CHAPTER 11
DRIVING ON EXPRESSWAYS

11.1 CHARACTERISTICS OF EXPRESSWAY DRIVING

11.2 ENTERING THE EXPRESSWAY

11.3 STRATEGIES FOR DRIVING ON EXPRESSWAYS

11.4 EXITING EXPRESSWAYS

11.5 SPECIAL EXPRESSWAY PROBLEMS

11.1 Characteristics of Expressway Driving

An expressway is a limited-access or **controlled-access highway.** Vehicles can enter and leave expressways only at interchanges. Expressways include interstate highways, freeways, turnpikes, toll roads, parkways, and some beltways. Most of these terms are used interchangeably and designate any type of controlled-access highway.

Advantages of Expressways

Expressways are designed for low-risk higher-speed travel. Despite the high speeds and heavy traffic, you are safer on expressways than on other highways.

Expressways have fewer collisions for five main reasons:

- Cross traffic is eliminated.
- Expressways have a median or barrier between opposing lanes of traffic.
- Pedestrians, nonmotorized vehicles, and slow-moving vehicles are not permitted on most expressways.
- Wide shoulders and extra-wide underpasses provide good escape paths.
- Expressway signs are designed to help drivers anticipate conditions well ahead.

Expressway Interchanges

These pictures show the most common types of expressway interchanges. Interchanges are places where drivers can cross over or under as well as enter or leave the expressway.

Cloverleaf Interchange

A cloverleaf interchange has a series of entrance and exit ramps that resemble the outline of a four-leaf clover. This type of interchange enables drivers to proceed in either direction on either highway.

Cloverleaf interchange

Cloverleaf interchanges are expensive to build and are not used as often as other Types of interchanges.

One big advantage of a cloverleaf interchange is that a driver can miss an exit and still recover by using the “loops” of the cloverleaf. A driver can go any of the four directions by using the “loops.”

One common place to find cloverleaf interchanges is on the turnpike system from Chicago eastward across Indiana, Ohio, Pennsylvania to the east coast.

Diamond Interchange

A diamond interchange is used when a road that has little traffic crosses a busy expressway. A complete clover-leaf is not needed because left turns by exiting traffic can be made easily on the less-busy road.

Diamond interchange

Diamond interchanges are cheaper to build. Diamond interchanges are The most common type used in Iowa

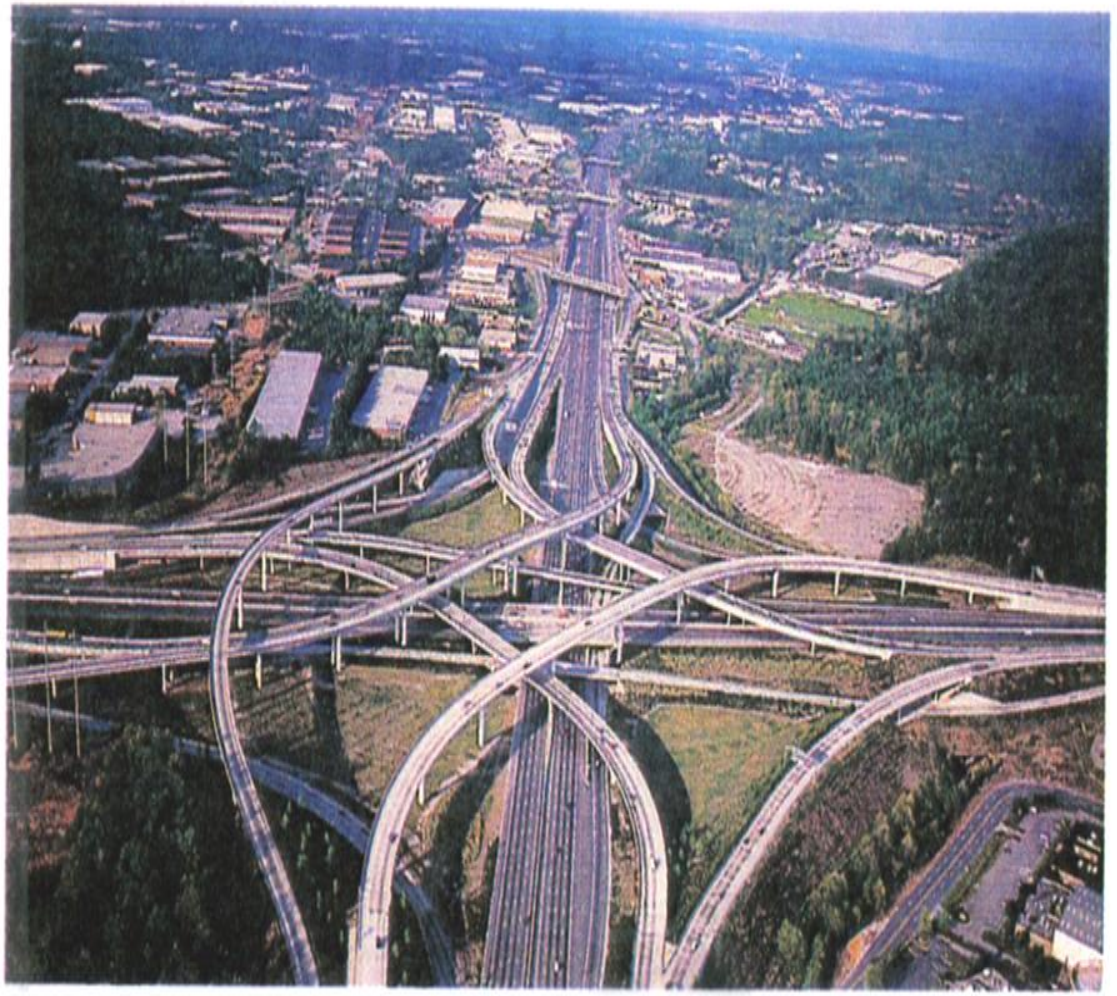
Trumpet Interchange

A trumpet interchange is used where a side road forms a T intersection with an expressway.

Trumpet interchange

All-Directional Interchange

An all-directional interchange is used in complicated intersections with high-volume traffic. From this interchange, traffic is channeled in many different directions.



All-directional interchange

Commonly referred to as “The east and west mixmasters” by the Des Moines traffic reporters. Spaghetti Junction is another common reference.

Be a smart driver

It is important to remember that any point in an interstate or expressway system where there is a transition such as an entrance, an exit or an intersection of two or more major roadways is the most congested and potentially the most dangerous point.

Always be aware of additional problems at any of the interchanges you have just seen.

Safe Driving Strategies

Although expressways have advantages compared to other types of roadways, collisions on expressways are often more serious. Higher speeds often place greater demands on both drivers and vehicles.

When driving on expressways, you should travel at about the same speed as other vehicles. Driving faster than other traffic may cause you to be constantly passing other vehicles. If you drive too slowly, you can block the smooth flow of traffic and become a hazard. Conform to posted minimum and maximum speed limits. Have your headlights on at all times so you are more visible to other drivers.

Use the following strategies to help you become a safe expressway driver.

Prepare Yourself and Your Vehicle

Preparation for driving on any expressway should include a travel plan, regardless of the length of the trip. For short trips, know the name, route, or number for both the entrance and exit you will use.

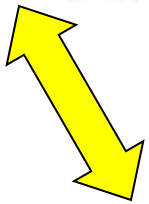
For long-distance trips, plan stops for food, fuel, and rest. Make every effort to stay alert, use the IPDE Process constantly, and be aware of traffic conditions in all your zones at all times.

Mechanical failure can occur even on a short trip. Keep your vehicle in top condition to guard against mechanical failure when driving on expressways.

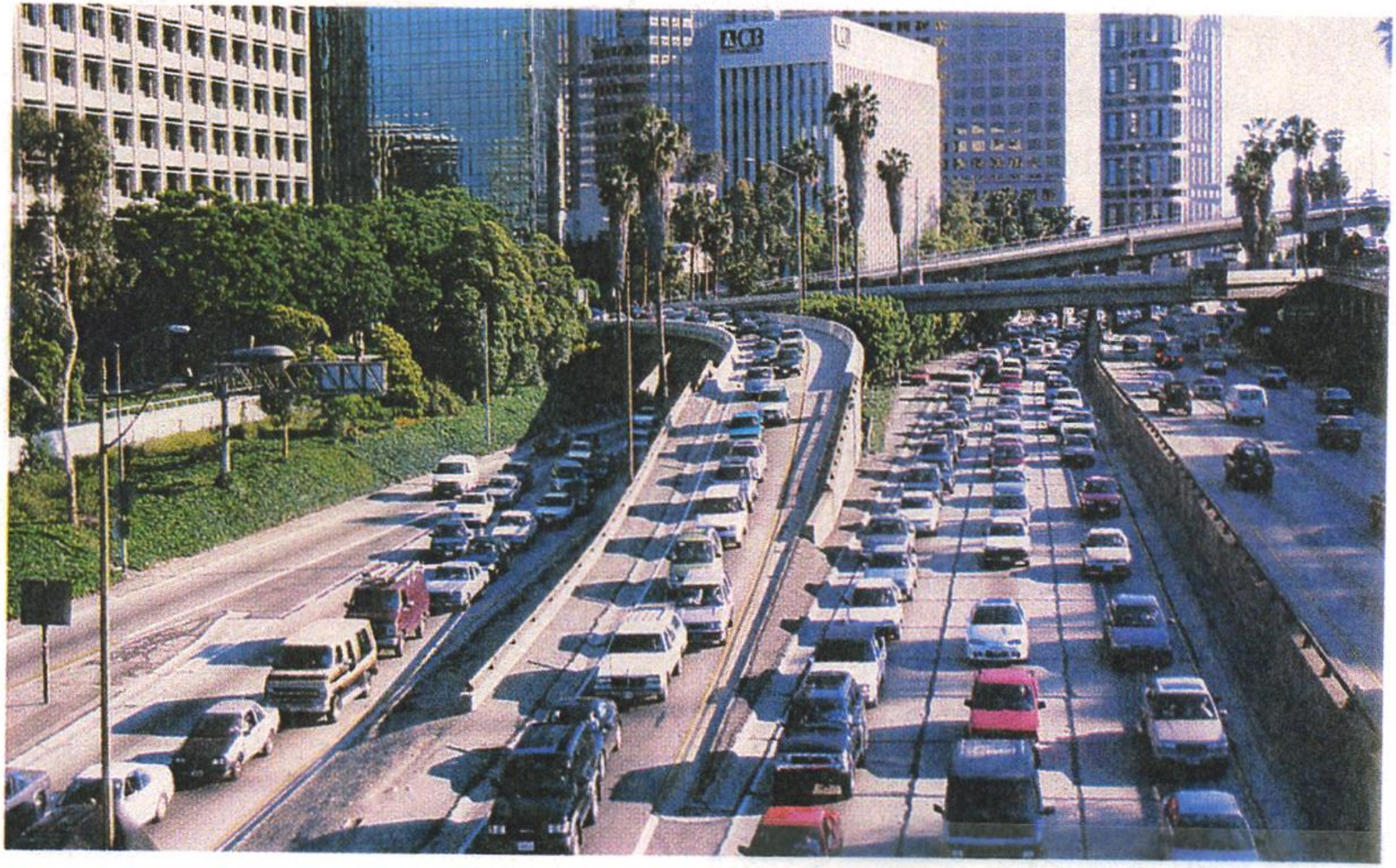
Build Experience Gradually When you first drive alone on an expressway, choose a time when traffic is light. Avoid driving in the heavy rush-hour traffic like this photograph shows. Practice entering and exiting several times before driving in heavier traffic. When you are driving in very light traffic, practice lane changes even when there are no vehicles to pass. Once you develop self-confidence, you will be better prepared to drive in heavier traffic.

Concentrate on the Driving Task Traffic conflicts can develop more rapidly at higher speeds, especially on multilane expressways. Give full attention to the driving task and do not allow yourself to become complacent. Never lose sight of the fact that high-speed expressway driving can present a high degree of risk.

Cooperate with Other Drivers You must cooperate with others when driving on expressways. Resist the urge to challenge other drivers for any reason. Road rage, an extreme act of aggression, can be a serious factor leading to a major conflict in high-speed expressway traffic. React cautiously if someone cuts you off or moves into your front zone too soon.



Be a smart driver. Practice passing as if you were on a two lane road. If you practice two lane passing techniques on a four lane road, you can gain experience with the 20 to 30 seconds unrestricted line of sight needed without being on the “ wrong side” of the road.



Until you gain experience, avoid driving in heavy rush-hour traffic.

Downtown Los Angeles at the evening rush hour

11.2
Entering an Expressway

Before you enter an expressway, make sure you are using the correct entrance ramp. Guide signs mark most entrances and give the route number, direction, and name of a major city located in that direction. Many drivers have mistakenly tried to enter an expressway by using an exit ramp. To help prevent this error, most states post signs saying WRONG WAY or DO NOT ENTER.

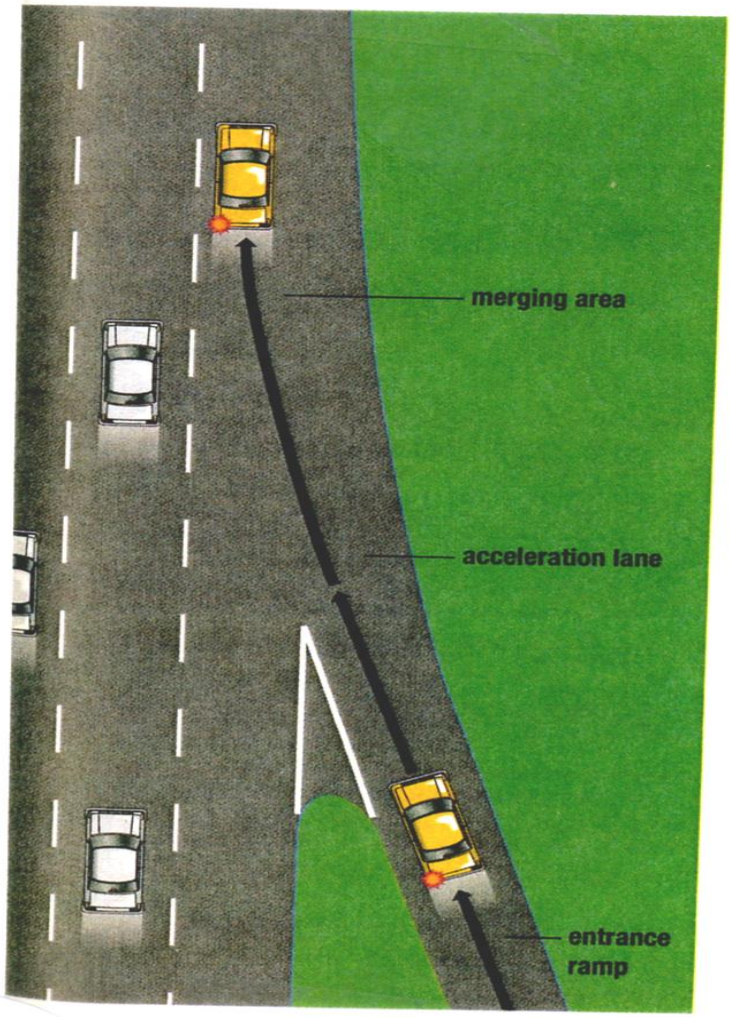
If you start to enter at an entrance you do not want, go ahead and get on the expressway. You can then safely exit at the first opportunity.

NEVER STOP OR BACK UP WHILE ON AN ENTRANCE RAMP

Expressway Entrances

Most expressway entrances have three parts:

- The **entrance ramp** gives you time to evaluate zone conditions and determine the best speed as you prepare to enter the expressway.
- The **acceleration lane** is usually long enough for you to search for a gap in which to merge and accelerate to the speed of traffic on the expressway. However, accelerating to expressway speeds in the acceleration lane is determined by the volume of traffic both on the expressway and in the acceleration lane.
- The **merging area** is the third part of an expressway entrance where vehicles blend into the expressway traffic. Evaluate how much time and space you have in your open front zones for merging into the flow of traffic. Try to merge at about the same speed as the vehicles in the nearest lane.



The parts of an expressway entrance

Merging Area Problems Adjusting your speed is critical to timing a smooth entrance into traffic. A closed front zone may cause you to reduce your speed and even to select a new gap. Once you are on the expressway, accelerate as you establish your safe following distance.

Entering an expressway from the left can be more difficult than entering from the right.

Entrance Ramp on Left Some expressway entrance ramps are located on the left of the expressway, as the picture shows. The acceleration lane merges into the far-left lane of expressway traffic. Since this lane is usually used for high-speed traffic, the potential for conflict is greater than when you enter from the right.

Checking fast-moving traffic over your right shoulder can be more difficult than checking to your left. Some vehicle roof supports and head restraints can obstruct your view of the oncoming expressway traffic. You might have difficulty seeing a motorcyclist or a very small car. Signal early as you look for a gap. When you see a gap, accelerate and merge into the traffic lane.

Possible Entrance Problems

Entrance driver errors cause many conflicts and collisions on expressways. Many drivers feel insecure when they have to merge into fast-moving traffic. Short entrance ramps, short acceleration lanes, and high dividing walls also can cause entrance problems.

Using the IPDE Process at all expressway entrances is critical.

- Make your visual checks and zone evaluations quickly. Identify possible problems on each part of the expressway entrance.
- Predict actions of other drivers.
- Decide on your entrance gap and speed.
- Execute your merge into traffic smoothly and safely.

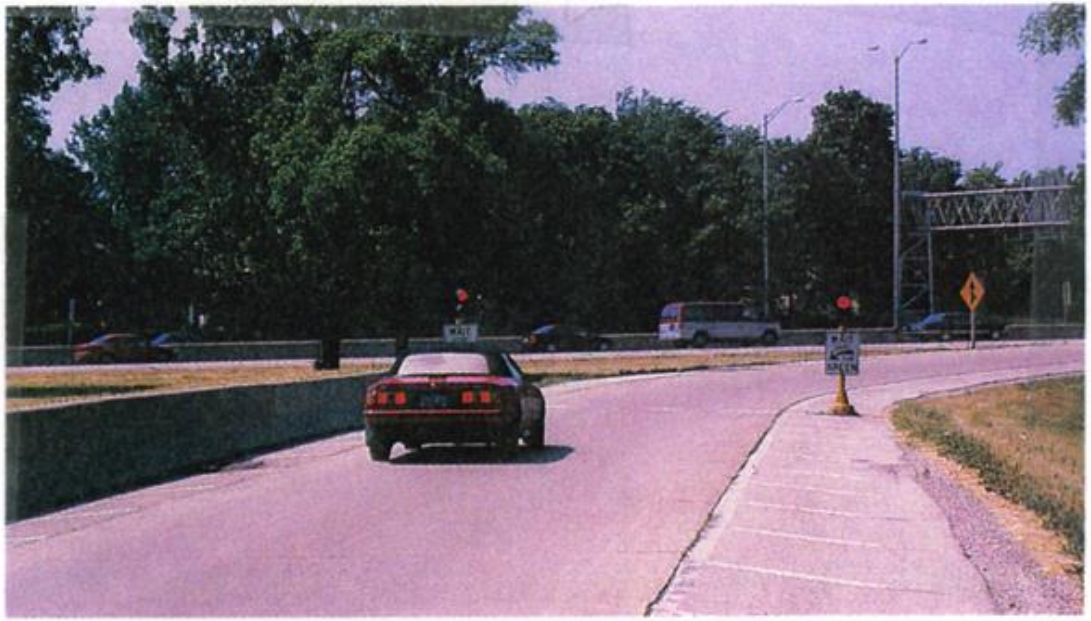
Entrance Ramp Problems If you make an error and enter the wrong entrance ramp, continue onto the expressway. Drive to the next exit. *Never back up on an entrance ramp or on an expressway.*

If other vehicles are on the entrance ramp, adjust your speed to avoid conflict. Some ramps, particularly ramps with sharp curves, have yellow advisory signs posting a speed limit. Stay within the speed limit.

Begin looking immediately for a gap in traffic if the entrance ramp is short or there is no acceleration lane. If you have a closed front zone, reduce your speed to give the vehicle in front more time to find a gap. Check your rear zone and avoid a sudden slow or stop.

Some entrance ramps have high walls that divide expressway traffic and entering traffic. These walls restrict your line of sight to expressway traffic. On some ramps, you will be very close to the merge area before you can see the expressway traffic. Reduce your speed until you have a clear line of sight.

Entrance Ramp Signal Lights Some entrance ramps have signal lights to help space traffic entering the expressway. The lights are usually red and green. The timing of the signal lights is determined electronically by the volume of traffic at any given time. You must wait for the green light before entering the expressway, as the picture shows.



When the signal light on an entrance ramp is red, wait for the green light before proceeding onto the expressway.

Minneapolis – St. Paul uses entrance ramp lights

Acceleration Lane Problems During rush hours, the large number of vehicles entering and on the expressway can make it almost impossible to accelerate to expressway speeds. Under these conditions, try to match the speed of traffic around you.

Some entrances have very short acceleration lanes. In such cases, you usually do not have the space to accelerate to the speed of expressway traffic. You need a longer gap to enter traffic and accelerate to the traffic speed.

Make every effort to enter an expressway without stopping. A driver behind you might be looking for a gap and not realize that you are stopped. If you must stop, take these precautions:

1. Flash your brake lights to warn drivers behind you.
2. Pull onto the shoulder at the end of the acceleration lane or merge area.
3. You are now in an emergency situation. Wait for a large, safe gap. Signal and accelerate quickly as you join the traffic flow.

Steps for Entering

Follow these steps to enter an expressway smoothly and safely:

1. Make sure the entrance is the one you want. Look for a red and white WRONG WAY or DO NOT ENTER sign.
2. Once on the entrance ramp, check your front and rear zones. Signal and take quick glances through your left outside rearview mirror and over your left shoulder to find a gap in traffic where you can safely merge. Look for an entrance ramp signal light and be prepared to stop if it is red.
3. Once you are in the acceleration lane, gradually increase your speed. Continue to quickly glance over your left shoulder and through your outside rearview mirror. Decide when it is a safe time and place to merge into the gap in traffic.
4. Before entering the merging area, decide which vehicle to follow in the flow of the expressway traffic. As you enter the merging area, adjust your speed to match the traffic flow. Position your vehicle at a safe interval behind the vehicle you plan to follow. Merge smoothly.
5. Once on the expressway, cancel your signal and adjust to the speed of traffic. Keep a space cushion around your vehicle.

Make sure the entrance is the one you want. Check front and rear zones. Find a gap.

Note the down hill and blind situation you would be driving into here as you enter the expressway.

While it is necessary to accelerate to enter the expressway, you must be aware of the danger in accelerating too soon

When in the acceleration lane, decide where to enter the gap.

As you glance back over your left shoulder to find your gap, be aware that the car entering the interstate in front of you may have to slow down or stop if his intended gap closes. You must glance over your shoulder, but you must be sure to look ahead quickly again

Merge smoothly into traffic.

Accelerate to common speed as quickly as you can safely do so

11.3
Strategies for Driving on Expressways

Once you are on the expressway, stay alert as you adjust to the constantly changing traffic scene. Use your IPDE Process continually. Use the process to predict any conflict and decide accurately how to respond.

Applying the IPDE Process

Expressway driving can make using the IPDE Process more difficult than when driving on two-lane roads. Higher speeds, multiple lanes, and a heavier volume of traffic can make the Identify and Predict steps more difficult.

Identify Expressways are designed to give drivers a long sight distance. However, higher speeds and multiple lanes reduce the amount of visual information you can gather.

Predict A predictable traffic flow is a safety feature of expressways. However, you must search ahead to your target area to watch for sudden slowing traffic or drivers changing lanes. Anticipate closed zones and points of conflict before they occur.

Decide Speeds seem to magnify a driver's indecision. Yet faster driving speeds demand that you make quicker decisions. Last-second decisions and driving adjustments can change your safe path of travel into a closed zone or point of conflict. Interchanges can be high-collision areas since so many driver decisions are made there. Open zones can very quickly become closed zones.

Execute Execute your decisions smoothly. Avoid sudden moves. Signal early for every maneuver and maintain a safe following distance.

Lane Choice

On the expressway, decide the best lane in which to drive. Generally, it is safer to drive in the right lane and pass on the left.

Reserve the center and left lanes for drivers who are passing and for faster traffic.

When traffic is heavy in the right lane, especially at entrance ramps during rush-hour traffic, use the center or left lane to avoid conflicts in the far right lane. Drivers entering, as well as drivers on the expressway, share responsibility for protecting each other from conflict.

Large trucks and vehicles towing trailers are required to travel in the right lane on many expressways. Although you may sometimes share the right lane with them, let the traffic dictate the lane you will use. Avoid driving between two large vehicles. Do not straddle lane lines because this prevents the other drivers from maintaining their proper lane positions.

The driver of this vehicle has become trapped with closed left-front and front zones and a line-of-sight restriction.

Signs, Signals, and Roadway Markings

Part of your decision of lane choice is based on information from expressway signs, signals, and roadway markings. You are better able to maintain a safe path of travel and avoid making sudden last-second decisions if you

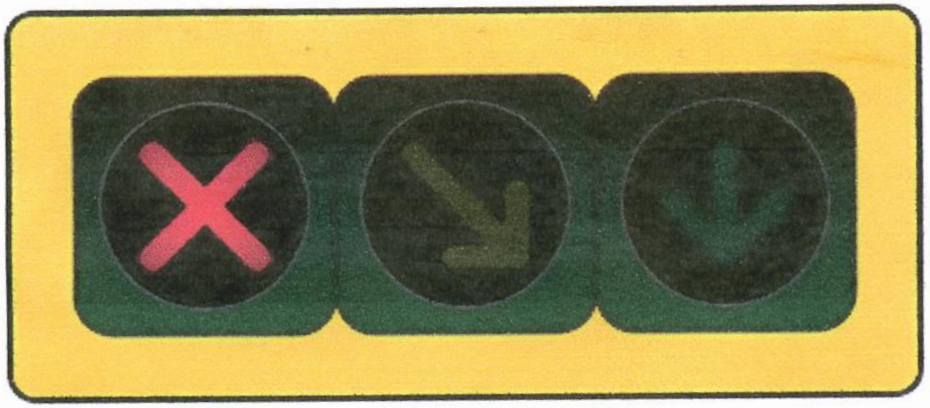
- know your destination
- read signs and roadway markings
- always think ahead

On some expressways, several overhead signs are posted at the same place. Scan the signs quickly to get the information you need to continue in a safe path. In many states, an overhead sign with a yellow panel indicates the exit lane, as shown in the picture. All traffic in this lane must exit.

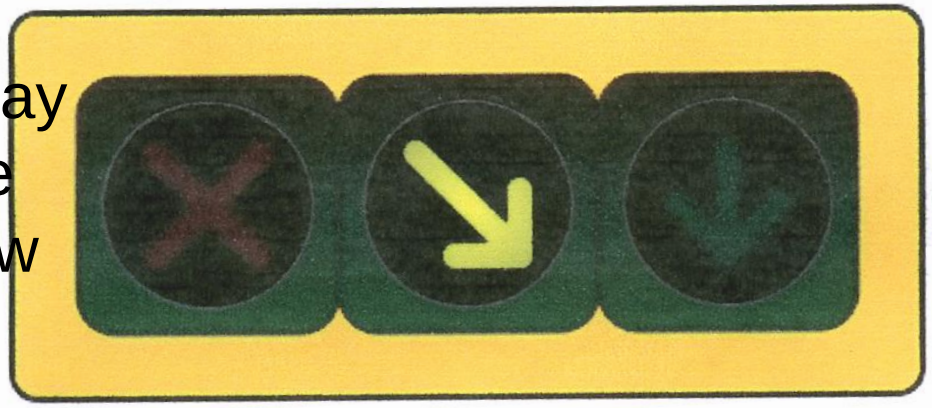
Some overhead signs tell you if lanes are open or closed to traffic. A green arrow means that the lane is open for traffic. A yellow X over your lane warns you that the lane will be closed ahead. In this case you must prepare to move into another lane. A red X farther ahead indicates that the lane already is closed.

What should you do if you suddenly realize this is the exit that you want to take?

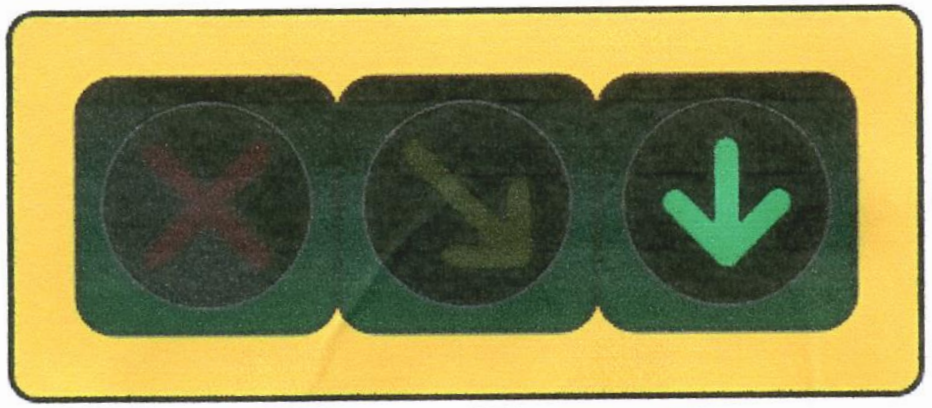
Many expressways into and out of cities often have express lanes. In most cases, these lanes have very few entrances and exits. If you are not sure where your exit is, do not enter the express lanes. Otherwise, you may be forced to drive beyond your intended exit.



Lane is closed.



Lane closure is imminent.



Lane is open.

This may also be a yellow X

EACH LANE HAS IT'S OWN SIGNAL ABOVE IT

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
- ~~65~~ 70 mph on rural interstate highways.

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

WARNINGS OF WHERE THE POLICE ARE LOCATED IS USUALLY NOT THIS EASY

Is this true?

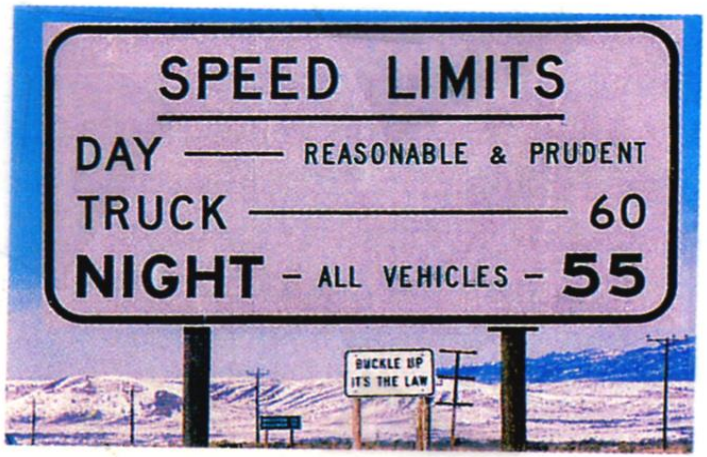
Speed Limits

Most states post maximum speed limits on expressways. Some states have no maximum speed limit, and others post lower speed limits for trucks and larger vehicles.

When you drive in areas with no posted speed limit, follow the basic speed law. Drive at the speed that is safe and prudent for the weather and roadway conditions.

Minimum Speed Limit Driving too slowly could be very dangerous in fast-moving traffic and could cause rear-end collisions. A minimum speed limit is posted on many expressways to keep traffic from moving too slowly. This speed limit is the lowest legal speed you can drive under ideal conditions. During adverse conditions such as rain, fog, snow, or slippery roadways, driving under the minimum speed limit is both legal and wise. Use the far right lane when you are driving at or under the minimum speed limit.

Common Speed If you drive at the **common speed,** the speed used by most drivers, you can better blend with expressway traffic. Sometimes the common speed is above the maximum speed limit. Resist the temptation to increase your speed to keep up with the faster vehicles. Drivers who exceed the common speed are likely to weave in and out of traffic to pass other vehicles. This practice is dangerous not only to the driver exceeding the speed limit, but also to other drivers on the expressway.



Some signs show special speed limits for different times of day and types of vehicles.

SPEED LIMITS BY STATE

State	Rural interstates Cars (mph)	Urban interstates Cars (mph)
Alabama	70	65
Alaska	65	55
Arizona	75	55
Arkansas	70 trucks: 65	55
California	70 trucks: 55	65 trucks: 55
Colorado	75	65
Connecticut	65	55
Delaware	65	55
District of Columbia	N/A	55
Florida	70	65
Georgia	70	65
Hawaii	60	50
Idaho	75 trucks: 65	75
Illinois	65 trucks: 55	55
Indiana	70 trucks: 65	55
Iowa	70	55
Kansas	70	70
Kentucky	65	65
Louisiana	70	70
Maine	65	65
Maryland	65	65
Massachusetts	65	65
Michigan	until 11/9/06: 70 (55 trucks) after 11/9/06: 70 (60 trucks) < 70 (55 trucks)	65
Minnesota	70	65
Mississippi	70	70
Missouri	70	60
Montana	75 trucks: 65	65
Nebraska	75	65
Nevada	75	65
New Hampshire	65	65
New Jersey	65	55
New Mexico	75	75
New York	65	65
North Carolina	70	70
North Dakota	75	75
Ohio	65 trucks: 55; 65 on Ohio Turnpike	65
Oklahoma	75	70
Oregon	65 trucks: 55	55
Pennsylvania	65	55
Rhode Island	65	55
South Carolina	70	70
South Dakota	75	75
Tennessee	70	70
Texas	day: 75 night: 65 trucks: 65	day: 70 night: 65
Utah	75	65
Vermont	65	55
Virginia	65[1]	65[1]
Washington	70 trucks: 60	60
West Virginia	70	55
Wisconsin	65	65
Wyoming	75	60

Constitution of the United States of America

Amendment X

Ratified December 15, 1791

The powers not delegated to the United States (federal government) by the Constitution, nor prohibited by it (the Constitution) to the States, are reserved to the States respectively, or to the people.

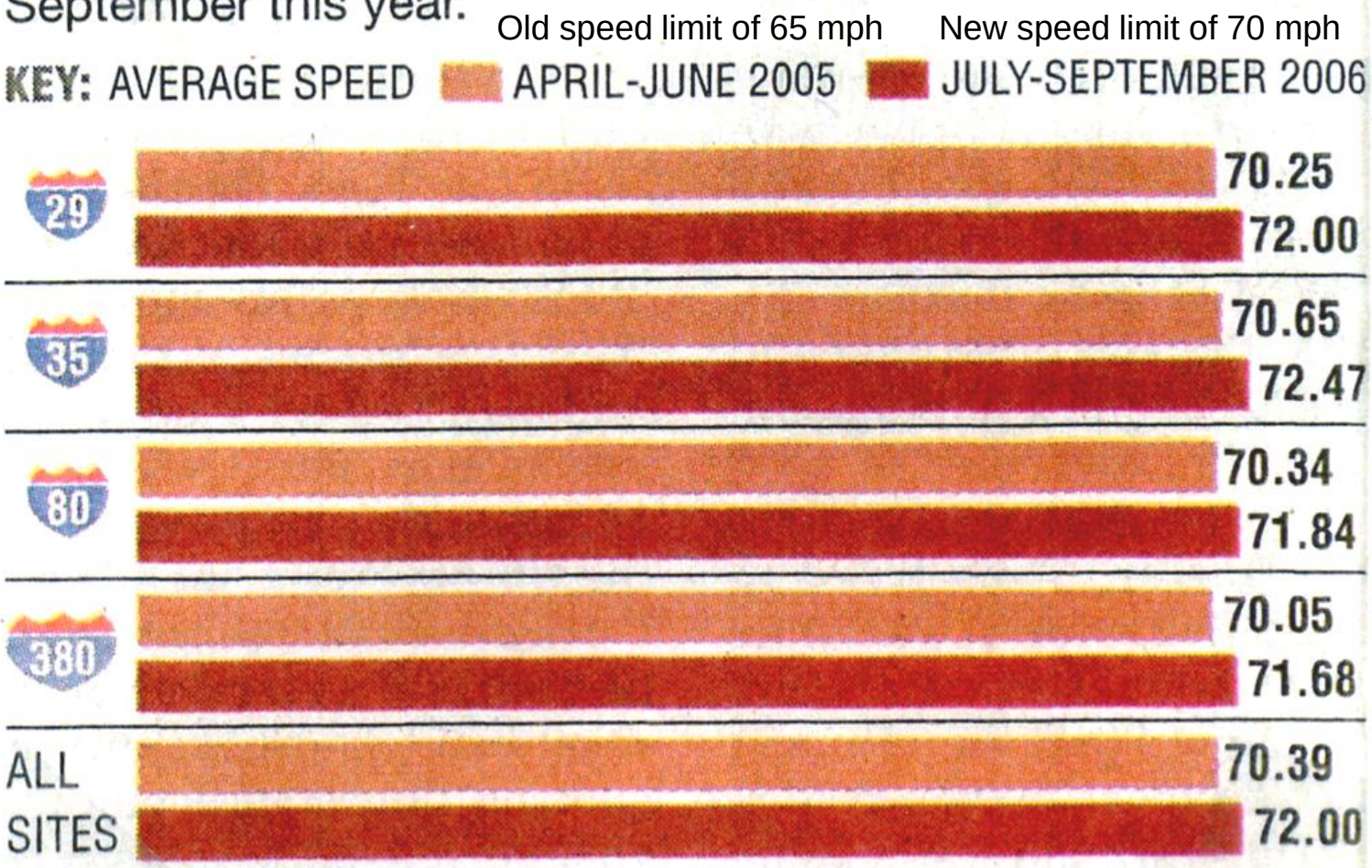
If the Constitution gives the States, and the people residing in those States, the right to make their own laws, how does the Federal government get away with forcing the states to adopt speed limits?

Federal Highway Funds

This is known as the “Power of the purse”

Speeds on Iowa's rural interstate highways

Here's a look at how fast motorists were driving on Iowa's rural interstate highways for the three months before the speed limit was raised from 65 to 70 mph on July 1, 2005, and how fast they drove from July through September this year.



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Most fatalities in 1-vehicle crashes

Officials say trend is often linked to speeding, distracted driving

By WILLIAM PETROSKI
REGISTER STAFF WRITER

More than half of Iowa's fatal traffic accidents in 2006 have involved single-vehicle crashes, a troubling trend often linked to speeding or distracted driving, state officials said.

A preliminary estimate by the Iowa Department of Transportation indicates the state's traffic fatality toll for the past 12 months will total close to 440 deaths after all crash reports are submitted. This compares to 450 people killed on the state's roads in 2005.

Fifty-five percent of the 2006 deaths have involved single-vehicle crashes where drivers have lost control, up 12 percentage points from just six years ago, said Scott Falb, a DOT safety planner. The trend has followed a shift of traffic from two-lane roads to recently built four-lane highways, he said, such as the Avenue of

See **FATALITIES,** Page 5B

Iowa roads and fatalities

The Iowa Department of Transportation estimates 440 people died from traffic accidents in Iowa in 2006, with most fatalities coming from single-vehicle crashes.

TRAFFIC DEATHS: The death toll on Iowa roads peaked at 912 in 1970. See the trend in traffic fatalities from 1986 to 2006. **Page 5B**

SPEED LIMITS: See a comparison on how fast Iowa motorists were driving before and after the speed limit was raised. **Page 5B**

One-vehicle crashes caused most traffic fatalities in '06

FATALITIES, from Page 1B

the Saints and expanded U.S. Highway 20 across sections of northern Iowa.

Modern four-lane roads greatly reduce the likelihood of deadly head-on crashes often seen on two-lane highways, but when fatalities do occur, they frequently involve only one vehicle.

"There are tons of distractions out there, and I think speed is a concern," Falb said.

The Iowa State Patrol will be analyzing the 2006 traffic fatalities and will increase its enforcement efforts in areas where problems are occurring, said Jim Saunders, a spokesman for the Iowa Department of Public Safety.

"One of the things that you are going to be seeing is more use of unmarked cars," Saunders said. "This will be not only to deal with speeding issues, but with aggressive driving — people who are tailgating and pushing their way through traffic, the more aggressive mentality."

The distractions linked to single-vehicle fatalities range from talking on cell phones to dabbing on makeup and eating fast-food meals. Motorists also lose control while fatigued or after falling asleep behind the wheel, while impaired by alcohol or drugs, and for a host of other reasons, Falb said.

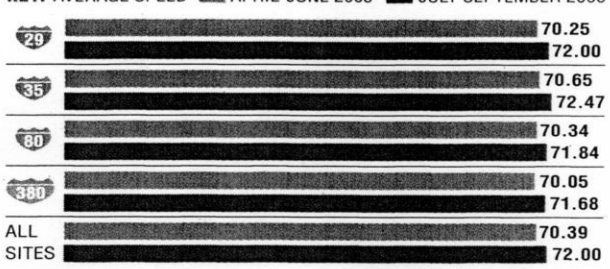
Speed is an issue because many motorists are ignoring posted speed limits. For example, 72 percent of motorists on Iowa's rural interstate highways posted for 70 mph were driving in excess of the speed limit between July and September, and one-third drove faster than 75 mph, state records show. Iowa raised its posted speed limit on rural interstate highways from 65 to 70 mph in July 2005.

Several Iowa motorists agreed that distracted driving and speed are issues that raise worries.

"My main concern is people

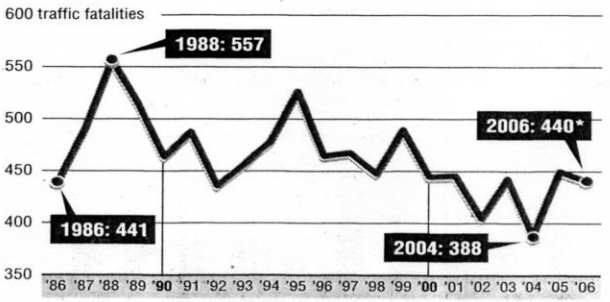
Speeds on Iowa's rural interstate highways

Here's a look at how fast motorists were driving on Iowa's rural interstate highways for the three months before the speed limit was raised from 65 to 70 mph on July 1, 2005, and how fast they drove from July through September this year.



Iowa traffic deaths

The death toll on the state's roads peaked at a record 912 fatalities in 1970. The modern low occurred in 2004 when 388 people died in Iowa traffic crashes, which was the least since World War II.



*Estimate. Final statistics on Iowa traffic deaths in 2006 won't be known for several months, after all pending traffic crash investigations are completed.

Source: Iowa Department of Transportation THE REGISTER

in such crashes when they are ejected from their vehicles, Saunders said.

Iowa had an all-time high of 90 percent seat-belt use during a statewide survey conducted in 2006, but the state's mandatory buckle-up law applies only to front-seat occupants and young passengers in back seats. The Iowa Legislature may be asked during its upcoming session to consider requiring everyone in a vehicle to use seat belts, Saunders said. The use of seat belts will also continue to be a focus of public information campaigns, he added.

"We need to get out the message that people are dying on the highways and that a lot of these are preventable deaths. So wear your seat belts," Saunders said.

An increase in motorcycle fatalities also contributed to Iowa's 2006 overall traffic toll. Preliminary figures show 56 motorcyclists died on the state's roads, the highest number since 1988, when 58 motorcyclists were killed.

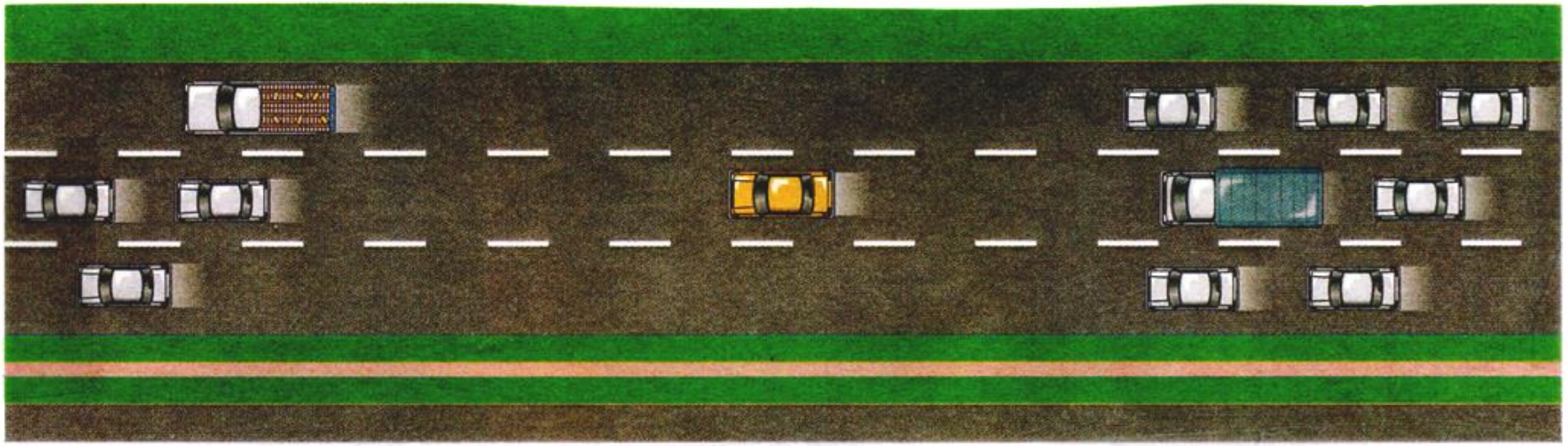
Motorcycle deaths appear to be increasing in Iowa for a combination of reasons, according to safety analysts. One factor is that motorcycles are growing in popularity. Iowa now has 138,443 registered motorcycles, up 29 percent since 1997.

The leaders of Iowa's motorcycling community are well aware of the deaths, and there is a major push under way to increase educational programs and other efforts, said Steve Rector of Marshalltown, state coordinator of ABATE of Iowa, a motorcycle advocacy group. The Iowa Legislature approved a provision that took effect in July which requires regular driver education programs to provide "share the road" information that is intended to help reduce motorcycle and bicycle fatalities. A statewide motorcycle safety forum is planned for March in Des Moines, and there are plans for mailings and other information efforts, Rector said.

Alcohol-related traffic fatalities are expected to fall below 100 deaths when the 2006 statistics are compiled, which Falb credits to legislation that has lowered from .10 to .08 the blood alcohol content level for which a driver is considered legally intoxicated. However, there has been less testing of drivers involved in alcohol-related fatalities compared to the past, which may be a factor why the alcohol-related death toll has declined, he said.

Reporter William Petroski can be reached at (515) 284- 8547 or bpetroski@dmreg.com

24 percent are driving faster than 75 mph

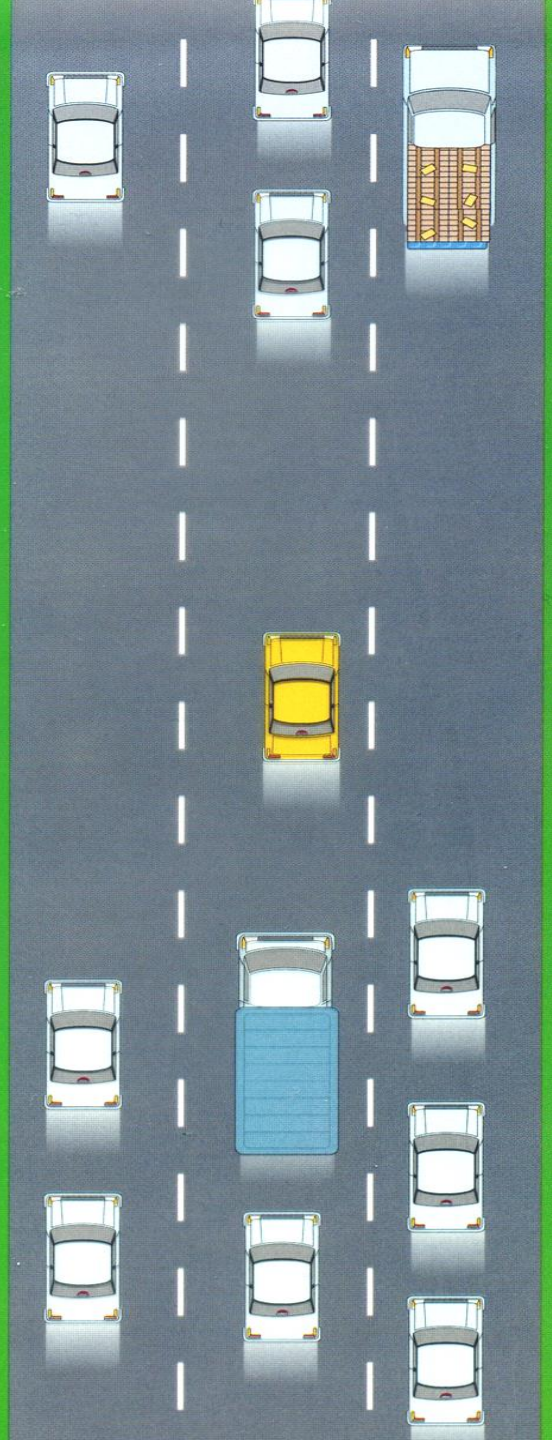


Adjust your speed to avoid being in a wolf pack.

Wolf Packs A responsible driver tries to avoid bunches of vehicles known as **wolf packs.** Reduce your chances of being involved in a conflict by being a "loner" on the expressway. This may be difficult to do in today's high-volume expressway traffic. However, when you travel in the middle of a pack, all zones may be closed. Adjust your speed to avoid wolf packs. The picture shows two wolf packs. The driver of the yellow car in the center lane has wisely chosen to be a "loner" by driving between the packs.

WOLF PACKS CAN BE DANGEROUS BECAUSE A MISTAKE BY ONE DRIVER CAN AFFECT MANY OTHER DRIVERS

You, in the yellow car, are a smart driver to avoid a wolf pack when-ever you can



A mistake by any one of these drivers could be disasterous. They have not given themselves the space cushion they need to stay out of trouble

Following

The high speeds of expressway traffic demand that you maintain at least a 3-second following distance. A shorter following distance reduces your sight distance and leaves little time and space to react to a closed front zone.

Applying the 3-second following distance rule on the expressway is a safe plan under ideal conditions. The blue car in the left lane of the picture has a good space cushion and a safe following distance. However, the black vehicle behind the blue car is following too closely and does not have enough space in the front zone. Keeping an ample space cushion around your vehicle gives you both time and space for an "out."

Continually scan the traffic scene around you to be aware of any situation that may affect your safe path of travel. If a driver cuts into your space ahead, keep cool. Do not react in a manner that could cause another driver to exhibit road rage. Slow and reestablish a safe following distance.

Increase your following distance to at least 4 seconds when conditions are less than ideal. Increasing your following distance is especially important when you are

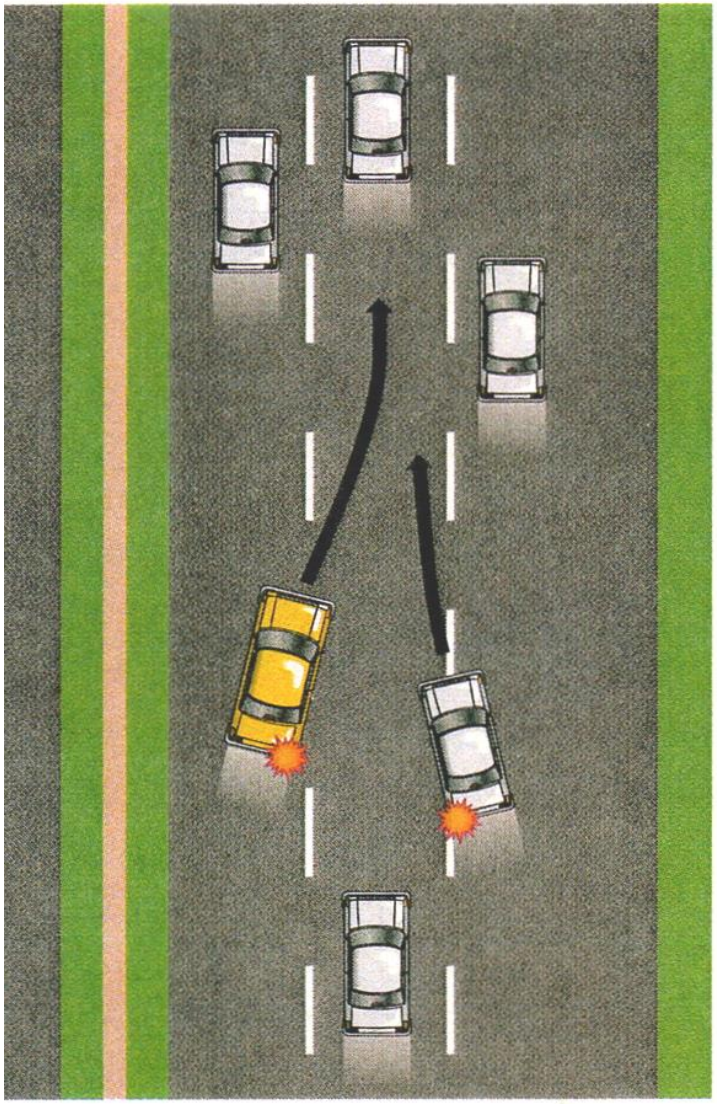
- following a large vehicle that is blocking your vision
- following a motorcyclist
- driving in bad weather or roadway conditions
- driving in heavy traffic
- being tailgated
- driving a heavy vehicle or pulling a trailer
- operating a motorcycle
- entering or exiting an expressway

Blind Spots Remember that you have blind spots in both your left-rear and right-rear zones. Check these zones often and be alert for other drivers who may pass you. When you are behind a vehicle in the next lane, keep far enough back so you are not in that driver's blind spot. Reduce your speed or accelerate and pass in order to stay out of another driver's blind spot.

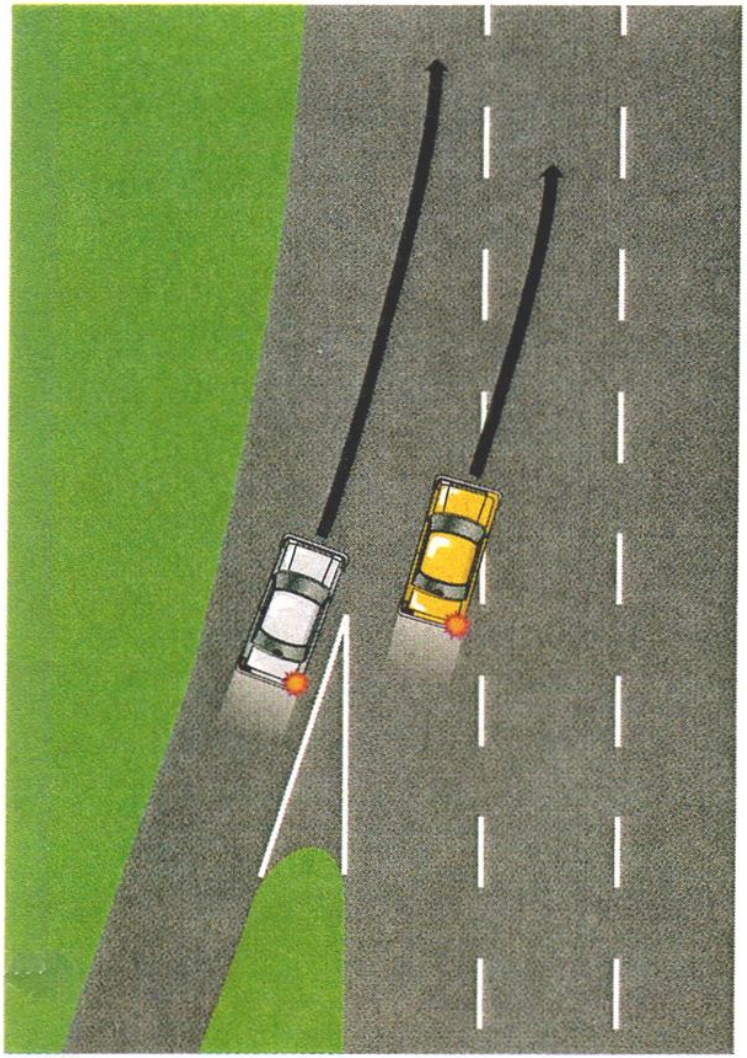
Being Followed

Vehicles following you too closely, or tailgating, can put you in a dangerous situation. Many drivers tend to think that they have no control over the space in their rear zones. Encourage tailgaters to pass you by reducing your speed gradually. However, do not reduce your speed if heavy traffic prevents tailgaters from passing. If a driver continues to tailgate, change lanes when it is safe to do so. Frequently check your rear zones to stay aware of any tailgaters.

Which of these drivers is following too closely?



conflict can occur when two drivers head for the same space at the same time



The driver of the yellow car predicted a closed front zone and decided to change lanes.

Always remember the basic rule of physics: Two objects cannot occupy the same space at the same time.

Lane Changing

Avoid changing lanes too often. Unnecessary weaving from one lane to another can lead to a collision. Take these steps to change lanes on the expressway:

1. Change lanes one lane at a time. Signal *every* lane change, whether or not other vehicles are present.
2. Check traffic in the outside and inside rearview mirrors. Check the blind-spot area in the direction you want to move.
3. If your path is clear, accelerate gently and move to the next lane.
4. Cancel your signal after you have changed lanes.

Once you have made a lane change, establish your position in that lane before moving to another. Drive at the speed of traffic in that lane if it is within the speed limit.

Remember our little wide angle mirror? It is a great tool but should NEVER take the place of glancing over your shoulder.

Changing lanes on an expressway is more complicated when three or more lanes of traffic are moving in the same direction. Many times a potential conflict is created when two drivers head for the same space at the same time, as the top picture shows. A quick glance over the shoulder lets you check the lane to see if it is open.

Sometimes you will change lanes so traffic entering the expressway can merge safely. Remember that some expressways have entrance ramps on the left as well as on the right. If you are driving in the left lane and see a driver entering from the left, predict a closed front zone. Signal right, check your right zones, and change lanes as the yellow car in the picture is doing.

Lanes are often closed for construction and road repair. When a lane is closed, drive only in the lanes open for traffic. It is both illegal and hazardous to use the shoulder or median as a driving lane when traffic is backed up. Drivers who drive illegally on the shoulder are also preventing emergency vehicles from having an open path of travel.

The Des Moines Register

MONDAY

July 16, 2007

HENRY WILHELM/SPECIAL TO THE REGISTER

A Mercy Medical Center rescue helicopter takes off from the scene of an accident on Interstate Highway 80 east of Newton on Sunday.

NEWTON

Two children killed as SUV rolls on I-80

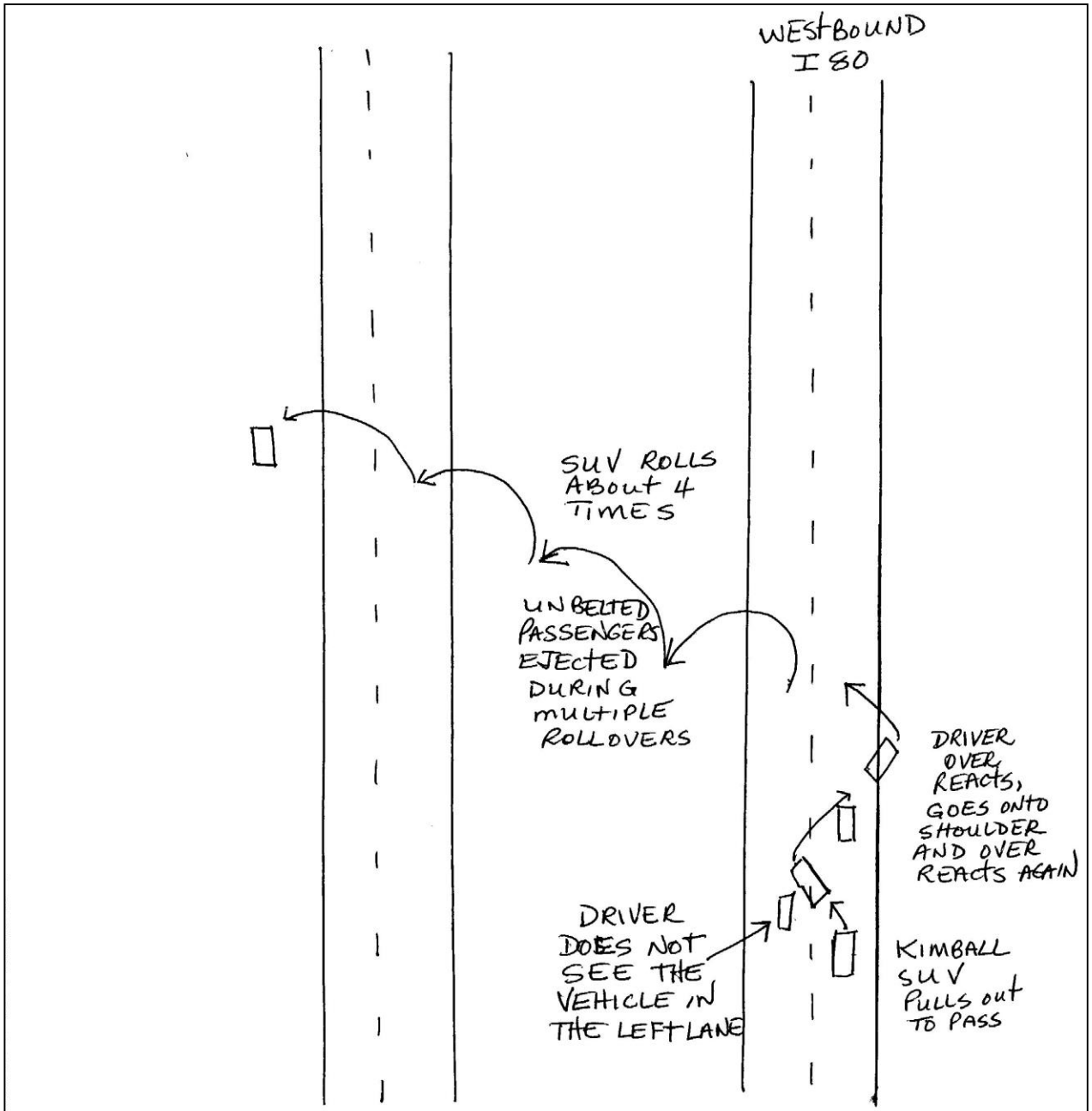
Two Edgewood children were killed Sunday when they were thrown from a vehicle that went out of control on Interstate Highway 80 east of Newton, the Iowa State Patrol said.

Aarron Arthur Kimball, 10, and Andrea Diane Bockenstedt, 13, were passengers in a westbound sport utility vehicle driven by Lisa Kimball, 32, of Edgewood. Lisa Kimball was trying to pass a vehicle when she realized she had not cleared a car behind her in the passing lane, said Sgt. Rick Lampe. She swerved right, went onto the shoulder, and then overcorrected, Lampe said.

The SUV slid into the median and rolled about four times across the eastbound lanes, stopping in the south ditch. Both eastbound lanes and one westbound lane were blocked as a result of the 11:40 a.m. accident.

Lisa Kimball was in critical condition at Mercy Medical Center in Des Moines. Two other passengers were treated at a Newton hospital and released.

The children weren't wearing seat belts but the adults were, according to the patrol's crash report.


WESTBOUND
I 80
SUV ROLLS
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TIMES
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MULTIPLE
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OVER
REACTS,
GOES ONTO
SHOULDER
AND OVER
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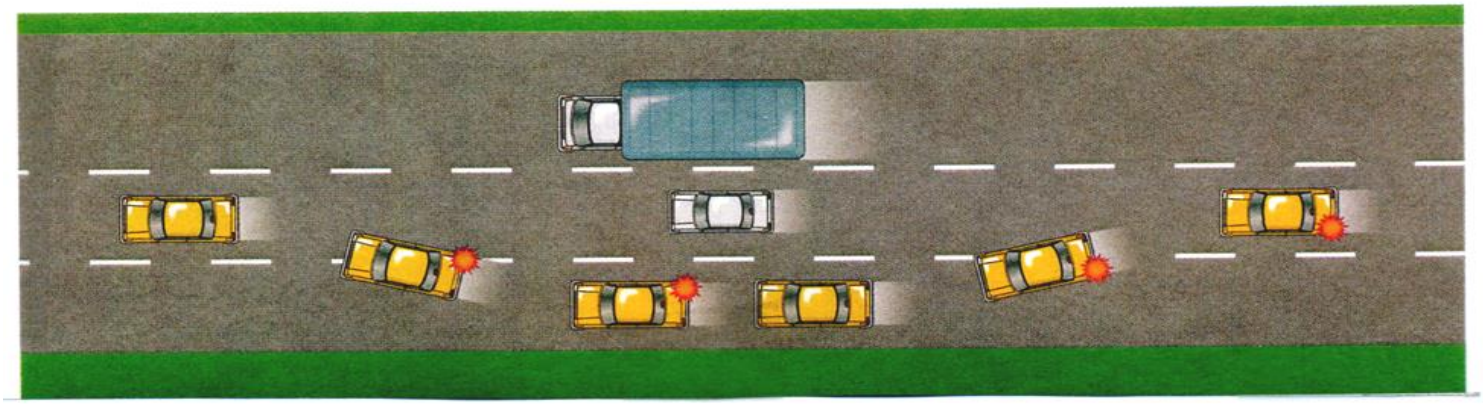
DOES NOT
SEE THE
VEHICLE IN
THE LEFT LANE
KIMBALL
SUV
PULLS OUT
TO PASS



Passing and Being Passed

Passing other vehicles on an expressway usually is safer than passing on a two-lane highway. Because a median separates you from oncoming traffic on an expressway, a head-on collision is not a threat. However, expressway speeds and a high volume of traffic demand caution and concentration, along with the constant use of the IPDE Process, when passing. Always make sure conditions are safe for passing before you begin your maneuver.

Passing on the left is common on expressways. However, passing on the right is permitted if a slower driver is in the left lane.

When passing another vehicle, follow the procedure for making a lane change to the left. The yellow car in the picture is following the correct lane-change procedure to pass vehicles in the two right lanes.

After passing, return to your original lane by making a safe lane change.

Make these actions automatic when you pass:

- Evaluate the zone you are entering.
- Signal your lane change.
- Check blind-spot area by glancing over your shoulder to the left or right, as necessary.

When you are being passed, be aware of the position of the vehicle passing you. If you do not have enough space cushion to the side, move to lane position 2 or 3. Continue to check the vehicle that is passing you. Keep your speed steady and do not accelerate.

If you are continually being passed on the right, move to the lane on your right when it is safe to do so. When you are frequently being passed on both sides, you are in a potentially dangerous situation. You have reduced the space in your left and right zones and have greatly increased your degree of risk. Blending into the flow of traffic is just as important during passing as it is when entering or exiting an expressway.

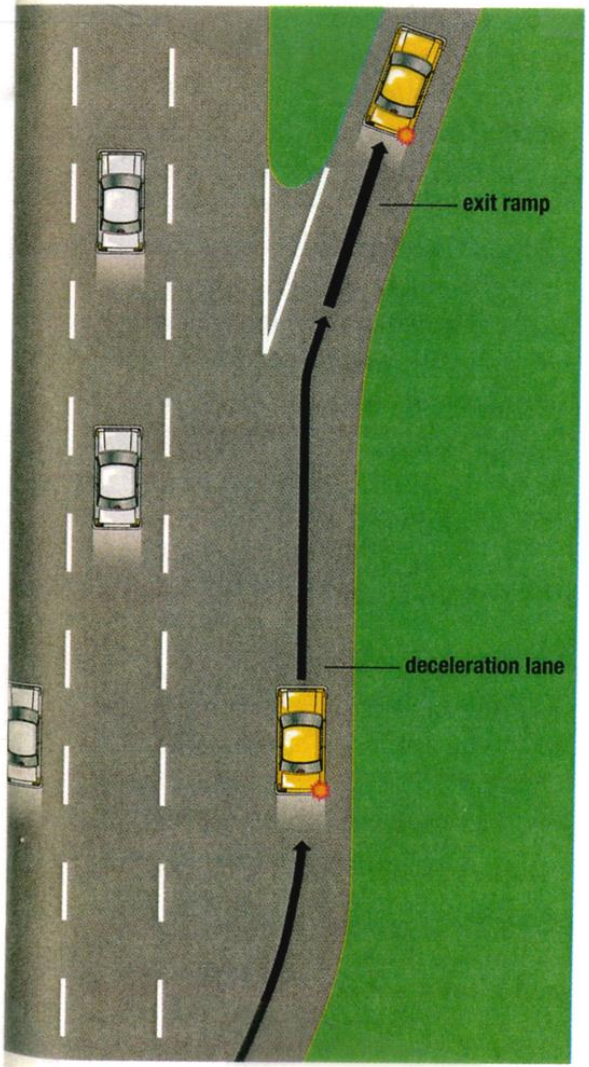
Our little wide angle mirror can help in this situation too. It can keep you from “losing” the car passing you in your blind spot

11.4
Exiting Expressways

Leaving an expressway safely requires planning and skill. Plan for your exit as early as possible. Scan signs to know which exit to take. When you see the sign for your exit, move into the lane designated by the sign. Most expressway exits provide a **deceleration lane,** an added lane in which to slow your vehicle without blocking the vehicles behind. Try not to decelerate until you are off the expressway and in the deceleration lane.

The deceleration lane leads into the **exit ramp,** the ramp leading off the expressway. Identify the sign that shows the exit-ramp speed. If you do not slow your vehicle enough in the deceleration lane, you might enter the exit ramp at too high a speed.

Many exit ramps lead into a sharp curve. The posted ramp speed limit indicates the top speed possible for negotiating the exit safely. Remember, if you miss the exit you want, go on to the next exit. *Never stop or back up if you go past your exit.*



The parts of an expressway exit.

Applying the IPDE Process

Use the IPDE Process to plan your exit well in advance:

1. Identify the green expressway guide signs showing the distance to your exit.
2. Predict actions of other drivers who might be using the same exit.
3. Decide on the safe speed for exiting.
4. Execute your maneuver smoothly and blend with slower traffic.

Steps for Exiting

Follow these steps to exit an expressway:

1. At least one-half mile before the exit, check front and rear zones for traffic. Signal and move into lane position 3 in the lane that leads into the deceleration lane. This is shown in the first picture. Change only one lane at a time. Avoid last-second decisions and sudden moves. Do not reduce your speed until you are in the deceleration lane.
2. Move into the deceleration lane. Cancel your signal.
3. Flash your brake lights to warn drivers behind that you are slowing. Check your rear zones so you will know the speed of following traffic. Slow gradually and keep a safe space cushion ahead and behind you.
4. Identify the exit-ramp speed sign, as shown in the bottom picture. Check your own speed, and adjust to the posted speed limit. Predict a STOP or YIELD sign at the end of the exit ramp.

Be alert when entering traffic on a local highway or street after leaving the expressway. Expect two-way traffic, pedestrians, intersections, and the need for lower speeds. Check your speedometer frequently and be alert for the typical hazards of two-way streets and roads.

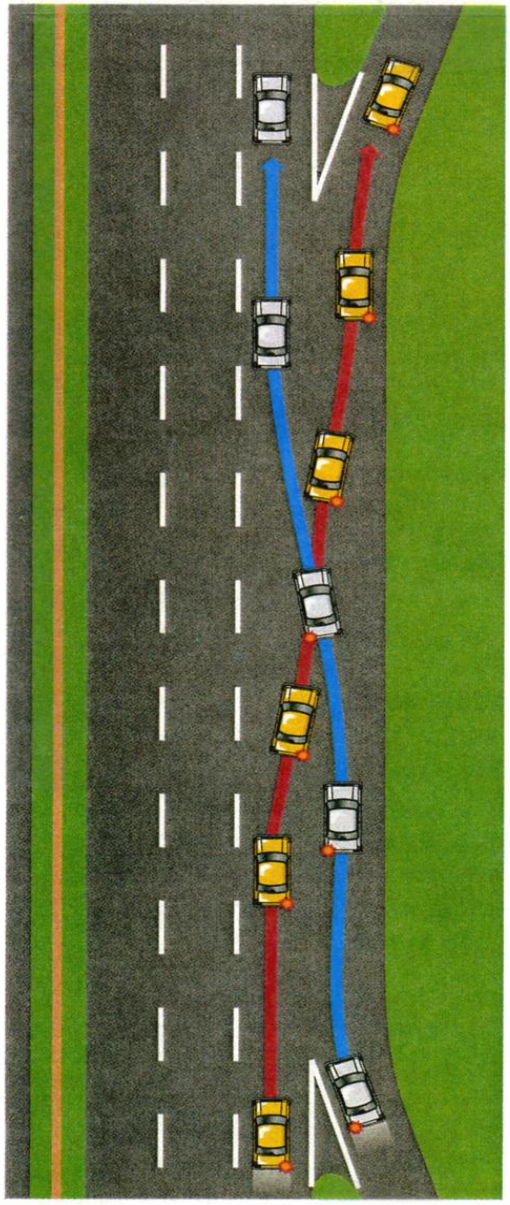
Be in lane position 3 before you get to the deceleration lane.

Move into the deceleration lane.

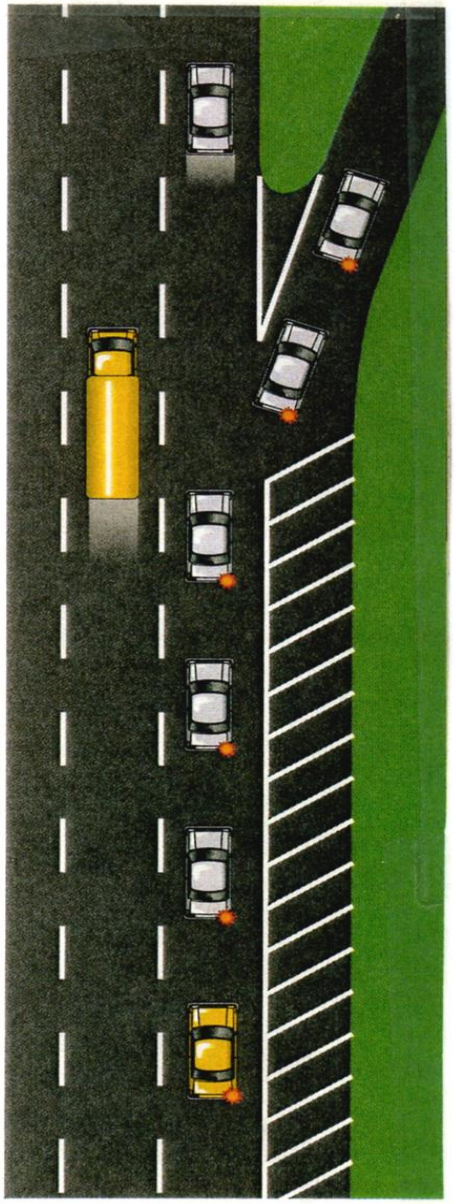
Slow to the posted speed limit.

Be a smart driver

Note the number of cars that are on this exit ramp. Be aware of the possibility that cars could be backed up, because of congestion, around a curve that is beyond your view. Taking the exit ramp too fast could cause you to rear end the car ahead of you if you misjudge the exit speed



Driver's paths might cross when the same lane is used for entering and exiting.



What should drivers do when traffic is backed up near an exit ramp?

Possible Exiting Problems

Even though leaving an expressway should be a smooth operation, problems can occur. Be alert and ready to adjust to problem situations.

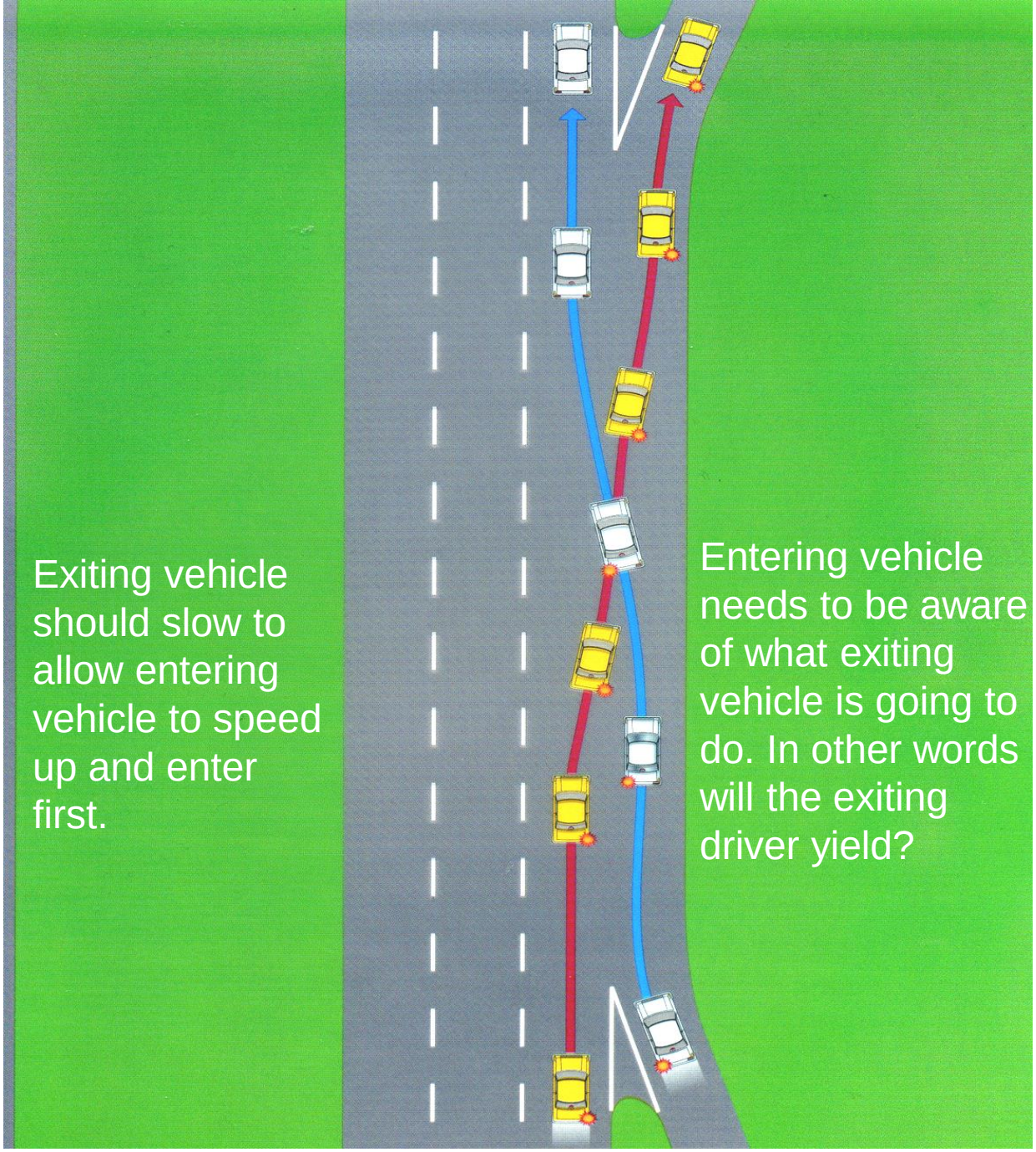
Crossing Paths On some expressways, like the one shown in the first picture on the next page, the same lane is used as both an entrance and an exit. Exiting traffic should merge behind entering traffic since entering traffic is accelerating.

Ramp Overflow Traffic can back up from an exit ramp onto the expressway, as the second picture shows. Rather than joining the overflow and risking a rear-end collision, go past the exit and use the next exit. Some drivers pull off on the shoulder out of the lane of traffic. This is both unsafe and illegal.

Start slowing early if you must use a backed-up exit. If you see vehicles backed up near the exit ramp, check your rear zone, flash your brake lights, and begin to slow. Check your rear zone again to make sure traffic is slowing. If traffic is not slowing, try to pass the exit area smoothly, and drive on to the next exit.

Short Deceleration Lane Slow more quickly if the deceleration lane is short. Evaluate your rear zones. This is critical in such situations. As you enter the deceleration lane

- judge the lane's length
- identify the exit-ramp speed
- check speed while braking
- check traffic in rear zones


Exiting vehicle should slow to allow entering vehicle to speed up and enter first.
Entering vehicle needs to be aware of what exiting vehicle is going to do. In other words will the exiting driver yield?

11.5
Special Expressway Problems

Expressways can provide the safest type of driving. Even so, problems can arise that present hazards and possible conflicts.

Driver Condition

Driving for long periods of time can affect drivers. Be alert for problems that can affect you and the other drivers on the road.

Highway Hypnosis

Staying alert can be a problem when you travel long distances on expressways. You may drive mile after mile at steady speeds with few hills, curves, or interchanges. You can be lulled into an inattentive, drowsy state known as **highway hypnosis.**

When you first notice that you are becoming drowsy or your attention is less focused, sit up straighter and open a window. Stop at the next exit and stretch or exercise. If you need more rest, stop at a safe place and take a brief nap.

Fall-Asleep Collisions

More than 100,000 collisions in the United States each year are caused by sleepiness. Fall-asleep collisions are twice as likely to involve fatalities as other types of collisions.

Sleepiness is a preventable cause of vehicle collisions. Drivers who fail to recognize their own fatigue and sleepiness, or even ignore it, pose a high-risk threat to themselves and to others on the roadway. All drivers are at risk for fall-asleep collisions.

Velocitation

Hours of driving can fool you into thinking your vehicle is traveling slower than it really is. You might then unconsciously drive too fast. This condition, called **velocitation,** can be especially hazardous when you exit an expressway.

The roadways you drive on after exiting usually have a lower speed limit than the expressway. If you are "velocitized," you might continue to drive at expressway speeds after making your exit. To prevent exceeding the local speed limit, check your speed often after exiting the expressway.

www.nhtsa.gov
NHTSA

Breakthrough Research on Real-World Driver Behavior Released

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Telephone: (202) 366-9550

Thursday, April 20, 2006

NHTSA, Virginia TechTransportation 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).

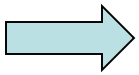
Nearly 80 percent of crashes and 65 percent of near-crashes involved some form of driver inattention within three seconds before the event. Primary causes of driver inattention are distracting activities, such as cell phone use, and drowsiness.

"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

Roadway Conditions

Be aware of the characteristics of certain expressways in order to drive safely on them. Even under the safest conditions, roadway problems can still arise.

Expressways Through Cities

City expressways have more exit and entrance ramps than rural expressways. More ramps increase merging traffic conflicts and give indecisive drivers more opportunities for dangerous last-second decisions.

Remember the following points when driving on an expressway through a city, especially during rush hour:

- In most cases, drive in the center or left lane to avoid merging vehicles.
- Know well in advance where you want to exit. Get in the correct lane early. Fast-moving traffic can make lane changing difficult and dangerous.
- Search constantly for signs, signals, and roadway markings.
- Predict that other drivers are less alert and less aware than you are.

Disabled Vehicle

Take these steps with the first sign of trouble with your vehicle:

1. Check rear zones and signal. Pull as far as possible onto the shoulder or the median.
2. Turn on your hazard flashers. If the vehicle is not very far off the road, get everyone out and away from traffic.
3. When it is safe to do so, raise the hood and tie a white cloth to the antenna or door handle. If you have a cellular phone, call for help.
4. If you have emergency flares or reflectors, set them out at least 500 feet behind your vehicle when it is safe to do so.
5. Get back into your vehicle and lock all doors. Ask anyone who stops to assist you to go to a phone and call for help. Never get into a stranger's vehicle.
6. Do not stand in the expressway to direct traffic.

Roadway Repair

Be alert for roadway repair zones. Watch for orange construction sign and be prepared to slow as soon as you identify the first one. Early-warning construction signs with blinking lights indicate the construction-zone speed limit. Reduce your speed and follow the directions of the construction workers.

Rural Interstate Highways

Driving long distances on rural interstate highways can become monotonous. Check your speed frequently, and look as far ahead as possible int your target area.

Try not to let larger vehicles tailgate you. Remember that they cannot stop as quickly as you can. Pass larger, slower-moving vehicles only when it is safe to do so.

Tollbooths

Tollbooth plazas are located along many expressways. You stop at a tollbooth and pay a fee, or toll, for driving on that expressway.

Rough sections of roadway, called *rumble strips*, are built into the approach lanes of some toll plazas. These strips warn you of the tollbooths ahead and remind you to check your speed.

When approaching a tollbooth plaza, look for a green light above a tollbooth. The green light indicates that the lane is open for traffic.

Many toll plazas have signs overhead in different colors, as the picture shows. These colors indicate the lanes for the tollbooths that are electronic, require exact change, or are attendant operated.

Toll plazas have at least three types of tollbooths. One type is automatic; the driver deposits coins into a machine. The second type is operated by an attendant for drivers without exact change and drivers of larger vehicles.

Another type of tollbooth is operated electronically. An electronic device is placed inside the driver's vehicle on the windshield or on the dashboard. As the driver approaches the designated toll lane, the device communicates electronically with a computer in the lane. The toll is then subtracted from a previously prepaid account.

Select your lane well in advance. Stay in that lane and have your money ready.

Using Expressways Safely

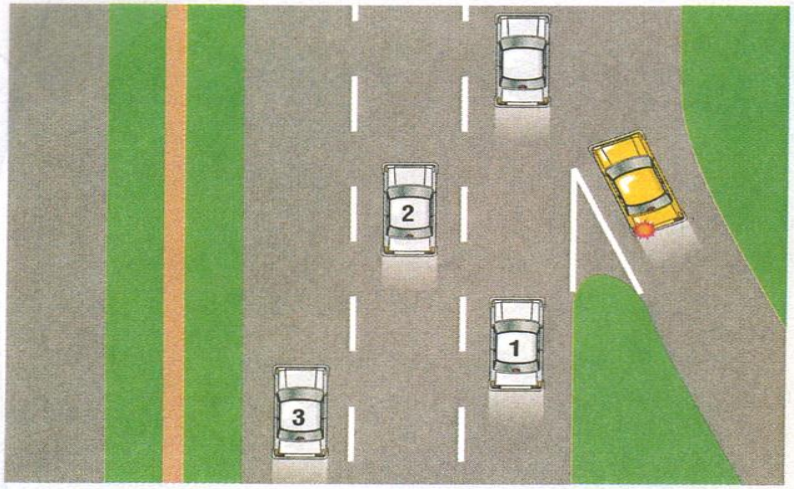
Three key factors contribute to safe driving on expressways:

- cooperation among drivers
- concentration on the driving task
- use of the IPDE Process

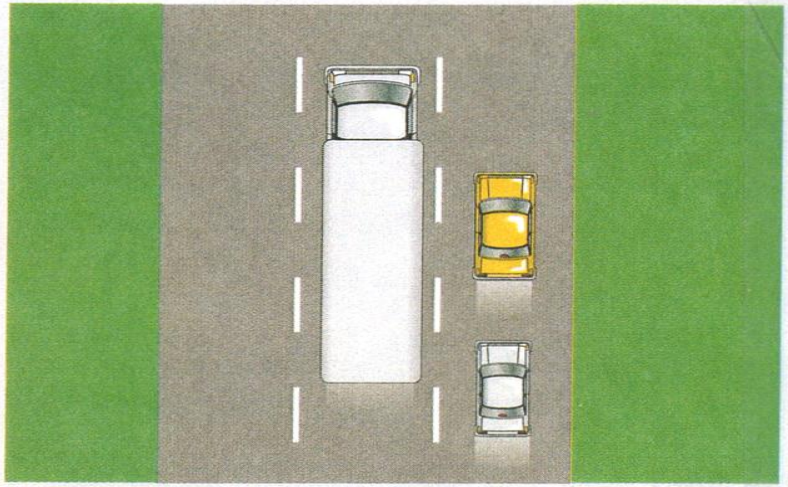
Keeping these factors in mind as you gain expressway experience will enable you to contribute to low-risk expressway driving.

Be a smart driver. Be aware that drivers nearing a toll booth will change lanes because they think the lane they are in is not a fast as another lane -- yours

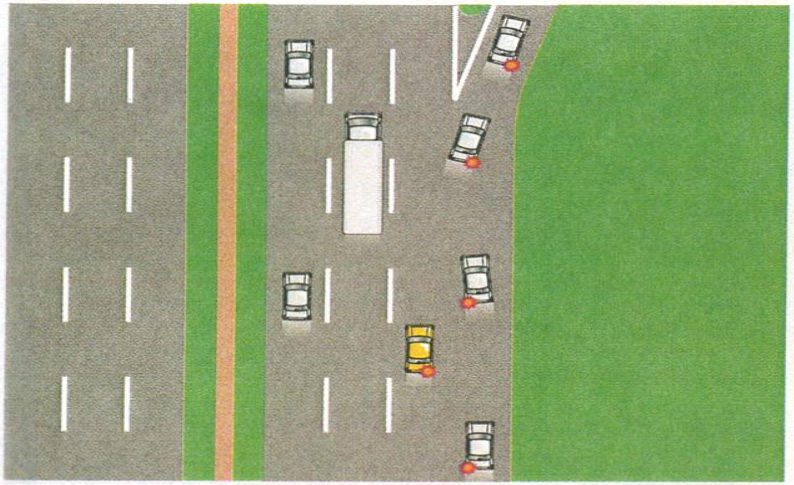
DECISION MAKING



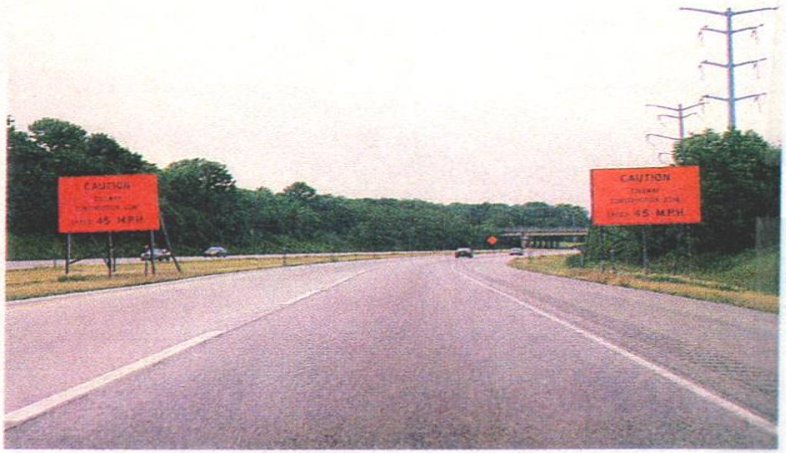
1. The yellow car is about to enter the merge area. What should car 1 do? How can car 2 help? What should car 3 predict? What action should the driver of the yellow car be executing?



2. What unsafe practice is the driver of the yellow car following? What options does this driver have to improve the situation? How might the tailgater affect the yellow car driver's decision?



3. The driver of the yellow car plans to exit the expressway. The same lane is used for exiting and entering. What should the driver of the yellow car do? Why is this a wise decision?



4. What is the driver of the car required to do when driving through the construction zone?