



Chapter 4

Managing Risk with the IPDE Process

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Using the IPDE Process

You Are the Driver!

Imagine you are approaching the intersection in this picture. You have a green traffic light. What possible hazards can you identify? Should you predict the light will stay green? What action should you take if your intended path of travel becomes closed? If you decide to change speed or direction, how can you communicate with the drivers behind you?

This chapter presents the IPDE Process with its components, the Smith System and the Zone Control System. The IPDE Process will help you reduce risk by making wise decisions and executing safe driving actions.



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4.1 The IPDE Process

Objectives

1. Name three major factors that can contribute to the degree of risk you encounter while driving.
2. Name the four steps of the IPDE Process.
3. List the five rules of the Smith System.
4. Explain the structure of the Zone Control System.

Nearly every driver uses some kind of system or process to drive. Drivers who do not use some kind of organized system will have more close calls and collisions. Drivers who use an organized system will be better equipped to manage risk and thus reduce the possibility of damage or harm.

Risk

All activities throughout a person's life involve some degree of risk. Whether playing a sport, working on the job, or driving a vehicle, some degree of risk with the possibility of suffering harm is always present. The risk you take when driving a vehicle is the ever-present possibility of conflict.

Driving a vehicle in today's environment can cause you to be at a very high degree of risk. Risk factors can be contributed by the driver, by the vehicle, and by the roadway and environment. Some examples

of driver-contributed factors are

- adjusting radio
- being angry
- having blurred vision
- combing hair
- drinking while driving using a cellular phone

Driver-contributed risk factors also apply to other drivers on the roadway. These other drivers can increase or decrease your level of risk and chance of conflict.

Some risk factors are contributed by the vehicle. However, most vehicle-related risk factors are really contributed by the vehicle owner. Ownership responsibility requires proper maintenance and repair of your vehicle. Some of these risk factors are

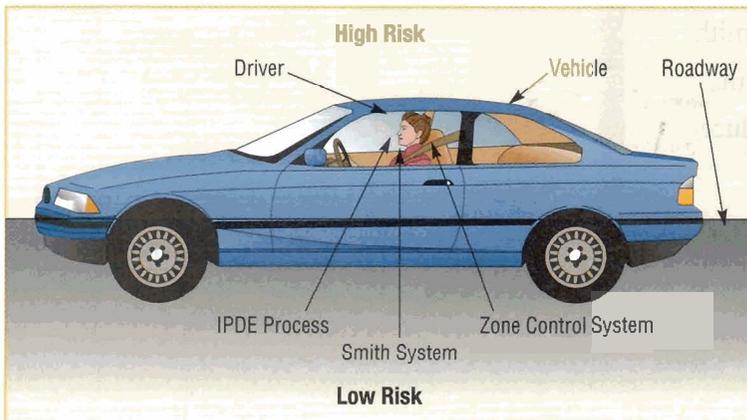
- bald tires
- poorly adjusted brakes
- dirty windshield
- broken headlight
- worn wiper blades

Risk factors contributed by the roadway and the environment may include the following:

- bright sun
- construction
- dark shadows
- snow and ice
- sharp curve

As you drive, be aware that all of these risk factors, and many more, play a major role in the level of risk you face.

Because some degree of risk is always present, try to make sure



nothing about your own condition or the condition of your vehicle raises your level of risk.

Some drivers deliberately take chances. They put not only themselves but others at a high degree of risk. Deliberately taking a chance with a vehicle, with its great capacity for harm and destruction, should be unthinkable. The potential for suffering harm and loss is too great, and the possible penalties are too serious. Drivers who take unnecessary chances demonstrate risk-taking behaviors. A driver who continues to practice these behaviors can develop high-risk habits with the possibility of becoming an unsafe driver.

Good drivers make every effort to manage risk in order to lower the probability of conflict, and thus enjoy more stress-free driving. As you begin your driving experience, make every effort to develop low-risk driving behaviors. Then, through continual practice, these low-risk behaviors will become your safe driving habits.

The IPDE Process

Good seeing habits and your ability to manage space in the roadway are basic tools for low-risk driving. The IPDE Process, along with the Smith System and Zone Control System, can enable you to enjoy low-risk and low-stress driving.

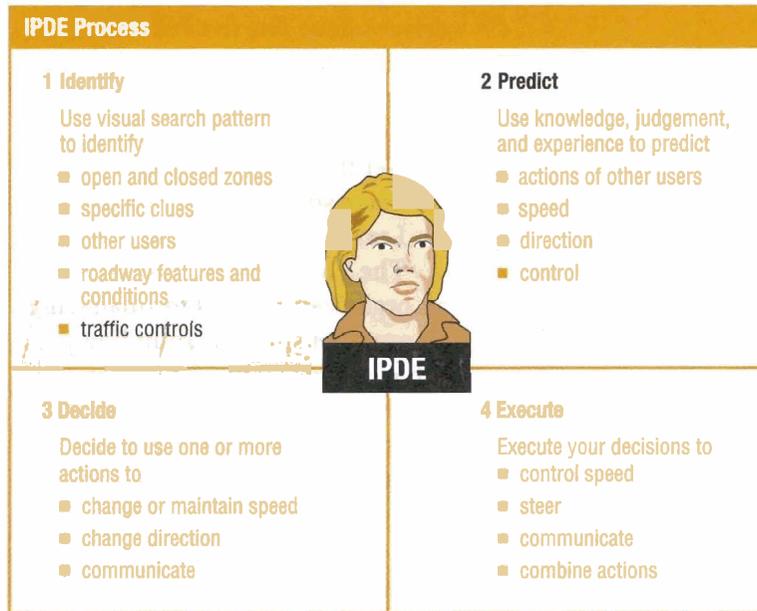
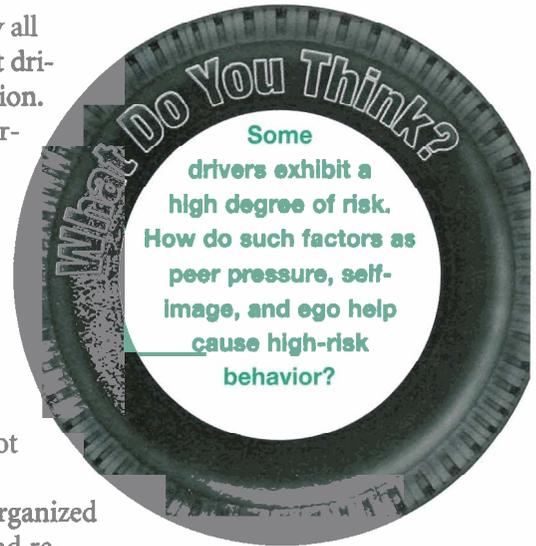
Safe driving depends upon your ability to see and analyze traffic situations correctly. Good seeing habits are the basic critical factor necessary for staying out of high-risk situations. However, just being able to see well is

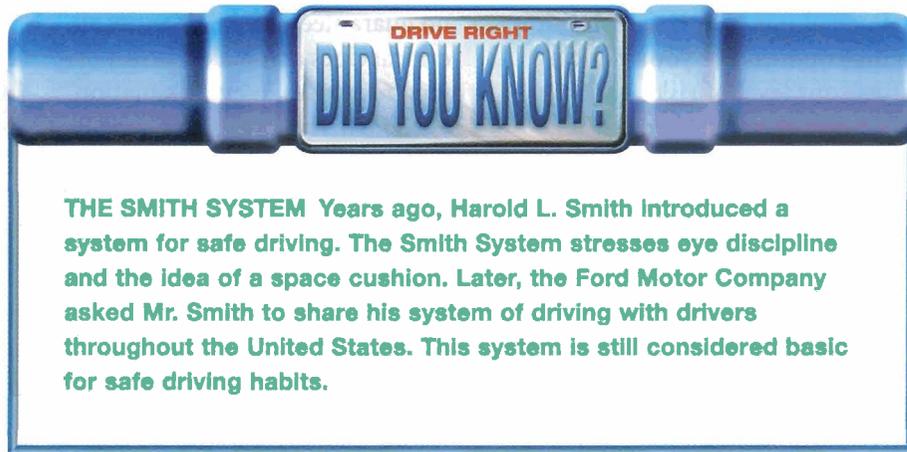
no guarantee you will identify all critical clues and make correct driving responses in every situation.

The driving task is primarily a thinking task. Your hands and feet do only what your brain tells them to do. Most responsible drivers use a system that deals with all the traffic possibilities they will encounter. These drivers have fewer close calls and collisions than drivers who do not use some kind of system.

The IPDE Process is an organized system of seeing, thinking, and responding. The Smith System and the Zone Control System will help you apply the IPDE Process. The four steps of the IPDE Process are

1. Identify
2. Predict
3. Decide
4. Execute





THE SMITH SYSTEM Years ago, Harold L. Smith introduced a system for safe driving. The Smith System stresses eye discipline and the idea of a space cushion. Later, the Ford Motor Company asked Mr. Smith to share his system of driving with drivers throughout the United States. This system is still considered basic for safe driving habits.

You begin the IPDE Process by “reading” traffic situations to gather information for your decisions and actions. To process this information properly, you must identify hazards and predict conflict. You then decide how to avoid the conflict by executing the correct action.

The Smith System is an organized method to help drivers develop good seeing habits by using five rules for driver safety. The five rules of the Smith System are

1. Aim high in steering.
2. Keep your eyes moving.
3. Get the big picture.
4. Make sure others see you.
5. Leave yourself an “out.”

The Zone Control System is an organized method for managing six zones of space surrounding your vehicle. Zone Control allows you to see and respond to changes in the traffic environment at a time when best control can be achieved.

The structure of the Zone Control System includes the following steps:

1. See a zone change.
2. Check other zones.
3. Create time and space by getting the best speed control, lane position, and communication.

Using the Smith System and Zone Control System with the IPDE Process can put you well on the road toward low-risk driving behaviors.

Review It

1. What three major factors contribute to your degree of risk while driving?
2. What are the four steps of the IPDE Process?
3. What are the five rules of the Smith System?
4. What is the structure of the Zone Control System?

4.2

Identify and Predict

The Identify and Predict steps of the IPDE Process are critical in every driving environment. These two steps begin your thinking process for every situation you encounter. With practice and experience, these steps will seem to occur in your thinking process as happening almost at the same time. As you search in and around your path to identify possible problems, you will be making judgments and predictions about what conflicts may occur.

Identify

The first step of the IPDE Process is **identify**. This step involves much

more than just seeing. When you identify, you give meaning to what you see. You must know when to look, where to look, how to look, and what to look for.

Any aspect of the Highway Transportation System (HTS) can become a hazardous situation. This includes the roadway, your own vehicle, other vehicles or pedestrians, and traffic controls. Clues you identify may cause you to change direction or speed, signal others, or perform any combination of maneuvers. The sooner you identify a possible hazard, the more time you will have to react safely.

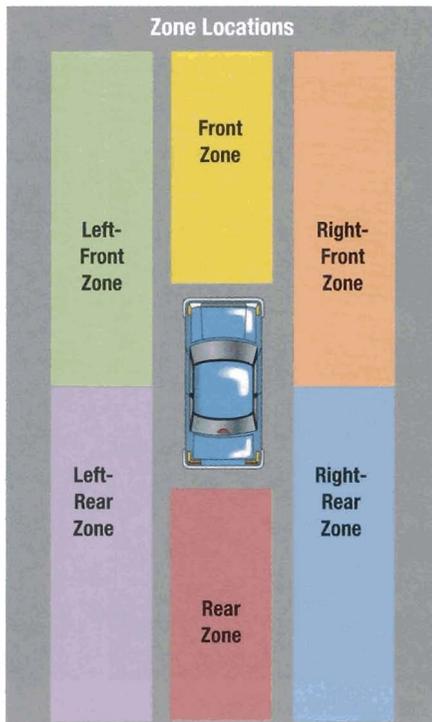
Zones and Searching Ranges

The Zone Control System helps you make quick and accurate use of the IPDE Process by setting a standard of what to identify and what to do when you find it. A **zone** is one of six areas of space around a vehicle that is the width of a lane and extends as far as the driver can see. The picture shows the six zones around your vehicle. Straight ahead is the front zone, to the left is the left-front zone, and to the right is the right-front zone. Behind you is the rear zone, the left-rear zone, and the right-rear zone.

An **open zone** is space where you can drive without a restriction to your **line of sight** or to your intended **path of travel**. Your line of sight is the distance you can see

Objectives

1. Describe the location of each of the six zones of the Zone Control System.
2. Explain what is meant by an open zone and a closed zone.
3. Describe an orderly visual search pattern.
4. Explain how knowledge and experience help you make accurate predictions.





What is your open zone in this situation?

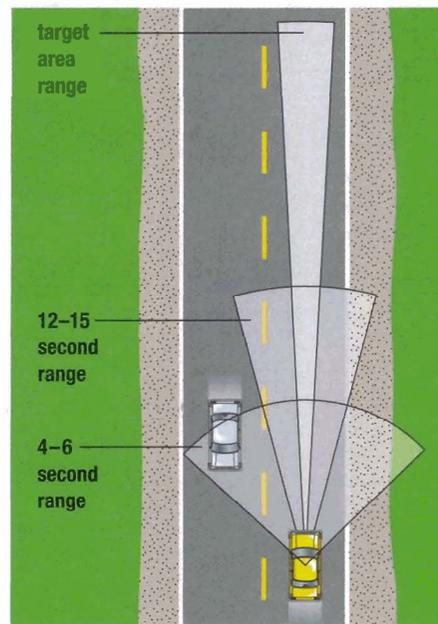
ahead in the direction you are looking. Your intended path of travel is the space your vehicle will occupy. Your path of travel is directed toward the **target area**. The target area is the section of the roadway where the target is located in the center of your intended path, and the area to its right and left.

A **closed zone** is a space not open to you because of a restriction in your line of sight or intended path of travel. A red traffic light is an example of a closed front zone. A parked vehicle to your right represents a closed right-front zone. A closed rear zone might be a vehicle that is following you too closely. The sooner you identify a closed zone, the more time you have to respond. With more time, the better chance you have to achieve control of the situation by lowering the degree of risk.

The driver in the picture on the left has identified the car that is about to enter his or her intended path of travel. The driver will need to treat the front zone as closed, and therefore slow down to open the front zone.

In order to keep alert to the conditions of your zones, there are three searching ranges that need to be evaluated. A searching range is a certain distance ahead of the vehicle where the intended path of travel is systematically evaluated. The picture below shows the three searching ranges. The first searching range is the **target area range**, which is the space from your vehicle to the target area. You search this range to detect early any conditions that might affect your intended path of travel.

Next you will search the **12–15 second range**, which is the space you



Three searching ranges

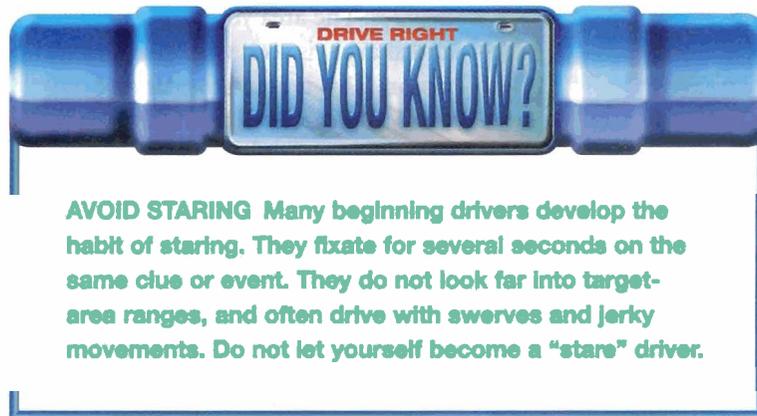
will travel in during the next 12–15 seconds. This range is where you need to identify changes in your line of sight or path of travel to make decisions about controlling your intended path. Try to identify the possibility of closed zones by searching to the left and right for anything that might come into your zones.

The **4–6 second range** is the space you will travel in during the next 4–6 seconds. This range is where you need to get the final update of how you are controlling your intended path of travel.

Orderly Visual Search Pattern

You can use any of several patterns to help develop your own identifying process. An **orderly visual search pattern** is a process of searching critical areas in a regular sequence. To use an orderly visual search pattern, look for clues in and around your intended path of travel in a systematic manner. Below is an example of an orderly visual search pattern for straight-ahead driving.

1. Look ahead to your target area range.
2. Evaluate your left-front, front, and right-front zones in the 12–15 second range. Search driveways and intersections for possible changes in your line of sight and path of travel.
3. Glance in rearview mirror to check your rear zones.
4. Evaluate your 4–6 second range before entering that space.
5. Look ahead again to evaluate another 12–15 second range.
6. Check your 4–6 second range.



7. Glance in rearview mirror.
8. Check speedometer and gauges.

You will repeat this pattern continually as you move forward. Each look or glance should last only an instant as you evaluate your zones and the areas to the left and right. Be careful not to stare as you search. Practice using your orderly visual search pattern as a passenger—in addition to when you are driving—so it will become a safe driving habit. You will then be able to adjust your search pattern for any maneuver or driving environment.

Where and How to Look

Different driving environments and traffic situations present a variety of visual search problems. As you gain driving experience, you will learn what kinds of clues and situations are most important to identify in order to keep an open zone in your path of travel.

The area you can see around you, while looking straight ahead, is called your **field of vision**. Many of us can see an area of about 90 degrees to each side, for a total picture of 180



SAFE DRIVING

Even though your peripheral vision is not sharp and clear, it is very important to you while you are driving. When you see some kind of movement or a vehicle or pedestrian in your peripheral vision, you can turn your eyes in that direction to see if there is a potential problem.

degrees. The area you can see clearly and sharply is seen with your **central vision**. This is a narrow cone of only up to 10 degrees. The area you can see to the left and right of central vision is your side vision, or **peripheral vision**. As the distance from central vision increases toward the outer edge of peripheral vision, the less clearly you can identify clues and events.

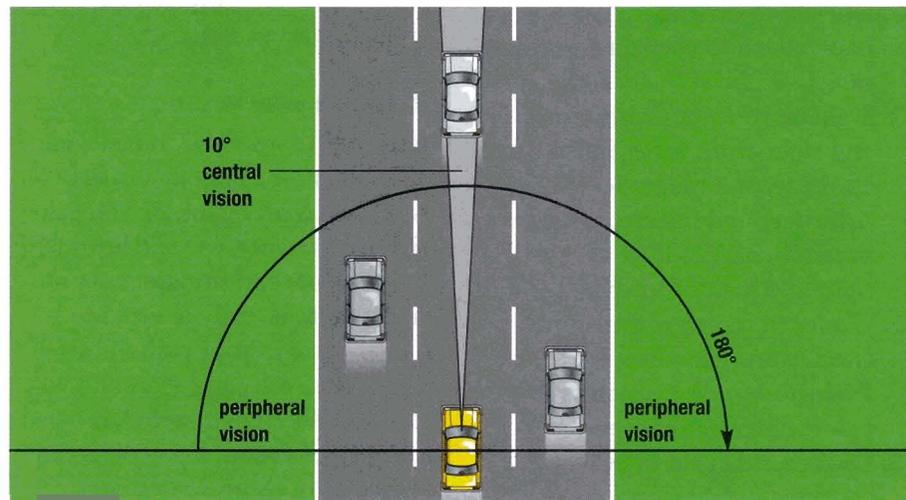
Three of the Smith System rules can help you learn where and how to look as you develop your visual search pattern.

Aim High in Steering To “aim high” means to look ahead 12–15 seconds into your target area as you drive. Do not just look at the close area in front of or at the sides of your vehicle. Be a high-aim driver. Looking far ahead with your line of sight will help you to identify clues and analyze situations before your zone becomes closed. There are many types of restrictions to your line of sight that

can cause a closed zone. Some such restrictions are curves, hills, large vehicles, weather conditions, buildings, trees, or even a dirty windshield.

Keep Your Eyes Moving Looking near and far, side to side, and in the mirrors will help you see a zone change before it becomes critical. Keeping your eyes moving does not mean just moving them constantly. You must fixate on an object or an event for an instant in order to identify it. Do not fixate for longer than an instant or you will find yourself staring. Keeping your eyes moving will prevent you from staring at any one object or clue.

Develop the art of **scanning**, glancing continually and quickly with very brief fixations through your orderly visual search pattern. You are looking and seeing as you scan, but not staring at any one event or clue. Staring blocks out side vision, causes lack of attention, and



You see most clearly in the area of central vision, but peripheral vision is equally important.

tends to create high-risk driving habits. Keeping your eyes moving helps you stay more alert with your attention at a higher level. You are then more likely to keep up with all the changes in your field of vision.

Get the Big Picture Getting the big picture is the mental process of putting together the critical clues you have selected. It is the result of aiming high and keeping your eyes moving.

What to Look For

Knowing where and how to look does little good if you do not know what to look for in your target area. Develop the technique of selective seeing in your identifying process. Selective seeing means that you identify and select only those clues and events that restrict your line of sight or can change your intended path of travel.

Look for Open Zones Use your visual search pattern to look for specific driving-related clues that might cause an open zone to close.

When searching parked cars on a street, you might identify an important clue, such as front wheels turned toward the street, as the picture shows. You might also identify vapor coming from an exhaust pipe or a driver sitting in a car. These clues indicate that a car might enter your path of travel and cause your front zone to close.

The kinds of clues you search for will change as you drive in different environments. When driving in the city, search for intersections, parked cars, pedestrians, and traffic. On open highways, search areas much farther ahead. Look for crossroads, slow-moving vehicles, and animals. Any of these can suddenly cause an open zone to close, resulting in the need to change your intended path of travel. When you drive on expressways, speeds are higher and scanning all zones becomes even more critical. Regardless of the driving environment, you should always look for other roadway users, roadway features, changing conditions,



You Are the Driver!

What procedure would you follow to avoid a possible conflict if your front zone becomes closed?

Front wheels turned toward the street are a clue that the car might pull out and close your zone.

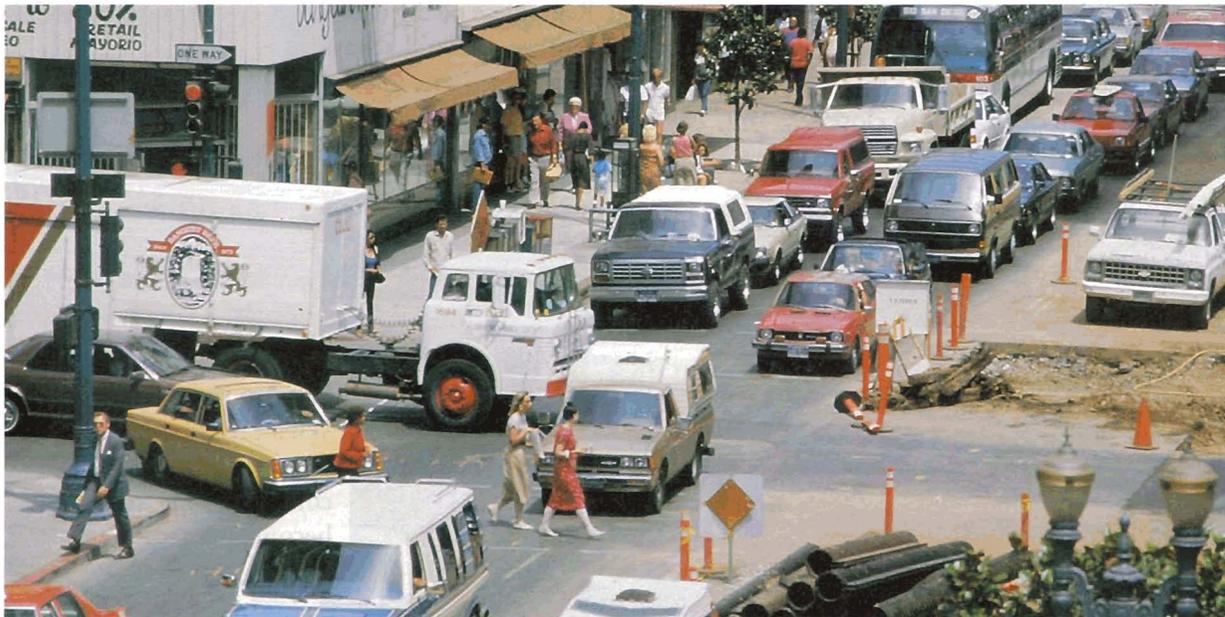
and traffic controls that may affect your intended path of travel.

Look for Other Users Look for other users who might affect your intended path of travel. Watch for movement of other users, especially in areas that have shadows or shade. Watch for pedestrians and bicyclists. A large truck is easy to identify. However, it creates a restriction in your line of sight and may prevent you from seeing another user. Develop the habit of **ground viewing** as part of your visual search pattern. Ground viewing is making quick glances to the roadway in front of your vehicle. When other vehicles are approaching, use ground viewing to see where they are headed by checking the direction of their front wheels.

Always be on the lookout for problem drivers. Problem drivers

usually give clues by their driving behavior. Some fast drivers might be problem drivers. They may try to pass without enough room or in a no-passing zone. They frequently change lanes, trying to get ahead of the normal traffic flow, and can cause a sudden change in your open zone condition.

Look for Roadway Features and Conditions The roadway itself is another important area to watch. Identify intersections, hills, and curves early. Be aware ahead of time that the width of your lane might be reduced for road construction or other obstacles. An intersection is a high-risk area where the management of your path of travel needs constant attention. Stopped traffic or entering traffic can cause line-of-sight restrictions or even a closed



Drivers need to look for many different roadway users and roadway conditions that will affect their path of travel.

zone. A hill is a line-of-sight restriction which could hide a closed zone as you go over the hill. Here are some reasons for changes in roadway features and conditions:

- **Change from multilane to single lane** Multilane roadways often narrow into single-lane roadways. Identify signs warning you of this change early enough to avoid a closed zone in your intended path. When signs indicate roadway repairs ahead, you can expect your front zone will close. Check your left-front, right-front, and rear zones before moving into the through lane. Drivers who wait until the last instant and then try to squeeze into the through lane are demonstrating high-risk behavior with no concern for other drivers.
- **Change in width of lane** Standing water, patches of snow, potholes, or objects in the roadway can cause an open zone to close. Identify the conditions early and then check your rear zone to find out if there will be a problem in case a stop is needed. Check your left-rear zone and left-front zone, as the driver in the picture above is doing, to see if you have space to go around the problem safely.
- **Roadway surface** Identify the roadway surface and condition each time you begin to drive. There will be times when the weather will change while you are driving. Roadway surfaces may be dry when you start out and then



Check your rear zones and left-front zone when an object is in the roadway.

become wet and slippery with rain, snow, or ice as you are driving. Be prepared to adjust your driving for changing weather conditions that might affect the roadway surface. A gravel surface can cause sliding or skidding just like a wet or slippery surface.

- **Roadside hazards** Your identification process should keep you scanning for bicyclists, pedestrians, parked vehicles, and animals. Watch for shopping center entrances and exits, roadside stands, and restaurants. Other drivers can appear from almost any location and cause your open zone to close. Continual scanning of your target areas will help you identify these other drivers in time to avoid sudden actions or conflict.

Look for Traffic Controls Learn to look in different places for traffic controls. At major intersections, controls can be overhead, in the center, or on a corner. Identify traffic controls as early as possible so you are ready to make correct responses.

Predict

Once you have identified a hazard, **predict** how this hazard might affect your intended path of travel. When you predict, you interpret the information you have identified. You predict where possible points of conflict can occur. You try to foresee what might happen, how changes in zones may occur, and how you would check other zones for alternate paths. Your predictions will be based upon those conditions that may reduce your line of sight or could change your intended path of travel.

If you had to face just one hazard at a time, you could more easily predict the possible outcome. However, most of the time you will be faced with more than one possible hazard or conflict, so predicting can become more complex.

How to Predict

Predicting involves what is happening in your zones, what could happen,

and if it does happen, how the change could affect you. To predict, you must evaluate the situation and make a judgment about the possible consequences. The more complex a situation is, the more difficult it is to identify and predict. As you gain driving experience, you will become more selective about which hazards or possible conflicts are critical.

Imagine you are driving the car on the right in the picture below. Your left-front zone is blocked by the bicyclists and oncoming car. You should predict that one or both of the bicyclists might swerve or fall. If so, predict that the oncoming car might enter your front zone, causing it to close.

Using Zone Control, you would check your rear zone in case you need to stop. Check your right-front zone in case you need to move in that direction. You should also check the right-rear zone before moving to the right. Scanning your target areas can help you predict hazards that may affect your path of travel. Your ability to predict and make sound judgments will improve as you gain knowledge and experience.

Knowledge One basic part of your driving knowledge comes from the study of traffic laws and driver-education material. Whenever you drive, you also gain knowledge by gathering more information and learning from others.

Think of storing driving knowledge as adding to your safe-driving memory bank. The more you drive, the more you add to your memory bank of knowledge. This knowledge

What might you predict if this was your oncoming traffic?



will help you identify and predict more quickly and accurately and increase your chances of becoming a low-risk driver.

Judgment Making a judgment about a traffic situation involves measuring, comparing, and evaluating. As you drive, you judge speed, time, space, distance, traction, and visibility. You make judgments about your own driving performance as well as the actions and performance of other roadway users. Make every effort to develop the ability to make sound judgments that lead to accurate predictions.

Experience In addition to knowledge, experience helps you improve your ability to predict accurately. Exposure to a wide variety of driving experiences provides a solid base for making sound judgments later.

What to Predict

Nearly all predictions you make as a driver will be related to predicting changes in zones and looking for an “out” or an alternative path of travel. Two major elements in the traffic scene you must make predictions about are

- the actions of other roadway users
- your control of your vehicle and consequences of your actions

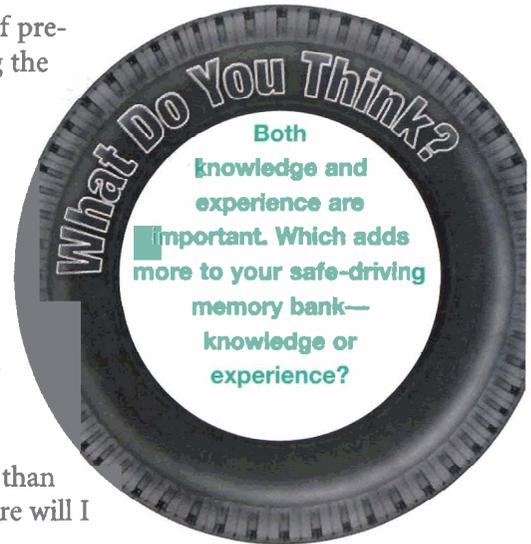
Predicting Actions of Others Do not assume other roadway users will always take the correct action. Instead watch for clues to what they might do to alter zone conditions.

The most important types of predictions to make concerning the actions of others are

- **Path** Where might the other driver go? What zone might be closed? Will I have an open zone for an “out”? The Smith System rule of leaving yourself an “out” is critical when predicting possible closed zones.
- **Action** What action will other users take? Is more than one action possible? Where will I be then?
- **Space** Will I have an open zone?
- **Point of Conflict** If I have no open zone for escape, where might our paths cross and a conflict occur?

Imagine that you are driving toward the intersection in the picture below. The oncoming driver is signaling for a right turn. Assume the worst and predict that the driver

What might the oncoming driver do? What might the pedestrians do?



You Are the Driver!
What effect does the oncoming car have on your IPDE Process?



will turn left into your front zone. Also predict that the pedestrians will step off the curb and close your right front zone. By making these predictions you will be able to slow, swerve, or stop in order to avoid a conflict.

Predicting Control of Your Vehicle and Possible Consequences Speed is probably the most important factor in maintaining control of your vehicle. Always be prepared to adjust your speed for different zone conditions and situations. Different traffic, roadway, and weather conditions can change the amount of time and space needed for safe reactions.

The basic requirement for vehicle control is **traction**. Traction is the actual gripping power between the tires and the roadway surface. The more traction there is, the greater the gripping power.

In the picture above, the driver knows the roadway is wet and presumes it is slippery. Visibility is restricted by the weather. The driver

predicts that stopping for the STOP sign will take longer than if the roadway were dry. Based on this prediction, the driver checks the rear zone and then slows and brakes earlier.

In many situations you may have a choice of actions to predict. Try to judge and compare the possible consequences before deciding on the best action.

Review It

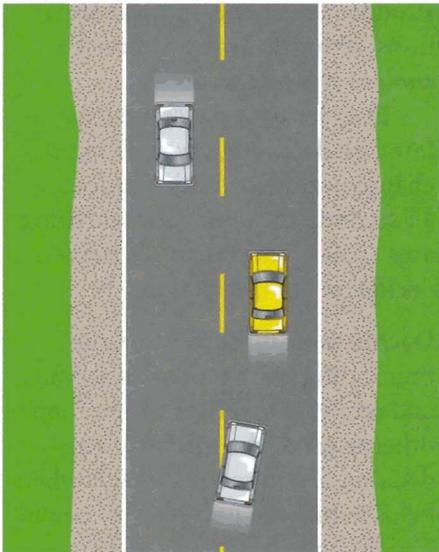
1. What is the location of each of the six zones of the Zone Control System?
2. What is an open zone and a closed zone?
3. Give an example of an orderly visual search pattern.
4. What effects do knowledge and experience have on your ability to make accurate predictions?

4.3

Decide and Execute

Once you have identified a situation and predicted a possible conflict, you then **decide** upon an action. Deciding, like predicting, is also a mental task. There is probably no task more important, though, than making wise decisions and then executing actions to avoid conflict. Drivers must continually identify and predict until they have enough information to make correct decisions.

Once you make a decision, the **execute** step of the IPDE Process will follow. To execute a decision means that you carry out an action that you have decided upon. In order to do this, you will use your vehicle's controls and safety devices.



The driver of the yellow car decided to accelerate to provide space for the passing driver to return to the right lane.

Decide

As you follow a selected path, your decision might be to maintain speed, change speed, change direction, or communicate your plan to others. Or you might decide to use a combination of these actions. Be prepared to rethink your decisions as zones close and greater hazards are presented. Practice and experience, as well as your judgment and stored knowledge, are the tools you can use to avoid conflict and develop low-risk driving behaviors.

Decide to Change Speed Any decision you make will be influenced by the speed of your own vehicle as well as the speed of other vehicles. Many drivers think that slowing down is the only way to avoid a conflict. In many situations, however, you will decide to maintain your speed. Your other choices of actions, rather than maintaining your speed, are to decelerate, brake, or accelerate. Base your decision about speed control on your evaluation of the situation as well as the possible consequences of your actions.

The driver of the yellow car on the two-lane road in the picture decided to accelerate. This decision provided space for the passing driver to return to the right lane. Had the driver of the yellow car decided to brake, there could have been a major collision in that driver's left-front zone.

Decide to Change Direction In order to change your position in the

Objectives

1. Name the three decisions you must make when applying the IPDE Process.
2. Describe the three different lane positions available to you within your lane.
3. Explain what is meant when you minimize or separate a hazard or compromise space.
4. List the three most important actions you can take to avoid conflict.

roadway, you will steer to the right or left. A greater change of direction might even be a lane change.

The Smith System rule to leave yourself an “out” allows you to change direction when necessary. You then can use an escape path into an open zone to avoid conflict. This area of space all around your vehicle is called a **space cushion**.

Three different lane positions are available to you within your lane. You could change to one of these positions in order to avoid a closing zone. Notice the three lane positions in the diagram below.

- **Lane position 1:** The car is centered within the travel lane. This

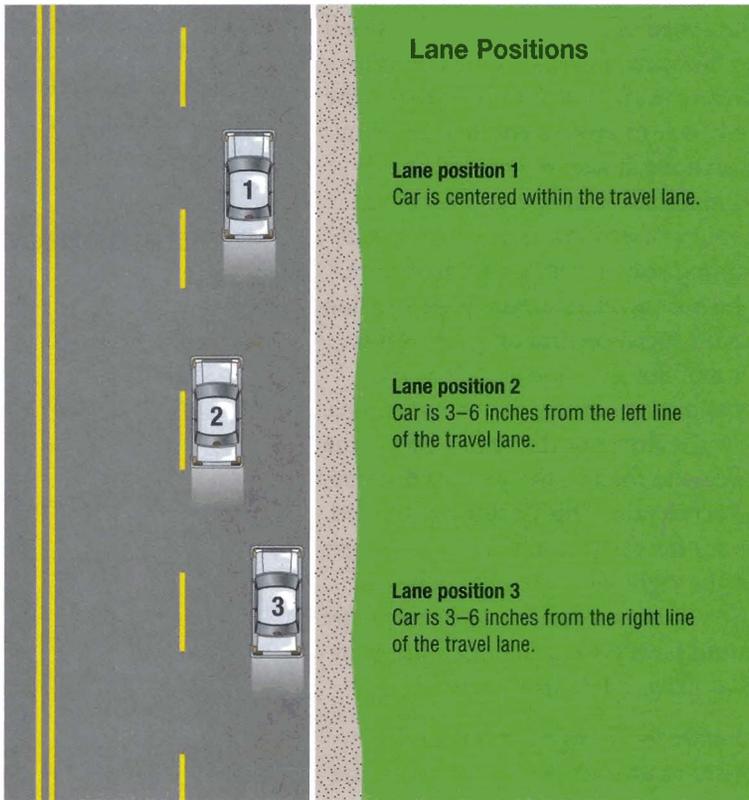
should be your selected and safest position under normal driving conditions. In this position you have the most space around your vehicle.

- **Lane position 2:** The car is three to six inches away from the left line of your lane. You might decide to use this position when there is a closed right-front zone with an open left-front zone. Just a slight adjustment to the left is necessary.
- **Lane position 3:** The car is three to six inches away from the right line of your lane. Use this position when there is a closed left-front zone with an open right-front zone.

There may be times when the situation requires a greater change in direction than the three lane positions. You may decide that the best position, in some situations, is to straddle a lane line. In these situations, return to lane position 1 as soon as it is safe to do so.

In order to make consistently low-risk decisions, try to detect a changing zone condition at least 12 seconds ahead in your searching area. This gives you ample time to decide on the best action.

Decide to Communicate Communicating is the process of sending and receiving messages to and from other users of the roadway. The decision to communicate with others helps reduce the possibility of conflict. The Smith System rule, “Make sure others see you,” tells others where you are and what you plan to do. You can



decide to communicate with others by using lights, horn, vehicle position, eye contact, and body movement.

A change in direction or speed can be executed with less risk if you have communicated your intentions to other users. Try to avoid changes in speed or direction without communicating first. Surprises of sudden actions can result in high-risk situations.

You can decide to communicate with others in a variety of ways:

- headlights, taillights, and brake lights
- turn signal lights
- parking lights and hazard flashers
- back-up lights
- horn
- car position
- eye contact and body movement

After deciding the best method of communicating, you will execute that action to inform others of your

decision. The driver in the picture below is using body movement by waving the driver on the left through the intersection first.

Traffic Flow

The IPDE Process, the Smith System, and the Zone Control System will help you make decisions that will enable you to avoid hazards and conflicts in your intended path. The safest position in traffic is the place where the fewest vehicles surround you. Your objective is to keep your vehicle surrounded by space. Continually analyze your left, front, and right zones and make decisions to adjust your speed or direction if one of your zones begins to close. By deciding to adjust your speed or direction, you will avoid unnecessary stops and thus reduce your risk of conflict.

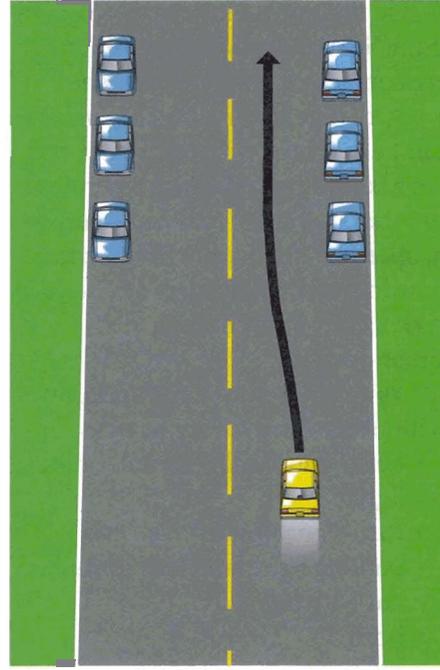


Use body motions to communicate.

Use the following techniques to manage time, space, and distance in order to maintain your safe path of travel.

Minimize a Hazard You always want to **minimize a hazard**, or reduce the possibility of conflict by deciding to put more distance between yourself and the hazard. As the yellow car in the picture on the right approaches the parked cars on the right, the driver predicts a car door might open. Since there is no oncoming traffic, the driver decides to steer away from the parked cars into lane position 2. After passing the parked cars, the driver will return to lane position 1. The driver has minimized the hazard by using more space.

Separate Hazards There will be times when you face more than one



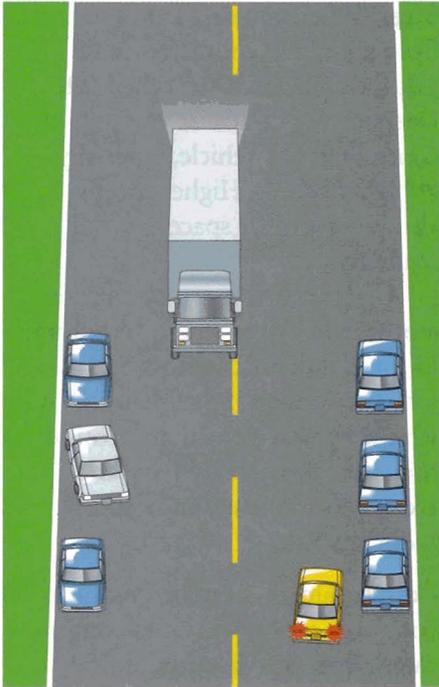
Minimize the hazard of the parked cars by moving to lane position 2.



The driver must separate two hazards—the pedestrians on the right and the approaching vehicle on the left.

hazard at a time. When this occurs do not try to handle both or all hazards at once. Instead, decide to adjust your speed so you deal with only one hazard at a time. By following this strategy, you will **separate the hazards**.

The driver of the car in the picture on the left sees the oncoming motor home in the left-front zone and the pedestrians in the right-front zone. The best decision is for the driver to adjust speed by slowing down. The motor home can then pass the pedestrians first. The driver would then meet the motor home with ample space before passing the pedestrians. In this situation, the driver separated the hazards and handled only one at a time.



The driver of the yellow car is compromising space to give more space to the greater hazard—the truck.

Compromise Space Sometimes hazards cannot be minimized or separated. When this occurs, you must decide to **compromise space** by giving as much space as possible to the greater hazard.

The truck in the picture on this page might enter the front zone of the yellow car to avoid the parked car leaving the parking space. Although the cars on the right present a hazard, the driver of the yellow car should decide to steer right as far as possible. This decision gives more space to the greater hazard, the approaching truck. In every situation, the action you decide on should be the one involving the least amount of risk.

Execute

Carrying out your decision in order to avoid conflict is the execute step in the IPDE Process. This step involves the physical skills used in driving. In most cases, you will execute routine actions and maneuvers. Some actions will be using your vehicle's controls such as heater, defroster, wipers, gearshift lever, and others. More important actions, however, involve timing and placement of your vehicle to avoid conflict. The important actions you will execute are

- control speed
- steer
- communicate

Control Speed Your decisions to control speed can result in a variety of actions. At times the action you take will be to maintain the speed you are going. Other times your action may be to decelerate. This action can be used successfully as you approach a red light. If you merely release the accelerator far enough before the intersection, you often will arrive at the intersection when the light is green. In this situation, you also may use gentle pressure on the brake if more slowing is needed. Check your rear zone before decelerating.

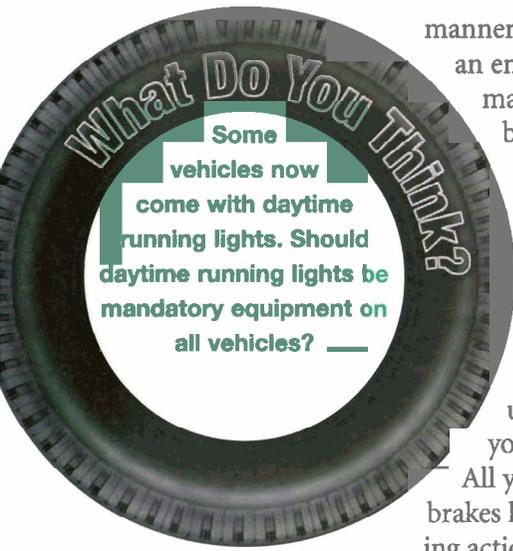
When greater deceleration is needed, you will execute the action of more firm braking. The amount of braking needed will vary with the situation, the speed of your vehicle, the condition of the roadway, and the condition of your brakes.

Always check your rear zone before decelerating or braking in any



SAFE DRIVING

The IPDE Process is a constant interaction of the I, P, and D functions. Don't become a high-risk driver who only executes.



manner. Avoid locking the brakes in an emergency stop. Locked brakes make steering impossible because wheels must be turning to provide traction for steering. Some newer vehicles have an antilock braking system. Such a system helps prevent loss of steering control. An antilock braking system, through the use of computers, helps brake your vehicle in an emergency.

All you need to do is to apply the brakes hard, continually. No pumping action is needed.

As the driver of the car in the picture below enters the intersection, the white car from the right makes a right turn and enters the driver's path. The driver avoids locking the brakes so as not to lose steering control. Locking the brakes could have caused the car to slide and result in a conflict.

Steer When you decide to steer away from a possible conflict, execute just the amount of steering needed. Oversteering can cause you to lose control of your vehicle, especially at higher speeds. Higher speeds also require more space for your maneuver.

Understeering can also present a problem. Try to steer just enough to avoid a conflict without making jerky or sudden movements. Drivers who keep space cushions around their vehicles usually have an escape path to steer into, thus reducing risk.

Communicate In many instances your only action will be to communicate. When you do communicate, you must do it early enough so other users know your intentions. Communicate by using the following:

- **Headlights, taillights, and brake lights** Use headlights during



You Are the Driver!

What procedures would you follow to avoid conflict? Assume that your vehicle has an antilock braking system.

periods of reduced visibility. Using headlights during daylight hours, as the driver in this picture is doing, is a safety practice that makes your vehicle more visible to other drivers. Some new vehicles are equipped with daytime running lights—headlights that come on automatically whenever the vehicle is operated. The advantage of these lights is to improve the visibility of the vehicle. There are times, though, when other drivers become distracted or confused by the additional lights.

- **Turn-signal lights** Turn them on three to five seconds before making any change in direction.
- **Parking lights and hazard flashers** When you are parked along the roadway but not in an emergency situation, have your parking lights turned on. If your vehicle is disabled, turn on your hazard flashers. Be prepared to change your path of



Your vehicle can be seen more easily if your headlights are on, even in daytime.

travel when you see the blinking or flashing lights of a stopped delivery truck. The driver in the picture below has identified the blocked zone in time to safely pass the truck.

- **Back-up lights** White back-up lights let others know you are backing up. Look for back-up lights on vehicles in parking lots.
- **Horn** A light tap is usually enough for a warning. In an emergency, a loud blast may be necessary.



Be prepared to change your path to go around stopped vehicles.



What actions would you take to avoid a conflict?

- **Vehicle position** The position of your vehicle in the roadway communicates a message. It indicates to others your intended path of travel. Other drivers may or may not see a light signal, but the position of the vehicle in the lane sends a message.
- **Eye contact and body movement** Try to develop eye contact with other roadway users. You can communicate many messages this way. Body movements such as a wave of the hand may tell a driver to proceed. Other hand movements may ask drivers to wait while you proceed.

Combine Actions

You often will need to execute a combination of actions. Sometimes you might need to accelerate and steer at the same time. In other situations, you might need to brake, communicate, and steer at the same time.

If you were driving alongside the parked car in the picture above, you would need to combine several

actions. You would first check your rear zone and your left-front zone to see if they are open. Then communicate by signaling as you brake and steer around the open car door. The precision and timing with which you execute these actions will determine whether or not a conflict will occur.

Review It

1. What are the three basic decisions you make in the Decide part of the IPDE Process?
2. What three different lane positions are available to you within your lane?
3. What are the three techniques you can use to maintain a safe path of travel?
4. What three actions can you execute to avoid conflict?

Using the IPDE Process, along with the Smith System and the Zone Control System, helps you plan and execute maneuvers to reduce hazards. It is up to every driver to manage space, time, and speed in order to further increase safety within the HTS.

You must continually practice using the IPDE Process so that it will become habit. Once you have developed the habit, you will

- see more
- make accurate predictions and correct decisions
- execute maneuvers more successfully

IPDE Takes Practice

Practice is necessary for the development and improvement of any skill. As you ride with other drivers, practice the I-P-D steps of the IPDE Process. You can then judge if the actions taken by others were based on correct decisions.

Commentary Driving

Commentary driving is a system of “thinking out loud” as you practice the IPDE Process. When using commentary driving, you verbalize what you identify, predict, and decide.

Imagine you are the driver in the picture on the right practicing commentary driving. Using the IPDE Process, what would you say? Now turn the page to see the picture at the bottom. Did you identify and predict correctly? What action did you decide to execute? Practicing

commentary driving will help make the IPDE Process a basic part of your safe driving behavior.

Putting IPDE Into Action

Use the four steps of the IPDE Process in order. Once you have learned the techniques for identifying, add the predicting step. You identify the hazards or events, then predict how they might affect your intended path of travel. You then perform the third step, deciding. Finally, you execute your maneuvers based on your decisions.

Selective Use of IPDE

There will be times when you do not carry out the total IPDE Process. Conditions may change in one or more zones so the process need not be completed. You can use the IPDE Process selectively by beginning a new cycle before completing the previous one.

Objectives

1. Explain what is meant by commentary driving.
2. Describe what is meant by selective use of the IPDE Process.
3. Explain why the IPDE Process takes time.



What warning clues are in this picture? What would you predict? What would you do?

You Are the Driver!

How would you use the IPDE Process if you were the driver in this situation?



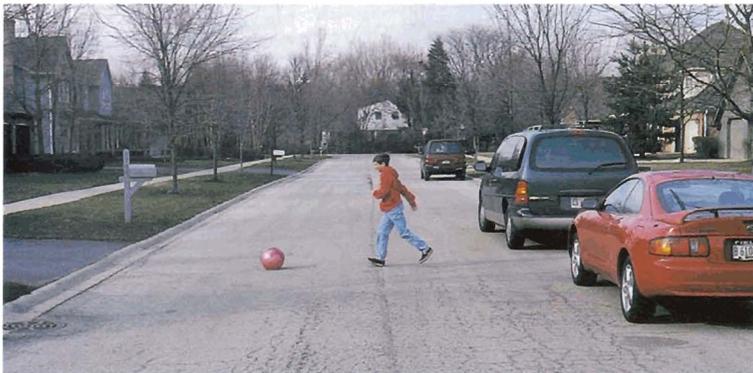
As you become a more experienced driver, you will learn the more important clues and trouble spots in different areas of the HTS. You will then be able to adjust your selective application of the IPDE Process for those specific areas.

IPDE Takes Time

Remember that the IPDE Process takes time. You must have time to identify clues and changing zones. You must have time to predict the actions of others and the possibility

of closed zones. The more complex the traffic situation and the more risk factors present, the longer it takes to carry out the IPDE Process.

At times your own feelings and physical condition can cause you to take more time to complete the IPDE Process. Do not allow complacency or laziness to creep into your driving habits. By making a conscious effort to continually apply the IPDE Process, you can achieve the reward of low-risk, low-stress driving enjoyment.



Warning clues were the ball in the street and the children in the yard. Did you predict and react correctly?

Review It

1. What is commentary driving?
2. Explain what is meant by selective use of the IPDE Process.
3. What factors can cause the IPDE Process to take more time?

Chapter 4 Review

Review Chapter Objectives

1. The IPDE Process

1. What are the three major factors that can contribute to the degree of risk you encounter while driving? (62)
2. What are the four steps in the IPDE Process? (63)
3. What are the five rules of the Smith System? (64)
4. How is the Zone Control System structured? (64)

2. Identify and Predict

5. What is the location of each of the six zones of the Zone Control System? (65)
6. What do “open zone” and “closed zone” mean? (65–66)
7. How do you use the identifying process known as an orderly visual search pattern? (67)
8. How can knowledge and experience help you make accurate predictions? (72–73)

3. Decide and Execute

9. What three decisions must be made when applying the IPDE Process? (75)
10. What are the three different positions available to you within your lane? (76)
11. How do you minimize a hazard, separate a hazard, and compromise space? (78–79)
12. What are the three most important actions you can take to avoid conflict? (79)

4. Using the IPDE Process

13. What does “commentary driving” mean? (83)
14. When is it appropriate to use the IPDE Process selectively? (83)
15. Why does the IPDE Process take time? (84)

Projects

Individuals

Investigate Visit your library to find more information about Harold Smith, founder of the Smith System. Write a short report about your findings.

Observe Traffic As a passenger in a vehicle during heavy traffic, observe the driver’s use of the IPDE Process. In your opinion, were the driver’s actions based on correct decisions? Discuss your observations with the class.

Use Technology Use the Internet to access the State Highway Patrol home page for your state to find information about traffic fatalities. List the risk factors that contributed to the fatalities and present your findings to the class.

Observe Traffic Ask students to make observations of the roadways they travel on as passengers to record locations where they are able to find actual examples of line-of-sight restrictions. Also, ask them to try to record five line-of-sight restrictions that were not listed during class. Have them bring their papers back to class for further discussion.

Groups

Observe Traffic Observe for 15 minutes the drivers of the cars that drive past your school. Note risk factors you see. Compile a list of any driver-contributed risk behaviors that you see. Discuss the impact of these behaviors with your class.

Investigate Each person in the group should use a different Internet search engine to find more information about the IPDE Process. Discuss your findings with your group and class.

Chapter 4 Review

Chapter Test

Check Your Knowledge

Multiple Choice Copy the number of each sentence below on a sheet of paper. Choose the letter of the answer that best completes the statement or answers the question.

- Which of the following risk factors is contributed by the roadway and environment?
(a) blurred vision (c) bald tires
(b) bright sun (d) broken headlight
- Six areas of space around a vehicle that are the width of a lane and extend as far as the driver can see are called
(a) ranges. (c) zones.
(b) fields. (d) paths.
- Peripheral vision refers to the area you can see
(a) while looking straight ahead. (c) clearly and sharply.
(b) to the left and right of central vision. (d) behind you.
- Which of the following terms describes glancing continually and quickly through your orderly visual search pattern?
(a) ground viewing (c) steering
(b) selective seeing (d) scanning

Completion Copy the number of each sentence below. After each number, write the word or words that complete the sentence correctly.

- An open zone is space where you can drive without a restriction to your _____ or to your intended path of travel.
- Making quick glances to the roadway in front of your vehicle is called _____.
- Almost every _____ you make as a driver will be related to anticipating zone changes and looking for alternative paths of travel.

Review Vocabulary

Copy the number of each definition in list A. Match the definition in list A with the term it defines in list B.

List A

- area as far ahead as you can see a target in the center of your intended path, and to its right and left
- space where you can drive without restriction to your line of sight or intended path of travel
- cone-shaped area of up to 10 degrees in which you can see clearly while looking straight ahead
- one of six areas of space around a vehicle that is the width of a lane and extends as far as the driver can see
- all the area a person can see while looking straight ahead
- side vision area to the left and right of central vision
- process of adjusting the speed of a vehicle to handle one hazard at a time when two or more hazards threaten a driver

List B

- | | |
|-------------------------|----------------------|
| a. open zone | d. zone |
| b. peripheral vision | e. target area range |
| c. separate the hazards | f. central vision |
| | g. field of vision |

Think Critically

Write a paragraph to answer each question.

- Explain what it means to develop the art of scanning. Why is scanning important?
- What is the relationship between the IPDE Process, the Zone Control System, and the Smith System?

Decision Making



1. You are the driver of the car leaving the football game. Your team has just won. You are driving to a restaurant in town. How might your friends in the car contribute to your level of risk as you drive? What procedures will you follow to maintain a low level of risk?



2. How would knowledge and experience help the driver approaching the STOP sign execute a safe stop?



3. What do you predict will occur in your front zone? What steps will you take to reduce risk? Which lane position will you use?



4. You are the driver meeting the oncoming traffic. What do you predict an oncoming vehicle might do? If a vehicle does enter your lane, how will you complete the IPDE Process?