

CHAPTER 9

DRIVING IN URBAN TRAFFIC

9.1 ADJUSTING TO URBAN TRAFFIC

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TRAFFIC

9.3 MANAGING SPACE IN URBAN
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9.1

Adjusting to Urban Traffic

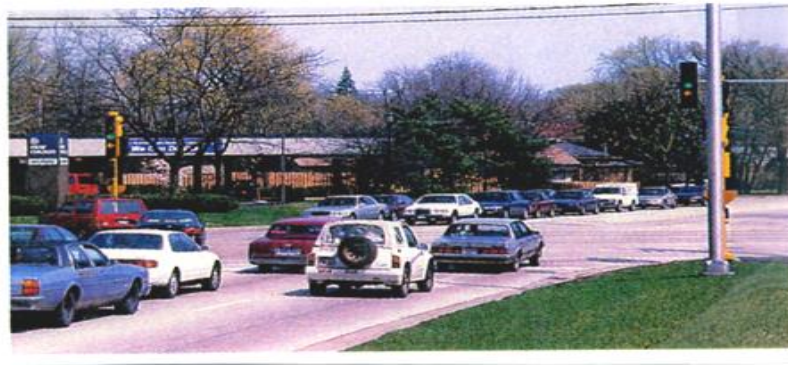
Traffic Complexity

Two main factors make city driving difficult:

- Traffic is more dense in urban areas than it is in rural areas. There are more cars, buses, trucks, and pedestrians per mile.
- City traffic hazards are closer to you than they are in rural areas. Those hazards can quickly block your path.



Number of Hazards Mile for mile, city roads have the highest number and variety of hazards. Compare the two pictures of the same location on this page. Which situation is harder to handle. Why?



Time, Distance, and Speed As you drive, remember it takes time to use the IPDE Process. You will have to contend with many situations with closed zones and line-of-sight restrictions. If you cannot increase the distance between your vehicle and a hazard, you must change your lane position, slow, or stop to give yourself time to solve the conflict.



You need to slow when your left- and right-front zones are closed.

Using the IPDE Process

Heavy urban traffic will test your driving skills. Focus your attention on driving to avoid conflicts and distractions.

Study the picture above and think about how you would apply the IPDE Process. As you drive, focus on the IPDE Process in these ways:

- **Identify** Be vigorous in using your visual skills. “Aim high” and look well ahead to your target area. Check your searching ranges to make sure your front zone is open and you have time to spot things like a line-of-sight restriction.
- **Predict** Predict possible points of conflict quickly and gain valuable time to respond.
- **Decide** Always be ready to communicate or adjust your vehicle position by changing speed and/or using distance effectively.
- **Execute** Be ready to use your vehicle’s controls to make smooth low-risk maneuvers in traffic.

Looking Beyond the Vehicle Ahead

The 3-second rule is only one technique to use when following other vehicles. Also look over, through, and around the vehicle you are following. You can even see the reflection of brake lights on wet pavement by looking under the vehicle ahead. Be alert for brake lights, including high-mount brake lights.

Areas for Sudden Stops

Be alert in areas where sudden stops can occur. Three high-risk areas where closed zones and sudden stops can happen are

- intersections where drivers may have to stop for traffic or pedestrians
- lanes next to parked vehicles
- business driveways with high-volume traffic

Increase your following distance to more than 3 seconds under adverse conditions, or if you need more time to complete the IPDE Process. Maintain extra distance in these situations:

- You are just learning to drive. Your ability to use the IPDE Process is not yet fully developed.
- A tailgating driver has closed your rear zone.
- You are approaching a line-of-sight restriction.
- Traction is low.
- You are carrying a heavy load or pulling a trailer.
- The driver ahead seems unsure.
- You are following a motorcycle.

Look through the cars ahead of you for the high mounted stop light to illuminate. Is there a drawback to this suggestion?

When to Look Away

Imagine driving in an unfamiliar area while also looking for an address. If you are looking away from the road and the driver ahead stops suddenly, you may collide. Take these steps to prevent making this mistake:

- Make sure the zone ahead is stable and open. If you are following another vehicle, increase your following distance to more than three seconds.
- Lower your speed even further when you have line-of-sight restrictions.
- Keep your eyes moving; take split-second glances rather than one long look.
- If you have a passenger, ask that person to look for an address.



Note how the high mounted stop lights on the two vehicles in the picture are at unequal heights.

The light on the truck is high enough to be seen by you if this would be your view from the driver's seat. If the truck would have been a car as is the vehicle immediately ahead of you, you may not be able to see the light.

The government has required manufacturers to install the lights but there is no standard height, thus no sure way you can be certain you would see the light

HIGH-MOUNT BRAKE LIGHTS Since September 1, 1985, all new vehicles in the United States have been required to have at least one high-mount brake light. These lights are designed to give following drivers an added warning that you intend to slow or stop. They are effective for alerting the driver to your immediate rear and those further back. Vehicles with high-mount brake lights experience up to 7% fewer rear-end collisions.

Be a smart driver. Look for “regular” brake lights through the vehicle in front of you as well as the high mounted stop light

Breakthrough Research on Real-World Driver Behavior Released

Thursday, April 20, 2006

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NHTSA, Virginia Tech Transportation Institute Release Findings of Breakthrough Research on Real-World Driver Behavior, Distraction and Crash Factors

Driver inattention is the leading factor in most crashes and near-crashes, according to a landmark research report released today by the National Highway Traffic Safety Administration (NHTSA) and the Virginia Tech Transportation Institute (VTTI).

Nearly 80 percent of crashes and 65 percent of near-crashes involved some form of driver inattention within three seconds before the event. Primary causes of driver inattention are distracting activities, such as cell phone use, and drowsiness.

"This important research illustrates the potentially dire consequences that can occur while driving distracted or drowsy. It's crucial that drivers always be alert when on the road," said Jacqueline Glassman, acting administrator of NHTSA. Her remarks were made during a news conference today at VTTI in Blacksburg, VA.

The 100-Car Naturalistic Driving Study tracked the behavior of the drivers of 100 vehicles equipped with video and sensor devices for more than one year. During that time, the vehicles were driven nearly 2,000,000 miles, yielding 42,300 hours of data. The 241 drivers of the vehicles were involved in 82 crashes, 761 near crashes, and 8,295 critical incidents.

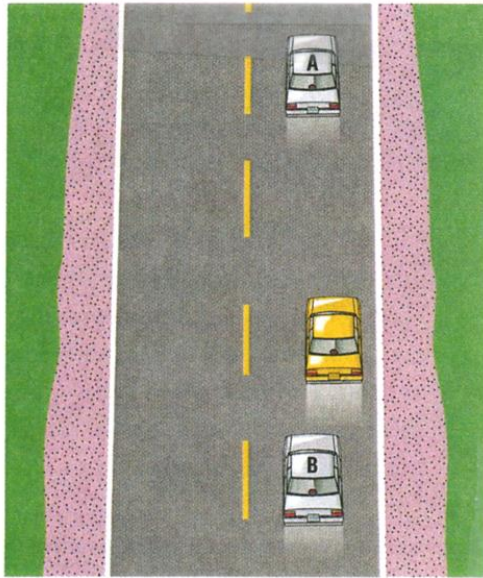
"The huge database developed through this breakthrough study is enormously valuable in helping us to understand—and prevent—motor vehicle crashes," said Dr. Tom Dingus, director of VTTI.

In addition, a follow-on analysis to the 100-Car Study has also been released. Focused on the types of driver inattention and their associated risk, key findings include:

- **Drowsiness** is a significant problem that increases a driver's risk of a crash or near-crash by at least a factor of four. But drowsy driving may be significantly under-reported in police crash investigations.
- **The most common distraction for drivers is the use of cell phones.** However, the number of crashes and near-crashes attributable to dialing is nearly identical to the number associated with talking or listening. Dialing is more dangerous but occurs less often than talking or listening.
- **Reaching for a moving object** increased the risk of a crash or near-crash by 9 times; **looking at an external object** by 3.7 times; **reading** by 3 times; **applying makeup** by 3 times; **dialing a hand-held device** (typically a cell phone) by almost 3 times; and **talking or listening on a hand-held device** by 1.3 times.
- **Drivers who engage frequently in distracting activities** are more likely to be involved in an inattention-related crash or near-crash. However, drivers are often unable to predict when it is safe to look away from the road to multi-task because **the situation can change abruptly leaving the driver no time to react even when looking away from the forward roadway for only a brief time.**

The 100-Car Study and its follow-on analysis were co-sponsored by NHTSA, the Virginia Transportation Research Council (the research division of the Virginia Department of Transportation) and Virginia Tech.

The background and results of both studies are available on NHTSA's website under Research and Development at <http://www-nrd.nhtsa.dot.gov/departments/nrd-13/newDriverDistraction.html>



The yellow car driver has added tailgater protection by using a following distance longer than three seconds.

Being Followed

You are in a high-risk closed rear zone situation when someone **tailgates**, or follows too closely. You can take several steps to lower the risk in this type of situation.

Tailgaters Are Hazards

A tailgater is a hazard because if you have to stop fast, the tailgating driver can hit you from the rear. Tailgating drivers often think they can save time or make other drivers go faster. Neither is true.

Managing Tailgaters If you are being tailgated, take these actions to avoid being hit from the rear:

- Increase your following distance to at least four seconds. Imagine you are driving the yellow car in the picture above. You have identified the tailgating driver and determined your rear zone is closed. By using a following distance of at least four seconds, you have increased your space cushion from the vehicle ahead. If you must slow or stop, you can do it more slowly and give the tailgater more time to respond.

- Move slightly to the right. Look at both pictures on this page. How have the drivers being tailgated helped the tailgating driver to see better?
- Signal early for turns, stops, and lane changes. Flash your brake lights ahead of time to warn a tailgater that you plan to slow or stop. Slow sooner to make a gradual stop.
- In extreme situations, change lanes, or pull out of traffic to avoid the tailgater. To reduce stress and risk, your best defense is to avoid tailgaters.



The driver ahead has moved slightly to the right to allow the tailgater to see traffic farther ahead.

Responding to Oncoming Traffic

If a driver closes your front zone by crossing the center line, you must react instantly. Knowing how to predict and respond to this type of situation ahead of time may give you enough time to avoid a collision.

Reasons for Crossing the Center Line

A driver might cross into your path of travel for these reasons:

- **Driver impairment** A driver might be drowsy, distracted, confused, intoxicated, or ill.
- **Poor judgment** A driver might misjudge speed, distance, or position.
- **Poor visibility** Direct sunlight, blinding headlights, or bad weather can reduce a driver's ability to see.

- **Reduced space** A snowbank, narrow bridge, or an object in or near the road might force a driver across the center line.
- **Sudden moves by others** Children, bicycles, pedestrians, animals, or a vehicle door opening can force a driver to make a last-second move.
- **Vehicle failure** A driver might lose control of a vehicle due to mechanical failure.
- **Turning buses and trucks** Long vehicles need extra room just to make normal turns. Vehicles pulling trailers can create the same situation.
- **Double-Parked Vehicles** Drivers or delivery drivers may park carelessly and close your front zone.

Avoiding Conflicts

If a vehicle comes at you, take these actions to avoid a collision:

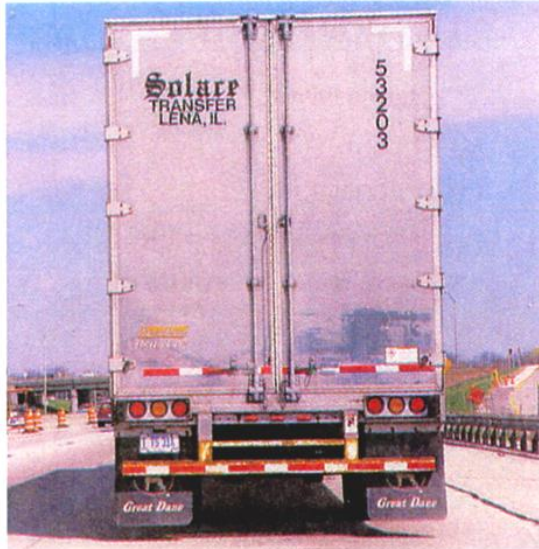
- Slow until the other driver can return to the normal lane. You can also slow so that you meet the other driver at a point where there is room to pass.
- Turn on or flash your headlights and blow your horn.
- If your right-front zone is open, move to the right to give the oncoming driver more room. Swerve sharply to an open space on the right if needed.

9.3 Managing Space in Urban Traffic

Looking Ahead While Staying Back

How far ahead should you look to make sure you are aiming high enough while driving in the city? In addition to looking around your vehicle, look a block or more ahead. By looking far ahead to your target area to protect your path of travel, you will be able to spot zone problems in time to adjust your speed and/or position as needed.

Imagine you are the driver following the truck in these pictures. Maintain a safe following distance of three seconds or more to have a good view of the road ahead. By doing so, you can identify and predict possible points of conflict. You also will be able to better manage the distance between your vehicle and the truck ahead.



The truck creates a line-of-sight restriction ahead because you are tailgating.



View of road ahead with 3 or more seconds of following distance.

High trailers will keep you from being able to see overhead signs and lights if you are following too closely

Approaching Traffic Signals

Look at your target area to detect traffic signals. By doing so, you will have more time to respond.

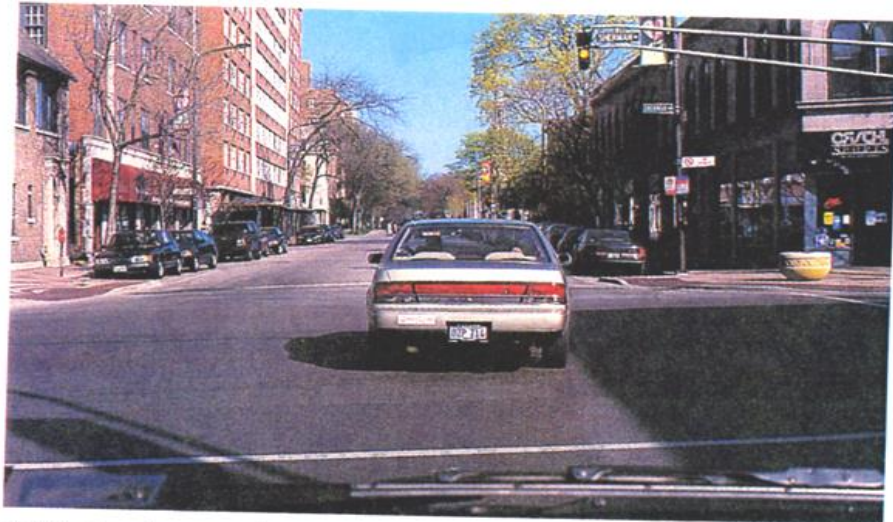
If the light is red, slow and be ready to stop. If the signals on your street are synchronized to work together, you should be able to drive at or near the speed limit for several blocks as lights turn green.

If the light is green when you first see it, predict it will change soon. A traffic light that has been green and will soon turn yellow is called a stale green light. Watch for a DON'T WALK pedestrian signal that has started to flash like the one in the top picture on this page. This signal warns you that the light is about to turn yellow. If the signal is flashing, you must decide if you have time to drive through the intersection safely before the light turns yellow. Your decision will depend on your distance to the intersection and your speed.

Never speed up to get through a green light before it changes. At any speed, you will reach a point-of-no-return, or a point where you must start braking if you are going to stop before the intersection. If you were the driver in the bottom picture, could you stop before the light turns red? How might a tail-gater force you into a collision?



The flashing DON'T WALK signal is a warning that your green signal is about to turn yellow.



In this changing zone situation, you need to check your speed, distance, and other traffic when deciding whether to stop.

Covering the Brake

You can maintain a normal speed if you are driving into a stable, hazard-free traffic situation. But, if you are driving into a scene like the one shown on the top of page 184, you might have to stop quickly. To get ready to stop, you need to **cover the brake**. Take your foot off the accelerator, and hold it over the brake pedal. You can use this technique whenever you sense a possible conflict. This could cut your reaction time and help you avoid a collision.

When you cover your brake, make sure not to rest your foot on the brake pedal, or **ride the brake**. When you do so, your brakes heat up and wear faster. In addition, your brake lights stay on, confusing drivers behind you. Only flash your brake lights to warn drivers behind you when you know you are going to slow or stop.

Take these actions to identify and respond to the risk of parked vehicles:

- Cover your brake and move left in your lane to lane position 2.
- Look for drivers through the windows of parked vehicles.
- Be alert for the parked vehicles' brake lights, exhaust, or wheels turned out.
- Lightly tap your horn if needed.
- Be ready to stop or swerve. Swerve only if your left-front zone is open.

While driving past parked vehicles, watch for doors that might open unexpectedly, as shown in the top picture on left page. Try to drive at least one car door's width away from parked vehicles. Otherwise, reduce speed.

It may also be necessary to *cover the horn* as you drive in certain situations



Be ready for doors to open at the last second.

Adjusting Speed

Imagine that you have been driving for an hour on a highway. You are just entering the town shown in the bottom picture on left page. The speed limit is 25 mph. However, traffic conditions should tell you to adjust your speed, and drive even slower.

Blending into traffic is one of the most common city driving skills you will need. Use these techniques to select your best driving speed:

- Drive with the traffic flow.
- Stay within the speed limit.
- Adjust speed and position ahead of time for other drivers who might block your way.



Adjust your speed early as you enter a town after driving on a highway.

Velocitation may also be a problem for you as a driver. (chapter 11, section 5)

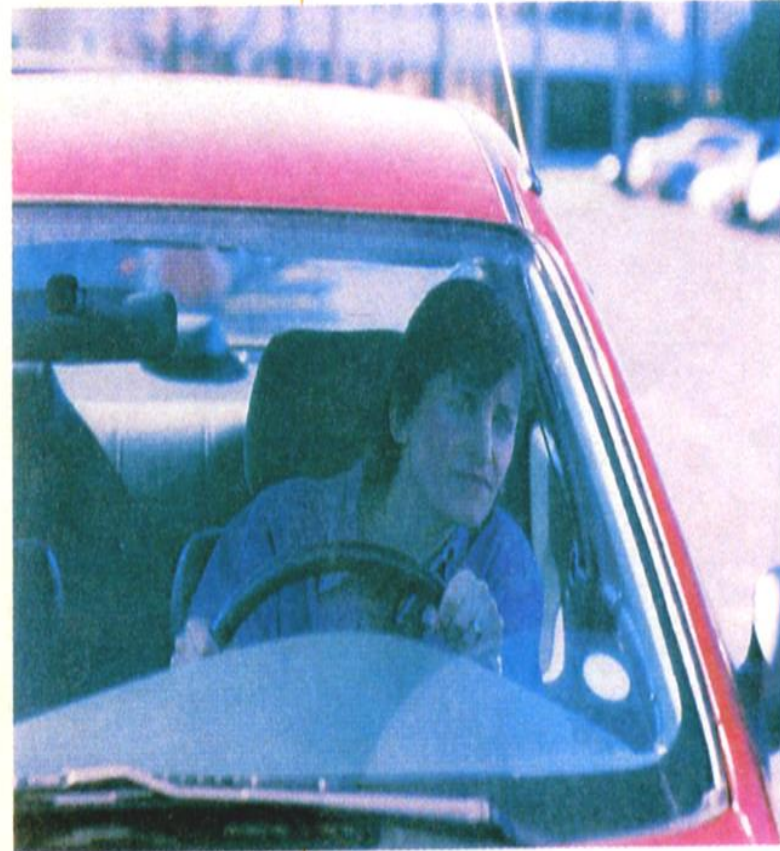
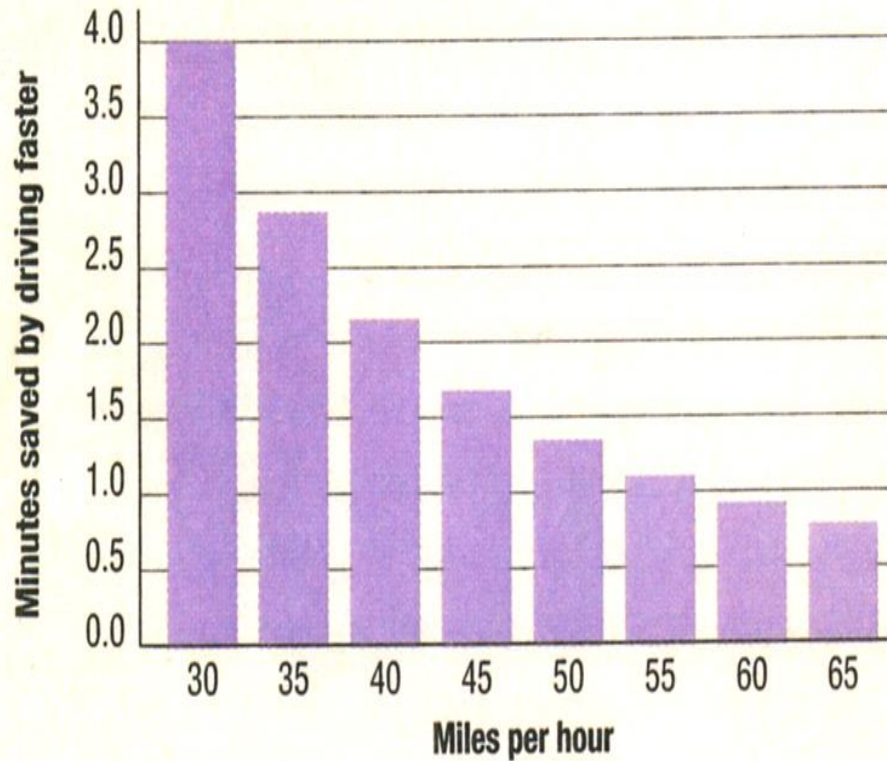
Appropriate Speed

The speed you can drive your vehicle depends on the posted speed limit, the road conditions and the weather. The faster your vehicle is going, the more distance it will take to turn, slow or stop. For example, stopping at 60 mph does not take twice the distance it takes at 30 mph as one might think, but over three times the distance. The posted speed limit is the FASTEST speed you can legally drive **under ideal driving conditions**. The following general limits have been set:

- 20 mph in any business district;
- 25 mph in a residential district or school district;
- 45 mph in any suburban district, or for any vehicle pulling another vehicle unless it was designed for that purpose;
- 50 mph on unsurfaced secondary roads from sunset until sunrise, and for all trucks on secondary roads at any time of day;
- 55 mph on all primary roads, urban interstate highways and secondary roads, including unpaved roads from sunrise to sunset; and
- ~~60~~ 65 mph on rural interstate highways.

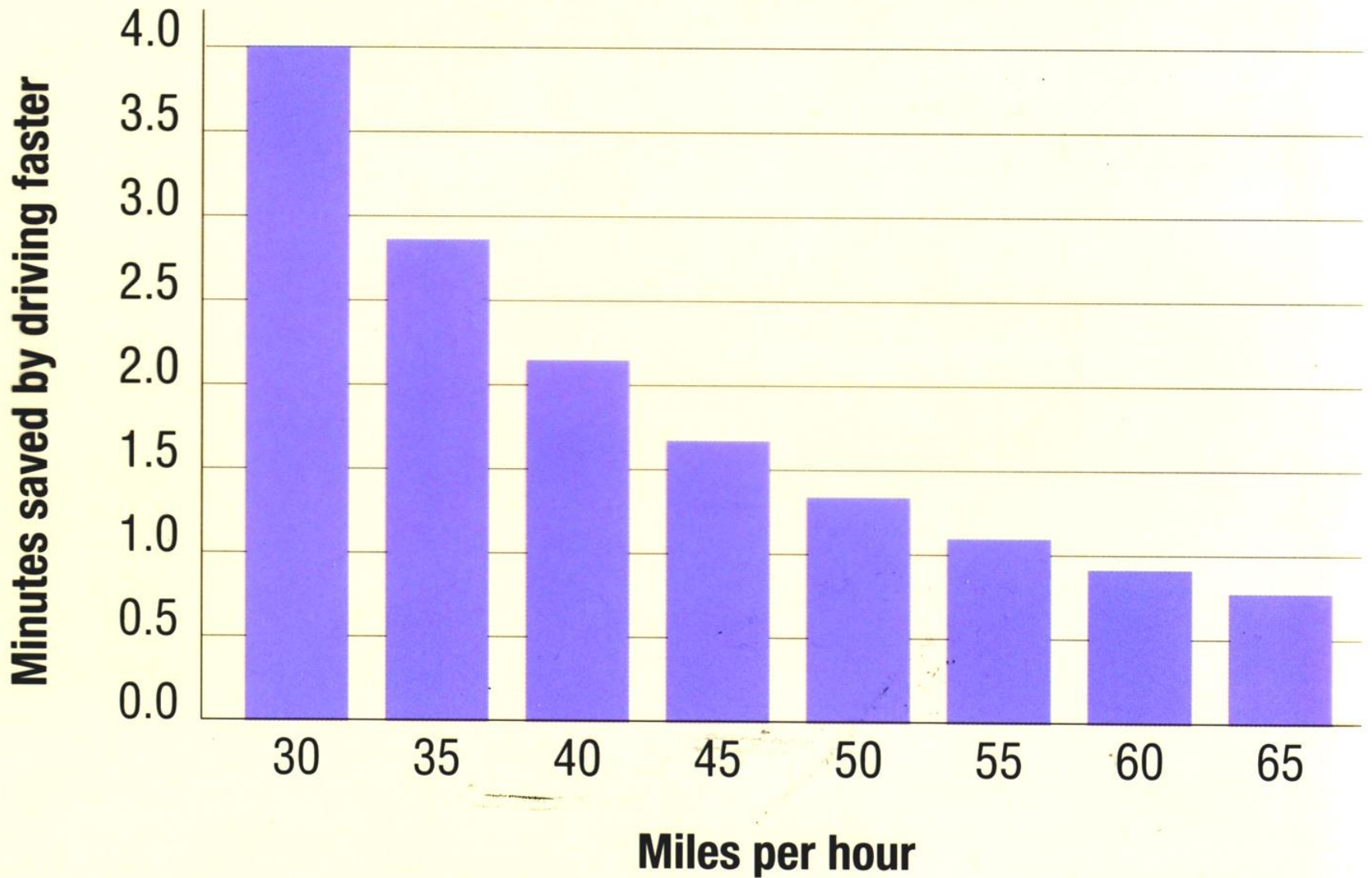
A lower limit may be set for any conditions listed above.

Minutes Saved/10 miles by Driving 5 mph Faster



Look at the graph to see how much time you save by driving 5 mph faster for 10 miles. Is driving faster worth it?

Minutes Saved/10 miles by Driving 5 mph Faster



Selecting the Best Lane

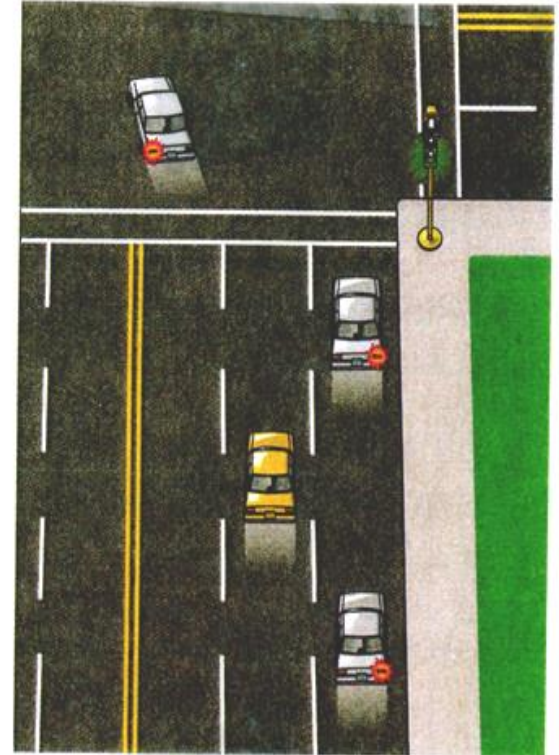
When driving in multilane traffic, you will use different lanes at different times. Select the lane or zone with the fewest number of hazards.

The left lane is usually for faster traffic. But at times, traffic can be held up by drivers waiting to turn left. These left-turning drivers can be a problem when only two lanes are going in your direction.

If your street has multiple lanes going your way, choose the lane where the traffic flow is smoothest. Imagine driving the yellow car in the picture. Why is the center lane the best for drivers going straight?

Lane Positioning Use these techniques to position your vehicle in multilane city traffic:

- Increase your following distance to more than three seconds in heavy traffic.
- Adjust your speed and lane position as needed to stay out of other drivers' blind-spot areas.
- Move to another lane if your front zone closes.



Through traffic should use the center lane to avoid slowdowns or stops.

Changing Lanes

Once you start driving in a lane, try to stay in that lane. If you must change lanes, follow these steps:

1. Use your mirrors to check traffic in your rear zones.
2. Signal your lane change early.
3. Quickly check your blind-spot area.
4. Change lanes without slowing.
5. Cancel your signal.

Repeat this procedure if you need to change more than one lane.

Overtaking and Passing

At times, you might decide to **overtake**, or pass, a vehicle ahead. To overtake another vehicle, use the lane-changing procedure and drive past the slower moving vehicle.

Signal briefly and return to your lane when both headlights of the vehicle you have passed appear in your inside rearview mirror. You will learn more about the procedures for passing in Chapter 10.

Passing in a city can be dangerous. You must be alert for pedestrians, cross traffic, signals, and an endless number of line-of-sight restrictions.

If you must overtake another moving vehicle on a two-lane two-way street, make sure you can do so safely and legally. It is illegal to pass at intersections or over double-yellow center lines.

Your blind spot may be on the right

Special Traffic Lanes

To help move rush-hour travel, many cities now have special lanes for bus and/or carpool drivers. Drivers who travel alone must use the regular, more crowded, slower lanes. By using these special lanes, people, as shown in the picture above, ride together to save time and fuel, and to reduce pollution and parking problems.



Carpooling saves time and fuel. It also reduces traffic and parking problems.

Driving on Two-Way Streets

Most city roadways are two-way streets with one lane going in each direction. Other streets have two or more lanes going in the same direction.

Many city intersections do not have traffic controls. You cannot be sure what other drivers will do as you approach an uncontrolled or blind intersection.

Some intersections have special left-turn lanes. If you turn left at an uncontrolled intersection, you must yield to oncoming traffic.

Driving on One-Way Streets

One-way streets can move a greater volume of traffic with fewer conflicts than two-way streets. Generally, one-way streets are less congested than two-way streets, so fewer conflicts occur.

Identifying One-Way Streets

When you come to an unfamiliar street, first determine if it is a one-way street. These clues can help you identify a one-way street:

- ONE WAY signs are posted on most one-way streets.
- All moving traffic and parked vehicles point in the same direction.
- Broken white lines are used to separate lanes.
- Most traffic signs will be facing the same direction. If you are driving on a street and the signs are facing the other way, you probably are going the wrong way on a one-way street.

Entering One-Way Streets

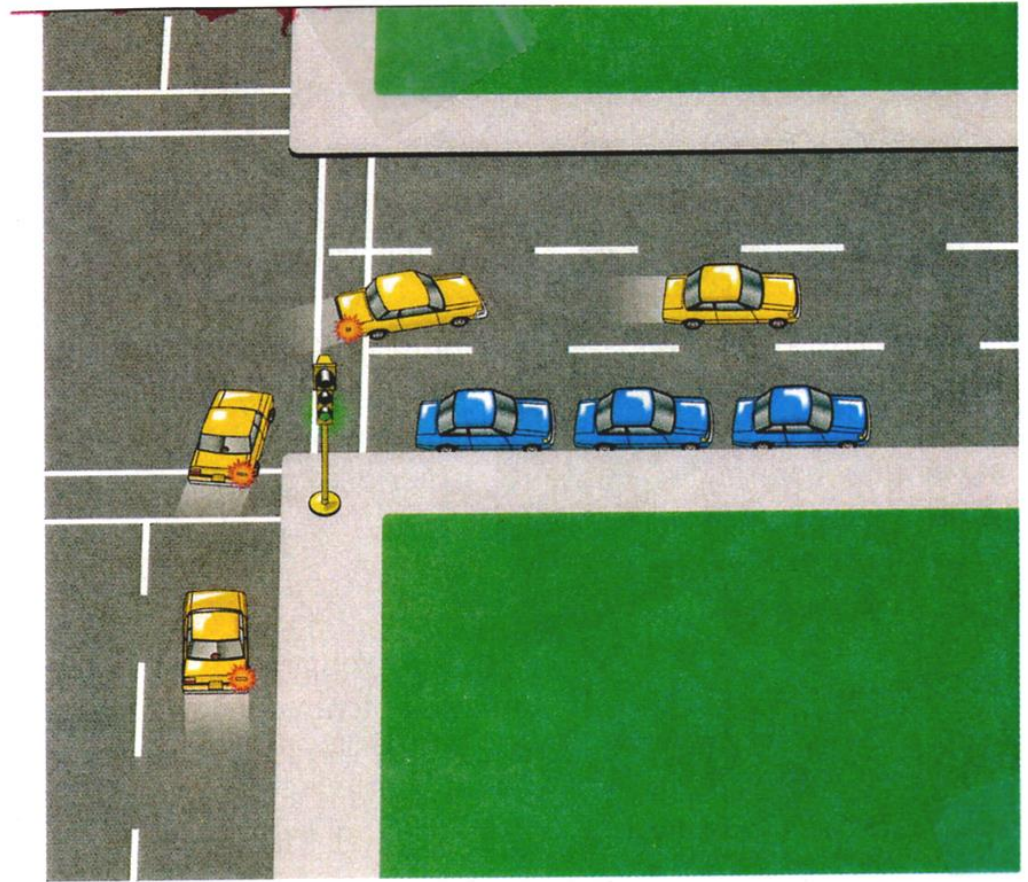
Imagine you are driving the yellow car in the top picture on the opposite page. To enter the one-way street, turn from the right lane to the nearest right lane.

To make a left turn onto a one-way street, position your vehicle in the nearest left lane. Make a sharp left turn into the nearest lane going left. Signs are used to alert you when your street is about to become a one-way street.

Lane Choice on One-Way Streets

If you plan to drive on a one-way street for a distance, try to avoid a lane that is next to parked vehicles. A parked vehicle could pull out and close your front zone. Each parked vehicle creates a line-of-sight restriction. If a center lane is available, use it to reduce possible conflicts.

When you plan to turn, position your vehicle ahead of time. Move into the right or left lane at least one block before your turn.



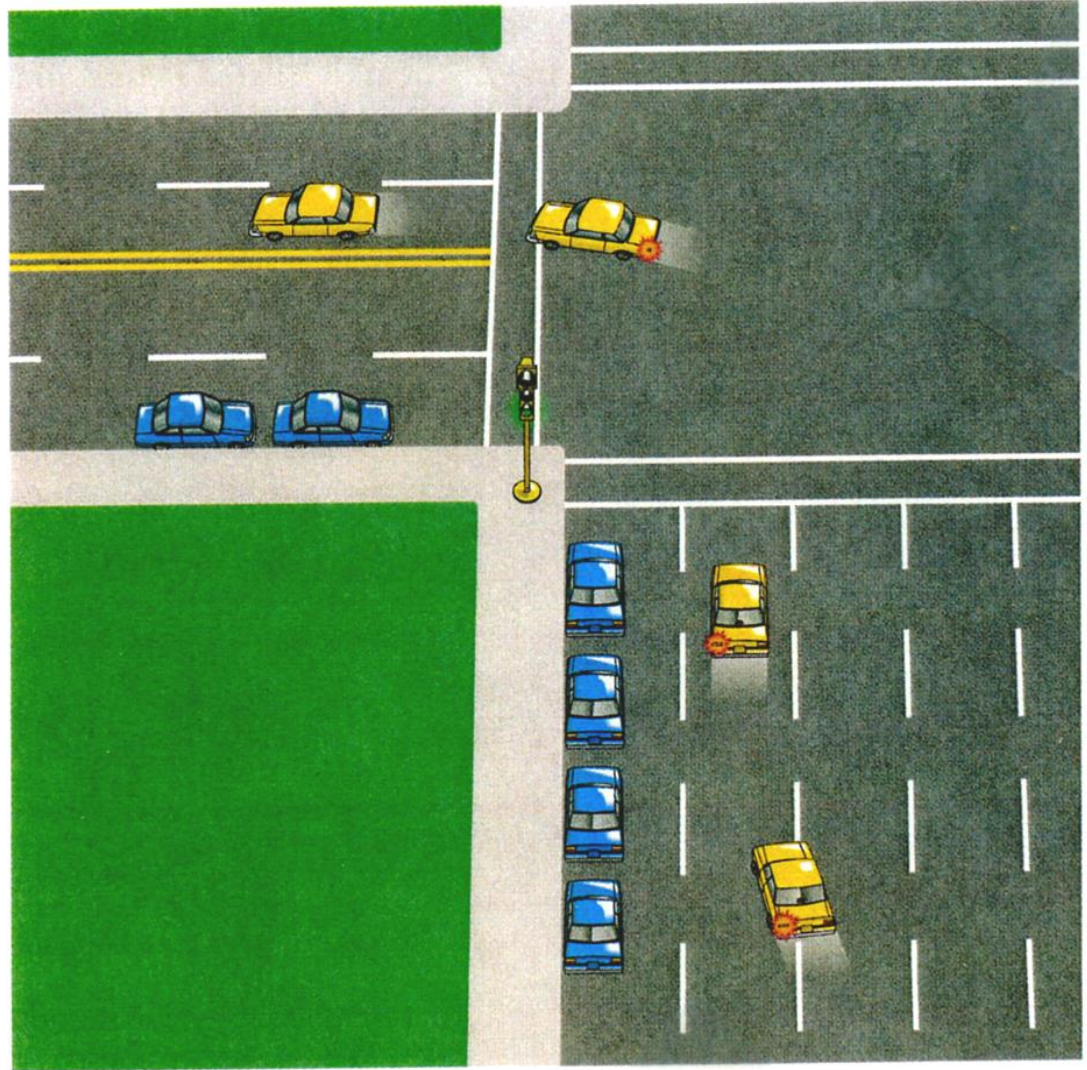
To turn right onto a one-way street, turn from the far right lane into the first available right lane.

Leaving One-Way Streets

Imagine you are driving the yellow car in the picture on the right. To turn left from your one-way street, position your vehicle in the far left lane ahead of time. To turn right, position your vehicle in the far right lane ahead of time. Complete your turn by entering the nearest lane going your way.

On some one-way streets, the outside lane may be for turns only. On other one-way streets, you can turn into a multilane street from more than one lane. Road markings or overhead signs will direct you.

You will need to adjust when a one-way street turns into a two-way street. Your left lane might end. Signs or lights will warn you when a one-way street is about to change to a two-way street.



To turn left from a one-way street, turn from the far left lane to the first available lane going left.

Unexpected Situations on Crowded Streets

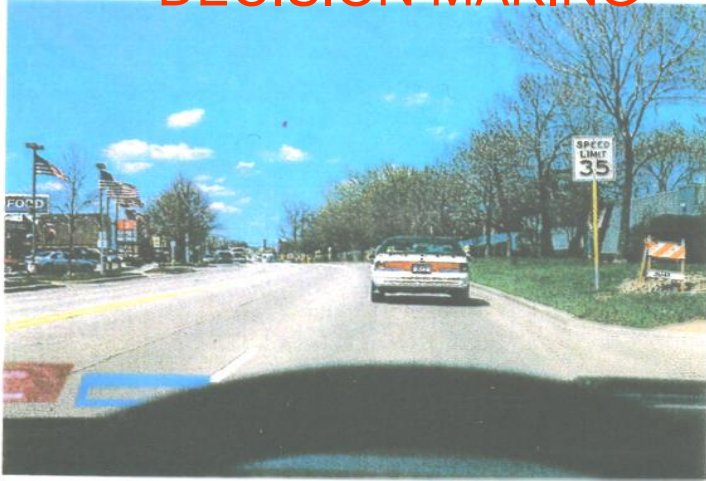
Imagine you are driving in the situation pictured below on the left. A vehicle suddenly emerges from an alley and is about to enter your path of travel. The street is so narrow that you have little room to maneuver.

Slow and cover your brake to maintain a safe path of travel. If necessary, let traffic clear before you move ahead.



If you cannot move left, be prepared to stop.

DECISION MAKING



1. How long should it take this car to pass by the speed limit sign?



2. You are following this truck. How can you improve your line-of-sight view ahead?



3. What clue do you have to indicate this is not a stale green light?



4. What can you do to alert this oncoming driver and avoid trouble?