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Traffic Laws: Natural and Man-Made

Purdue University Cooperative Extension Service
Reasonable Driving Depends on . . .

Road Conditions
1. Smooth
2. Rough
3. Curves
4. Hills

Intersections
5. Traffic

Weather Conditions
6. Fair
7. Rain or Snow
8. Dark
9. Fog
LAWs OF NATURE AFFECT TRAFFIC

Lawmakers and policemen get blamed for many of our traffic problems, but the laws of nature are not within their power. They can't change them and neither can we. However, all of us can become better drivers by having a better understanding of the laws of nature that affect traffic. Some of these "laws" are friction, momentum, gravity and centrifugal force.

Friction

Without the help of friction, it would not be possible to start, stop, speed up, slow down, keep a constant speed or turn a car in either direction. Yet this is limited to four small areas where the tires contact the road.

The amount of stopping friction is limited largely by the:

1. Condition of the brakes.
2. Condition of the tires.
3. Kind and condition of road surface.

The failure of any one of these may offset the good qualities of the other two.

It is best not to rely too much on tires especially designed to improve friction. Actually, friction is often more greatly affected by other factors. Such tires usually depend on tread design or special tread composition.

On bumpy, washboard-type roads, the frictional grip is greatly reduced because the tires are in contact with the road only part of the time. This affects starting, stopping, steering, etc., and is present to some extent on all road surfaces because none of them are perfectly smooth. Loose material on a hard surface reduces stopping ability.

The following chart shows why good tires are needed for certain road condition.

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Momentum

When a driver "lets up" on the accelerator, a moving car continues to roll because of the energy it has developed. This energy is called momentum and plays an important part in many traffic accidents. For example, when speed is doubled, the braking distance is increased four times. Trouble is sure to follow if a driver assumes the braking distance will be only twice as great as 60 miles per hour as it was at 30.

Gravity

Obviously it is more difficult to stop a car going down hill than on a level road if all other conditions are the same. This is due to the force of gravity pulling the car down. The same force should cause us to allow more distance for passing a car on an uphill road.

Centrifugal Force

"Failed to make curve" is an expression often used to help describe traffic accidents. Centrifugal force--
the tendency for moving objects to continue in a straight line—is involved in these accidents. The force of the road pushing against the tires and toward the inside of the curve tends to work against centrifugal force.

The sharper the curve the greater the force that must be overcome. Banked curves help greatly, but the road surfaces on some curves may be flat or even sloped the other way. Beginning drivers are especially apt to overlook the real hazard in these situations.

Other Factors Influenced by Speed

Other factors so important to traffic safety also are seriously influenced by speed. Included in this group are perception (eye judgement), reaction time and force of impact.

Perception is the ability to distinguish the sizes and shapes of various objects. When the observer or the object is moving in respect to the other, the problem becomes more difficult. A person who can easily read a warning sign while driving 30 miles an hour might not be able to read it at all while driving 60 miles per hour.

Reaction Time is usually referred to as the time it takes a driver to think and act. The action time itself probably won’t vary much at various speeds. However, as speed increases it takes longer to decide what to do because the situation is more complicated. In heavy traffic or at high speeds there are more things to look at and evaluate before a decision can be made. That’s why it may take only one to two seconds to react at 30 miles per hour, but two to three seconds at 70 miles per hour. That extra second (at 70 m.p.h.) means that you will travel an extra 102 feet before you even get ready to react.

Force of Impact increases much more rapidly than does the speed. In fact, when the speed at the time of impact is doubled from 20 to 40 miles per hour, the force of impact is four times greater. When the speed is tripled to 60 miles per hour the force is nine times greater.

Wrong decisions and poor reactions also are more likely to result when drivers are forced to decide and act quickly.
SPEED

Speed increases the destructive force of a crash. At 60 miles per hour a car would strike a stationary object with the same force it would strike the ground if dropped from the top of a nine-story building.

MAN-MADE TRAFFIC REGULATIONS

Traffic rules and laws become more numerous and strict as traffic increases. Without them, modern traffic would be a hopeless mess, although these same regulations often seem to be just another way of restricting our freedom. In some cases, customs and habits have grown into present traffic laws, while others have resulted from special research.

Regardless of their origin, it is the duty of all drivers to obey these regulations. Before we can obey them, we must know what they are. Yet too many of us are guilty of guessing or quoting someone else who really doesn't know. Learning one set of "man-made" traffic laws is not especially easy. It is more difficult when the laws are different as we pass from state to state or city to city.

Fortunately, this problem was recognized many years ago and much has been done to correct it. However, some states and local communities have not kept pace.

One tool in the effort toward uniformity is the Uniform Vehicle Code. It is used by the legislatures of all states as a guide in drafting new statutes or amendments. Realizing the need for uniformity, some states have adopted entire sections of it, word for word.

The Model Traffic Ordinance is a legislative guide for cities, similar to the Uniform Vehicle Code for states.

All traffic legislation should be aimed at producing smooth, efficient and safe movement of traffic. Legislation should not impose unnecessary or unreasonable restrictions. With those goals in mind, these basic documents are written by experienced traffic safety people.

In Indiana, city traffic ordinances are not allowed to conflict with state laws. However, cities can regulate those items not specifically covered by our state law.

It is not practical to try to list all traffic laws. However, there are some regulations applying to rather common situations that are often misunderstood.

Right of Way at Intersections

Most people realize that the car on the right has the right-of-way at unmarked intersections. Yet many do not
know that this applies only when the two cars arrive at the same time. Otherwise, the car that gets in the intersection first has the right-of-way. So for legal reasons as well as for safety, it's a good idea to look both left and right at unmarked intersections.

**RIGHT-OF-WAY AT INTERSECTIONS**

![Diagram of right-of-way at intersections]

**Turning Left at Intersections**

When turning left at an intersection, it is proper to stay inside of the center. This is usually referred to as an inside left turn as opposed to former method of turning to the outside of the center.

![Diagram of left turn rules]

If you are waiting at an intersection and signalling for a left turn, you are obliged to complete your turn and get out of the intersection as soon as possible without creating a dangerous situation for a car that is planning to come straight on through the intersection. It is less dangerous for the oncoming car to have to
check his speed a little than for you to tie up traffic by staying in the intersection. Of course, good judgement and good car control must be applied here as in other traffic situations.

Mechanical turn lights are now required but the driver is responsible to know that they are working. As in the case of any signaling, it's a good idea for the driver to observe whether other drivers see the signal and understand it.

People are sometimes confused when a police officer motions for them to keep moving even though a sign indicates they should stop, or he signals to stop when the traffic light is obviously green. The rule is—for the officers instuctions because manual control supersedes. Many times emergencies are involved, and a delay on the part of a driver might cause more trouble.

Passing is one of the most hazardous movements a driver makes because it can involve him with traffic in another lane as well as the car being passed. Never attempt to pass unless there is enough clear vision ahead to complete the passing safely. Several factors to be considered include—speeds involved, accelerating ability, sight distance, condition of the highway, etc. The no passing zone is designed as a minimum guide for safe passing distance and should not be relied upon entirely.

Even though you are legally right, you might have to share part of the blame for an accident if you didn't make a reasonable effort to avoid it. That's another reason why it is good business to expect other drivers to make mistakes.

SUMMARY

Remember that "man-made" traffic laws are basically good, even though a particular law may seem to be a nuisance at any one time. We shouldn't criticize others for violating laws that seem unfair to them if we do the same thing ourselves. Bad regulations get "on the books" occasionally, and there is nothing wrong with taking proper action to get them changed. But while they are in force, let's follow the rules.

Sportsmanship and fair play are often a matter of life and death where traffic is concerned.