target Area**
    Evaluate your new target area to see what your front zone condition is.
12. **Evaluate Path-of-Travel**
    Evaluate your targeting path for any line-of-sight and/or path-of-travel zone 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

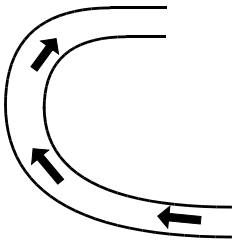
A curve that follows the circumference of just one circle is called a constant-radius curve.



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 corners 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.



There are three scenarios that, individually or combined, result in a curve that must be treated as if it is decreasing radius:

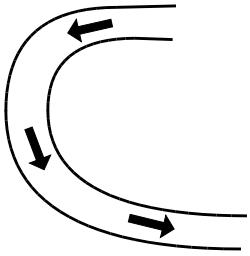
1. The early part of the curve provides a more positive camber (leans inward) than does the latter part of the curve.
2. There is a rising elevation in the early part of the curve and a falling elevation towards its end.
3. The traction in the early part of the curve is better than towards the end.

Though each of the curves described above has a constant radius, they must be treated in the same way as a decreasing radius curve in order to negotiate them safely.

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 zone, 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 awhile. 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 zone 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 zone awareness.
2. Check the left, front, and right zones to know what your options are.
3. To evaluate the path-of-travel, search into the curve before turning the steering wheel.
4. Search 15 seconds 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 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 (over-steer) 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. However, when the right front zone is blocked, approach in lane position 1.

On narrow rural roadways with limited traffic and visibility, right curves present special problems. 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 by oncoming drivers and establishing a line-of-sight to the target area. Exit in lane position 1 and search to the target area to identify road conditions.

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 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.

7.3 Following Time & Space – Content Notes

Creating four seconds or more of open space ahead allows you to search beyond cars in front so you can control your own actions. Keeping adequate space between you and other vehicles to the front allows you to control the situation.

The student driver needs to experience how and why four seconds of following distances is the best habit to develop to minimize stress and maximize control. Unfortunately, because the driver education vehicle is often moving more slowly than that of the surrounding traffic, it is difficult to create a realistic opportunity for student drivers to feel the unconscious level of comfort in relation to the car being followed. Although this distance for the average driver is one and one-half seconds, the student needs to realize that a four second following distance is not only safer, but also lessens high stress situations which are created by an abrupt closing of the front zone. With a four second following distance, the driver is able to make the necessary adjustments in position and speed. Therefore, when a situation places demands upon the driver to adjust position or speed, the driver is able to do so with much less stress than would be possible if the driver had a shorter following distance.

Keep 4 Seconds of Time

When traveling behind another vehicle, try to keep at least four seconds of following time/space. The best way to learn how to measure the space you are keeping is to first guess how many seconds you think you are keeping behind the vehicle in front. Then, select a stationary marker. When the front vehicle passes the marker, begin to count by 1001, 1002, 1003, 1004 until the front of your car reaches that marker.

Create an Open Line-of-Sight

The larger the front vehicle, the more your view will be blocked. Get the best view of situations ahead by following as far back as you need to create an open view.

Adjust Front Closure Rate

Whenever you use up the space between you and the car in front, there is a closure of space. Closure rate is how fast you gain on the car in front. It is best to acquire a habit that will make you sensitive to any closure of space.

When you find yourself gaining on the car in front, it should serve as a cue to decrease your rate of closure and evaluate why the closure is occurring.

Become Alerted to Slower Vehicles

The slower the front car is going in relation to your speed, the greater your rate of closure is going to be. Let your closure rate tell you that a situation may be developing with the car in front. Many times the reason the car is going abnormally slow — which results in your fast closure rate — is the fact that the driver may be looking for an address or a street. The driver is very likely to slam on the brakes and make a quick turn without adequate use of signal lights. If you are perceptive, you can make an adjustment in following time to be certain that you will have at least 4 seconds of space at the moment when it is most needed.

Read Traffic at Least 15 Seconds Ahead

One important advantage of keeping four seconds of time from the vehicle you are following is that you are able to see beyond that vehicle and gain the advantage of doing your own planning, independent of what the front vehicle is doing. You should be able to see at least 15 seconds ahead to evaluate your intended path-of-travel.

Control the Rear Zone

In order to control the rear zone, you need to control the front zone. The more knowledge you have of the rear zone condition — type of tailgater, for example — the better your decisions will be. If you have a Charger in back, and there is an opportunity for him to pass, you will best eliminate problems from him by having at least four seconds, which will give him adequate room to cut in front of you with the least interruption.

Respond to Communications

If you see the driver in front reducing speed, receive that as a communication that your following time may be affected. Become conscious of your surroundings.

When Front Car Slows, Adjust Space

When the driver in front reduces speed, adjust your following space.

Explain the Benefits Gained by 4 Seconds

Gives you time to become conscious of moments when your closure rate begins to increase.
Your eyes can search beyond the vehicle in front.
Removes the control the front vehicle has over your actions.
Will eliminate or minimize surprises from the actions of the first vehicle.
Drivers are more conscious of the disadvantages of keeping a lesser amount of space and time.

7.4 Commentary Driving – Content Notes

Talking through the process of Find, Solve, and Control will help you develop Zone Control space management skills and habits. By now you should know that using the steps of Zone Control to manage space is a pretty simple task.

The Practice and Use of the Commentary Driving Technique

The practice commentary for the Zone Control System is taking one line-of-sight or path-of-travel change at a time, and then, after checking other related zones, describing what the options are. The talking part is very limited and directly applicable to the actions that are necessary to take. This type of commentary can actually help the driver concentrate on a traffic scene and gain maximum performance. Although most drivers prefer not to talk at all while driving during the in car session, they do benefit by using the practice commentary.

The students need to know that frequent use of the commentary helps to focus on the three steps of Zone Control on a conscious level, which aids in the development of habits. Drivers are asked to describe one line-of-sight or path-of-travel change 15 or more seconds ahead. If no zone changes are taking place, no comments need be made. When

a line-of-sight or path-of-travel change is identified, then they need to describe the condition of the other zones. If there isn't adequate time, then the actions of getting the best speed control, lane positioning, and communications are taken rather than spoken.

Comments are expected to be made before the fact, not after. The comments need not be complete sentences or phrases. The commentary could be a very brief telegraphic style such as "front closed, rear okay". Then the driver should make a reduction in speed that would be expected from one who is traveling into a closed path-of-travel. Other drivers in the same situation may be more proficient in giving a verbal description and may say something like this: "My path-of-travel is closed by the red light, my rear zone is open," then an action of reducing speed should be made.

Other objectives of the commentary are:

1. Call attention, in a dramatic way, to the vast number of things a driver should be watching for and thinking about.
2. Help build up resistance to common distractions.
3. Review and reinforce the knowledge and driving skills previously learned.
4. Provide involvement and participation when more than one student is in the vehicle during a training period.
5. Assist in the development of the ability to judge how far ahead one should observe and how early to start taking action.
6. Assist in the development of selective seeing habits.
7. Assist in the evaluation of student progress and the effectiveness of teaching. The teacher should ask:
    - Is the driver using the eyes efficiently?
    - Does the driver recognize line-of-sight and path-of-travel problems early?
    - Are applications of traffic laws and safe driving practices understood?
    - What training or retraining is needed?