

Chapter 5

You Control the Intersection



Overview

Content Notes & Background Information

NDRPC 2014

You Control the Intersection - Overview

Approximate time required to complete this chapter: Three hours

Classroom Concepts:

- 5.1 Communication Options
- 5.2 Approaching Intersections
- 5.3 Rear Zone Control
- 5.4 Stopping in Traffic

Good Driving Habits

Habit #7: Control Intersections

- FIND line-of-sight or path-of-travel zone conditions at intersections.
- SOLVE and CONTROL conditions by checking for clear left, front, and right zones before you enter.
- When the front is closed, reduce your speed to time your arrival into an open zone.

Habit #8: Get Rear Zone Control

- When your foot goes on the brake, check the inside rear-view mirror.
- Before moving to either side, check the outside rear-view mirror and the blind spot.
- Check all mirrors before backing.

Habit #9: Get Control with Vehicle in Front

- Identify the need to stop and close in gradually.
- When stopped behind a vehicle, see its rear tires touching the road.
- When traveling at the same speed, keep four or more seconds of following time.














Habit #10: Interact Courteously with Others

- Reduce stress and empower yourself and others by being courteous and cooperative.
- Send and receive communication in a timely and positive manner.

In-Vehicle Performance:

- 5.1 Communications Options
- 5.2 Approaching Intersections
- 5.3 Rear Zone Control
- 5.4 Stopping in Traffic

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

-  Send and respond to communications effectively
-  Get commitment from others
-  Courteous
-  See intersections in target area as closed or unstable zones
-  Evaluate rear zone conditions accurately
-  Select best path-of-travel, lane position, and speed control options
-  Search L,F,R - moving & stopped
-  Locate and apply point of no return
-  Use appropriate staggered, legal, and safety stops
-  Stop with vehicle in front to see tires touch ground
-  2-second delayed start
-  Awareness and control of rear zone
-  Monitor the rear while stopped for “Sand Barrels”

- 🚗 Use mirrors - after seeing closed or unstable zone, before braking, while stopped, before and after turns, before and after lane changes
- 🚗 Check blind spots
- 🚗 Time arrival into open zone
- 🚗 Begin braking without delay

Required Equipment, Lesson Resources, and Support Materials:

- ♦ NDRPC 2014 DVD Interface, computer, projector, screen, and speakers
- ♦ Chapter 5 Lesson Plans and Activity Directions, and Overview Notes
- ♦ NDRPC 2014 Playbooks (students are required to bring hard copy to class)
- ♦ Playbook Flash Cards (hopefully stored in envelopes in learner's Playbook)
- ♦ Ticket to Concept 5.3 Key
- ♦ Chapter 5 Exit Exams & 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 5
- Ticket to Concept 5.3

Methods of Classroom Assessments:

- Learner will complete Ticket to Concept 5.3 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 5 Exit Exam with a minimum score of 80%.

In-Vehicle Assessments of the 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

5.1 Communication Options

The learner will demonstrate how to send and receive messages effectively using a variety of techniques with other users of the roadway and in a variety of situations.

5.2 Approaching Intersections

The learner will be able to use effective searching strategies to FIND intersections and identify conditions as open, closed, or unstable. The learner will demonstrate the ability to SOLVE problems early and minimize risks while approaching intersections. The learner will begin to demonstrate the ability to CONTROL these 4-second danger zones by re-evaluating problems and solutions, and adjusting for additional line-of-sight and/or path-of-travel problems before reaching the point of no return.

5.3 Rear Zone Control

The learner will develop an awareness of front and rear zone conditions and how to effectively use mirrors and check the blind spot when appropriate: before and after braking, turning, changing lanes, while stopped, and before backing.

5.4 Stopping in Traffic

The learner will develop an awareness of how to control space to the front and rear when stopping in traffic.

In-Car Objectives

5.1 Communications Options

The learner will demonstrate that he/she can send and receive communications effectively for a variety of techniques and situations.

5.2 Approaching Intersections

The learner will demonstrate a consistent method of approaching, controlling, and traveling through various types of intersections utilizing the concepts and skills of zone control for space management.

5.3 Rear Zone Control

The learner will demonstrate an awareness of rear zone condition and be able to demonstrate the best actions to take to minimize the chances of others rear-ending their vehicle. The learner will demonstrate the ability to see and respond to events to the rear and front of the vehicle when moving, slowing, and while stopped in traffic.

5.4 Stopping in Traffic

The learner will demonstrate an awareness of how to control space while stopping in a traffic situation. The learner will demonstrate awareness and the need to see a closed path-of-travel problem and respond to it in a manner that is consistent with space management principles.

5.1 Communication Options – Content Notes

Effective communication can SOLVE potential problems and prevent conflicts with other roadway users.

Communication Options

- Turn signals - 5 seconds ahead (or 100 feet ahead when appropriate)
- Hand signals - appropriate and lawful use of hand signals.
- Headlights - to be seen
- Brake lights - tap to warn fast approaching traffic, brake early
- Backup lights - white
- Horn - use lightly and sparingly
- Emergency flashers/hazard lights - to warn that you or another is a potential hazard
- Vehicle lane position
- Vehicle speed

Effective use of lane positioning is able to give the driver space management.

Explain to the class that most travel lanes are 12 feet wide, and most cars are less than six feet wide; therefore, it is possible to have enough empty space on either side of the car to give an escape path for other vehicles, which can help to prevent them from crashing into your car.

A large percentage of cars that end up in a junk yard due to a crash would not be there if the driver had effectively used the full amount of space available in the travel lane.

Explain the use of “eye contact” and communication tactics

The idea of making “eye contact” should only be used very selectively. Some drivers may interpret eye contact in a confrontational manner. You only want to establish eye contact if it is for a positive situation; for example, if you are attempting to enter a long line of slow moving traffic and you want someone to let you into the traffic flow, establishing eye contact can help to communicate the message “may I enter in front of you?” That driver may respond by waving you to proceed. (Be sure they are not waving you into an unseen hazard.) However, if there is a car cutting you off, you would not want to blow your horn and establish eye contact, which would communicate that you are angry at that person. Ask the class to give examples of when establishing eye contact may lead to road rage. There may be times when a driver may attempt to wave you on.

5.2 Approaching Intersections - Content Notes

Intersections are dynamic and sometimes complicated. 30% of crashes happen at intersections. You need effective searching habits to prevent problems. Ask the class why they think there is such a high crash rate at intersections.

Background

A common statement made by drivers involved in intersection crashes is “I didn’t see...” The most common law violation drivers are cited with at intersection crashes is “failure to yield the right of way.” There are a few reasons why drivers “don’t see”. One reason is many drivers have not learned effective searching skills for locating closed zones while going into and through an intersection. Another reason is that an intersection is a location where there is much information to process. Drivers can be very easily distracted into looking at the wrong place at the wrong time. The answer to eliminating intersection crashes is to help drivers acquire effective searching habits.

What is an intersection?

An intersection is simply that point where two or more roads come together. They can be any shape. Some are controlled with signs or traffic lights, others are uncontrolled. In either case, drivers must know and apply yielding laws in order to successfully manage intersections - a 4-second danger zone.

Intersections are the most frequent danger zones a driver encounters. Most drivers don't see intersections as a high-risk location, and often there is very little attention placed upon navigating through one, other than to know if the traffic light is green or red. Some drivers have little or no regard for the legal obedience to whatever traffic control is in force. Many drivers are killed because they had the right-of-way at the intersection at the same moment that some other driver failed to grant the right-of-way to them. In most multiple-car crashes, one of the drivers was victimized by their own faulty actions, or by the deviant actions of others.

Intersection Clues

There are many clues that can tip a driver off to the presence of intersections. Here are only a few:

- Traffic Control Devices
- Turn lanes
- Crosswalks
- Cross traffic
- Warning signs

Approaching Intersections

See Intersection in Target Area

Awareness of an approach to an intersection should begin while looking to the target area and evaluating the path-of-travel.

Check the Rear Zone

Any time there is the possibility of a stop in traffic, check the rear zone's status.

Select Best Lane and Position Options

Based upon the conditions around you and your destination

Search Left, Front, and Right Zones - Use active and aggressive searching techniques

While moving, checks of the left and right zones are made at a 45-degree angle. Checks at a 90-degree angle are made while stopped. And it is very important to check the front zone for open space before or while moving.

Speed Control for Line-of-Sight and Path-of-Travel Problems

Cover the brake or apply the brake when a reduction of control in any zone is detected.

Explain the use of aggressive searching

Emphasize the need to make more aggressive searches when there are line-of-sight blockages that may conceal a pedestrian or a bicyclist. A driver can look in, under, and around parked cars for feet, wheels, shadows, and movement. When done at the proper distance and from a proper lane position, active 45-degree searches will allow you to see pedestrians and bicyclists before they create a surprise. An active search is a slight movement of the eyes and head. A passive search is not a search at all, but rather the assumption (or hope) that one will actually see something "important" out of the corner of the eye.

Roundabouts

- Eliminate the need for traffic lights and stop signs
- Keep traffic moving by eliminating usual traffic back-ups at intersection otherwise controlled by traffic lights.
- All entries are controlled with yield signs. Requires all vehicles entering to slow and/or stop to yield to vehicles in the roundabout and pedestrians.
- Many are designed with reverse curves to slow traffic prior to reaching a yield sign.
- Significantly reduce the chances of a high-speed side impact.
- No turn indicator is required to enter.
- A signal is required to exit.

Traffic Calming Circles

- Are significantly smaller than a modern roundabout, 10 – 15 foot radius.
- Placed in residential intersections or in intersections on minor arterials where it has been determined that traffic needs some incentive to slow down.
- Significantly reduce the chances of a high-speed side impact.
- May be controlled with stop sign on one or more sides – rules of the road will apply.
- May be placed in uncontrolled intersections – rules of the road will apply.
- If a turn is planned at this type of intersection, it is courteous to communicate your intentions prior to entry.
- A signal is required to exit.

5.3 Rear Zone Control - Content Notes

To best control your front zone, you must control the rear. To minimize the chances of being rear-ended, you must be aware of the rear zone conditions.

Rear Zone Control

To effectively control the rear zone, learners need to know where to check, how to check, and what to check for.
<http://www-nrd.nhtsa.dot.gov/pdf/esv/esv21/09-0129.pdf> See data on rear-end collision situations.

When to Check the Rear Zone

- After you see a zone change — especially to the front
Check the rear-view mirror to know how to best control the rear zone if a slow-down or stop is to take place.
- Before and After Braking
Form a good habit: When your foot brakes, check the rear-view mirror.
- While Stopped, Sand Barrels
As more cars stop in back, the risk of injury from a rear impact decreases. The stopped vehicles in back act as sand barrels (like the yellow ones seen at some highway exits) to absorb the force of impact. Continue to check the rear until at least two vehicles are stopped to your rear.
- Before and After Making Turns
This helps to give an update of rear zone conditions immediately before and after entering a new traffic pattern.
- Before and After Lane Change
Look for fast approaching traffic.

What to Look For - 3 Rear Zone Conditions (Includes the blind spots)

Open Rear Zone

No one closer than four seconds, and at least 15 seconds visual space to the rear, blind spot is unoccupied

Closed Rear Zone

Closer than four seconds or line-of-sight to the rear blocked, blind spot is occupied

Unstable Rear Zone

A fast closing vehicle approaching or passing, will momentarily close the blind spot

How to Check the Mirror

Make quick 0.3-second glance from front to rear to front.

Keep mirror free of all decorations - they are visual distractions and create dangerous line-of-sight blockages.

Use All Mirrors Effectively

This includes the inside rear-view mirror, the two outside side-view mirrors, and convex mirrors when available. Even with side-view mirrors, there is a blind area where another vehicle alongside you may not be detected.

Blind Spot Check – Chin to Shoulder

Requires a brief head movement and a rolling of the eyeballs in the direction you intend to move. Only takes 0.3 seconds. This increases the range of your fringe vision to detect vehicles.

Convex Mirror Check

A convex mirror is curved to give a wider view than existing mirrors. When added to the vehicle outside mirror, it will reduce the blind spot not seen in the flat mirror.

Fast Closing Vehicle

When you see a fast closing vehicle behind you, tap the brakes to get the driver's attention.

Line-of-Sight Blockages

A large vehicle following closely to your rear will prevent you from detecting vehicles that will be pulling alongside you. When you are stopped around a curve, you may not have a good sight distance to your rear; which may also prevent rear approaching traffic from seeing you.

Taking an effective action in speed adjustment, lane positioning, or communication can increase the control of the rear situation. Effective speed control means taking the best option available (i.e. the worse the rear zone, the slower the speed).

1. Use of Mirrors
2. Check Blind Areas
3. See Rear Zone Changes
4. Be Aware of Rear Condition
5. Take Action for Control
6. Effective Speed Control

5.4 Stopping in Traffic – Content Notes

Your awareness of how to control space while stopping in traffic requires that you see and control events to the front and rear of your vehicle.

Gradual Approach to Stop Location

A gradual approach into a stop situation puts you in a win-win situation. You will use less fuel, put the least amount of wear on your tires and braking system, and have the best opportunity to control the traffic to your rear. Most of all, you will be developing a good habit that will eventually occur even when you don't think about it.

Make Smooth Stop

Making a smooth stop is a good habit to acquire. When jerky braking does occur, it will be felt as undesirable.

When you are the first car approaching an intersection, there are three possible stop positions.

1. **Staggered Stop** refers to stopping or preparing to stop, at a point where you can see the stop line to the front of your car. This will place your car approximately 15 feet, or one car length before the line.
2. **Legal Stop** is at the stop line, crosswalk or implied crosswalk (pedestrian crossing or sidewalk).
3. **Safety Stop** is at the curb line to best see traffic.

Monitor Rear until Two Cars Are Stopped in Back - Sand Barrels

When you are stopped in traffic, an approaching driver may not perceive your car as stopped. Be aware of the danger until you have at least two cars stopped in back. They act as "Sand Barrels" or inertial buffers to absorb the force of impact. As more cars stop behind you, the risk of injury from a rear impact decreases.

With a Car in Front, Stop to See Tires

When you are able to see the rear tires of the car in front, you are approximately 12-15 feet to its rear. This gives you independence to get around a stalled car or be pushed into empty space if rear-ended.

Use 2-Second Delay with Start-Up

When the car in front of you moves, wait two seconds before putting your car into motion. There are several advantages to using a 2-second delayed start:

- Gives you enough time to search the intersection effectively
- Begins to establish your four-second following time
- Protects you from false starts by vehicles in front

See Closed Path-of-Travel at Least 15-seconds Ahead

See the condition of your target area. Ask yourself, "Is it open or closed?" If your target area is open, continue to search for the condition of your travel path. When you see a closed path-of-travel in your front zone, it should activate your "Alert Switch," telling you to check your other zones.

Point of No Return

The point of no return is that point when you can no longer stop without entering an intersection or begin to pass another zone change, like a parked car, bicyclist, or pedestrian. It is two seconds away from the stop line, front of parked vehicle. Of course speed is a factor in determining the point of no return. Faster speed = longer space

- 20 mph = 30 feet per second. If a driver has reached the point of no return, only 3 car lengths of space would be visible between his/her vehicle and the edge of the intersection.
- 40 mph = 60 feet per second. If a driver has reached the point of no return at this speed, he/she would see 5 car lengths of space between the front of vehicle and the edge of the intersection.

Note: At least 1 car length of space to the front of a vehicle is not seen, as that space is blocked from the driver's view by the body of the vehicle.

Check Rear Zone

When the front zone is closed, you want to immediately check the rear zone to determine what your options are.

Try to Time Arrival into Open Zone

As you look to your target area and see that the front zone is closed, you are in an excellent strategic position to make slight adjustments in your speed that will give the closed zone time to open for your vehicle. If you make an attempt to enter an open zone, you will gain independence from what other traffic is doing. Very often, one driver after another plays follow-the-leader, and they drive at the same speed into a closed zone because the mind was never engaged, and a bad rather than good habit made the driver feel okay about his performance.

Communicate to Rear - Tap Brake Lights

When the front zone is closed and you see a car to your rear, you have an opportunity to detect whether the driver is a tailgater. You have a wonderful opportunity to test the effectiveness of tapping the brake pedal as a communication that you will be slowing or stopping. Observe how the driver responds to your communication.

Begin Braking Without Delay

The sooner you begin the braking process, the more time you have to control the situation.