

Be Ready, Be Safe, Be Responsible

# VII. DRIVING ENVIRONMENTS & THEIR CHARACTERISTICS

Lessons and Hints to Work With Your New Teen Driver

Open Highway

Part 7



Institute for  
Rural Health & Safety

## Lessons and Hints to Work With Your New Teen Driver

- This resource is based on a behind the wheel program that is used by trained driver education teachers.

Purpose :

- to give adults supervising practice driving with a teen driver, an orderly, standard routine.
- To provide objectives and methods similar to those used by in-car driving instructors that may:
  - reduce stressful situations for adult and teen.
  - reduce risk by allowing the teen driver to gradually progress through skill levels and driving environments.

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# OPEN HIGHWAY

- Lesson Objectives and Skills

- **Objectives**

- Scanning, Identification and Prediction
- Maintaining adequate space margins
- Interacting with larger number of highway users
- Negotiating a variety of intersections
- Using a parking garage
- Parallel parking

- **Skill Sets**

- Negotiating a variety of intersections with a variety of lanes and controls
- Interacting with a greater number of highway users
- Identifying and responding to real or potential hazards by minimizing, separating or compromising
- Adjusting speed and/or position and communicating when applicable
- Safe and efficient use of the parking garage
- Parallel parking

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# OPEN HIGHWAY

## • Surroundings-

- Vary-May have...
  - Residential aspects-driveways, intersections
  - Businesses
  - Rural aspects-side roads, curves, hills
  - Expressway aspect-multiple lanes, merges

## • Lanes-

- Two or more full lanes.
- Marked center lines, marked white line right edge
- Two-way traffic
- One-way divided highways

# OPEN HIGHWAY

## Speeds-

- A range of speeds-35 to 55 mph-depends on surroundings.
- Maximum of 55 mph
- Un-posted in PA is 55 but can be posted lower.

## More Signs ,Signals and Markings

- Signs, Signals -Many more than Residential
  - Stop, Speed Limit, Lane Use, Traffic Lights
  - Warning Signs and Lights, Work Zones
- Lane Markings
  - May be crosswalks and stop lines
  - Turning Lanes
  - Lane Channels

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# OPEN HIGHWAY

Two or more full lanes.  
Marked center lines, marked white line right edge  
Two-way traffic



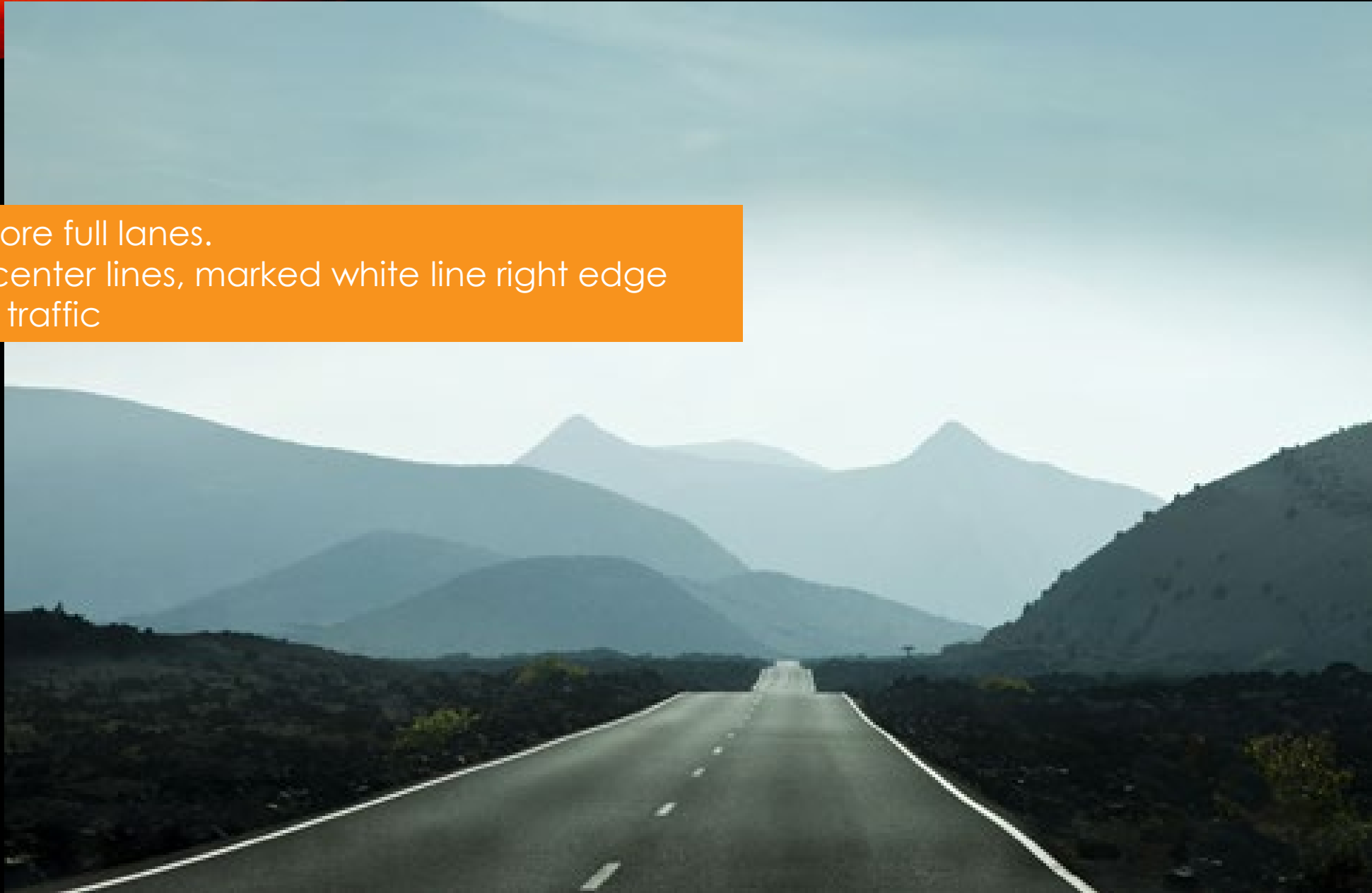
# OPEN HIGHWAY



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# OPEN HIGHWAY

Residential aspects-driveways, intersections



# OPEN HIGHWAY

- Expressway aspect-multiple lanes, merges
- One-way divided highways



# OPEN HIGHWAY

video



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# OPEN HIGHWAY

video



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# OPEN HIGHWAY

video



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# OPEN HIGHWAY

Driving on an open highway is different than driving on an expressway or freeway.

- Areas of potential hazards on an open highway include but are not limited to:
  - unmarked farm and field driveways, rail crossings, livestock crossing areas, rough road conditions,
  - unmarked shoulders, traffic from roadside businesses or gas stations
  - intersections, residential driveways
  - cyclists, pedestrians

# CURVES

# OPEN HIGHWAY

1. When approaching a curve reduce speed and adhere to advisory speed signs.
2. Decelerate and brake STRAIGHT
3. Slow release brake as you come through the apex of the curve
4. Back to the gas when you straighten out or see the Path of Travel. (P>O>T)
  - Eyes should move through the curve along the P>O>T-Center of the road, not the edges
  - No Passing on curves, cresting hills, bridges-( two lane , two way)

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# OPEN HIGHWAY

Lanes and roads on an open highway are not always the same as on a freeway.

The width and contour of the road plays an important role in your driving;

- Crowned roads are higher in the center than the edges and right turns will be enhanced by the crown as the lane tilts toward the center of the road.
- Left turns can be dangerous as the slope goes down toward the edge the road.



# OPEN HIGHWAY TWO WHEEL DROP-OFF

**Soft shoulders create hazards to the unaware driver.**

- **If the right wheels drop off the road anticipate better traction with the left wheels that remain on the pavement.**
- **Reduce speed, steer straight, don't brake dramatically.**
- **Let the momentum of the vehicle slow naturally then gradually work back onto the pavement.**



TWO WHEEL DROP-OFF

OPEN HIGHWAY

Video



# TURNING, MERGING AND PASSING

You must concentrate on many factors when making a turn.

Speed is probably the most important factor.

When turning, reduce to a speed that:

- allows you to maintain control of your vehicle,
- allows you to stay in your lane during the turn and,
- allows you to react to unexpected situations.
- Watch out for pedestrians and for other traffic in the street you are turning onto.
- Many highways have signs, signals or lane markings to guide you.
- Some signs show what lanes you can or must use for turns.

# TO COMPLETE A MOVING TURN SAFELY

1. Signal three (3) to four (4) seconds before your turn.
2. Position your vehicle in the proper lane.
3. Choose a safe gap to avoid conflict.  
Yield to oncoming traffic if no gap
4. Control your speed. For moving right angle turns-2-10 mph.
5. Complete your turn in the proper lane.

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# LEFT AND RIGHT TURNS

On two-lane, two-way streets or highways,

- Make left turns from as close to the centerline as possible.
- Make right turns from as close to the right edge of the roadway as possible.
- To turn left on multi-lane streets and highways, start from the left lane.
- If you are turning right, start from the right lane.

# LEFT AND RIGHT TURNS

If you are turning onto a highway which has more than one (1) lane in the direction you wish to travel, turn into the closest open lane going in that direction.

Turn into the left lane when making a left turn, and turn into the right lane when making a right turn. If you want to change to another lane, wait until after you have safely completed your turn.



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### Convert Miles per Hour to Feet per Second

- 1 Mile per Hour = 1.5 Feet per Second
- 5 Miles per Hour = 7 Feet per Second
- 15 Miles per Hour = 22 Feet per Second
- 25 Miles per Hour = 37 Feet per Second
- 35 Miles per Hour = 51 Feet per Second
- 45 Miles per Hour = 66 Feet per Second
- 55 Miles per Hour = 81 Feet per Second
- 65 Miles per Hour = 95 Feet per Second

### Speed Safety Facts

- Speeding reduces the driver's ability to steer safely around curves and avoid objects on the road.
- Speeding increases the distance necessary to stop a vehicle. In fact, just a small increase in speed greatly increases the amount of room you need to stop. For example, at 70 mph a vehicle in proper working order takes 351 feet to stop, while at 55 mph a vehicle can stop in 217 feet.
- Speeding increases the distance your vehicle will travel before you can comprehend there is an emergency and react to it. Each mile per hour you travel equates to 1.5 feet traveled per second. Therefore, a vehicle going 55 mph will travel 81 feet each second.

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## Reaction Distance:

- The time it takes to realize that a problem exists and apply the brakes.
- If it takes 1.5 seconds to react, you've already passed 150 feet. That means you've passed half a football field before the brakes have even begun to kick in.

## Braking Distance:

- The distance your car travels after the car brakes have been applied.
- According to auto industry standards for deceleration, if you are traveling at 65 miles per hour, it takes about 310 feet (100 + yards) to stop an average car once the brakes have been applied.



## Stopping Distance:

- takes into account the distance you travel before you hit the car brake system (reaction distance) plus the distance you travel while the brakes slow you down (braking distance).  $RD+BD=SD$
- This might not seem like a big difference, but if you're moving down an interstate highway at 70 mph, you're passing 100 feet of asphalt every second.

20 mph-63 ft.

30 mph-109 ft.

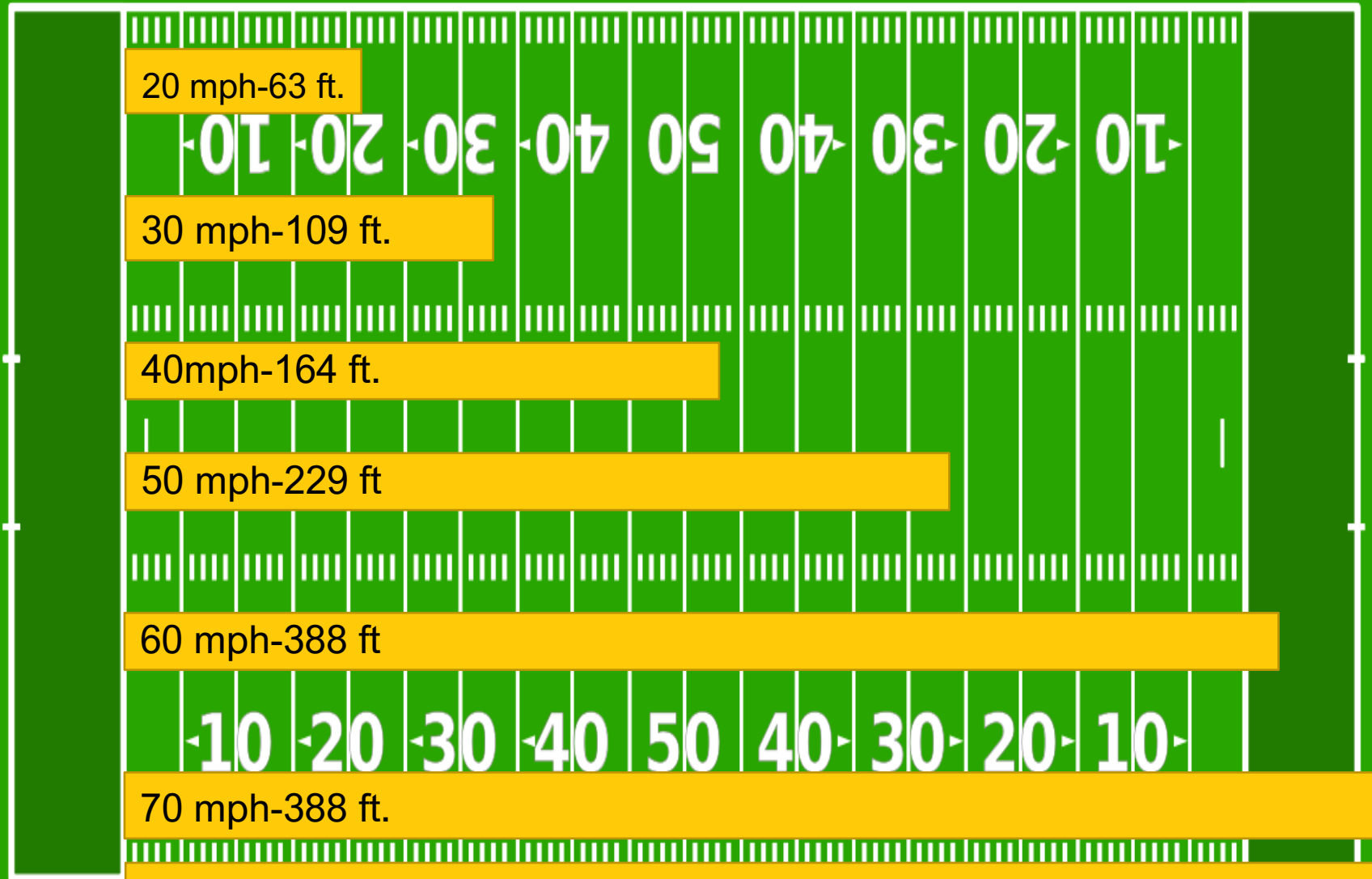
40 mph-164 ft.

50 mph-229 ft.

60 mph-388 ft.

70 mph-388 ft.

80 mph-481 ft.



# PASSING ON TWO-LANE HIGHWAY

Required to signal at least 100 feet before changing lane. Never pass a vehicle stopped for a pedestrian to cross.

## **Passing on a Two-lane Roadway:**

- Can be dangerous.

Must be able to make several critical traffic maneuvering decisions in a few seconds that are safe and successful.

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# PASSING ON TWO-LANE HIGHWAY

When ready to pass another vehicle on a two-lane roadway, consider these questions:

- Is it legal to pass? (signs, lane markings)
- Is it safe to pass? (road and weather conditions, curves, hills)
- Is there time?

Time to safely get around the vehicle in front of you without the risk of a head-on collision?

- How fast do you need to go?
- Is it possible and safe to go that fast in order to pass safely?

# PASSING ON TWO-LANE HIGHWAY

## Passing is illegal when:

- The center line is a double solid yellow line or there is a solid yellow line on your side.
- There is a DO NOT PASS sign on the roadway.
- Passing vehicle that is already going close to, or above the road's speed limit. When you pass a vehicle that speed, you must go at least 10-15 miles per hour over the speed limit, which is illegal.
- Not enough time to pass the vehicle in front of you and safely return to your lane before reaching a solid yellow line or double solid yellow lines.
- Not enough time to pass the vehicle in front of you and safely return to your lane before confronting oncoming traffic within 200 feet of your vehicle.
- You are approaching a curve or top of the hill You are within 100 feet of a bridge or railroad crossing.
- Behind a school bus that is loading or unloading children.

# PASSING ON TWO-LANE HIGHWAY

## When passing other vehicles in a two-lane roadway:

- Make sure that there are not any of the previous situations, limiting your ability to pass.
- Make sure that the passing lane is clear and there is no oncoming traffic. Difficult to judge the speed and distance of oncoming vehicles.
- Check your mirrors and look over your left shoulder blind spot to make sure that there are no cars trying to pass you. (Also trailers being towed by passing vehicles)
- Turn on your left signal.
- Move to the left lane for passing.
- Speed up by about 10-15 mph over the speed of the vehicle that you are passing.
- After passing, look over your right shoulder blind spot and make sure that it is clear and you have enough space to return to your lane and then safely return to your lane.
  - Enough space when the whole front of the passed vehicle is visible in main rear view mirror, not the side view mirror

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# PASSING ON TWO-LANE HIGHWAY

## When Being Passed:

- Slow down a bit and let the other vehicle pass you safely.
- Never speed up when being passed, it is very dangerous and not legal.
- Adjust lane position away from large passing vehicles.
- Be aware of oncoming vehicles and their lane position and actions.
- Be aware of distance between the vehicle passing and oncoming traffic.
- You may need to slow down more or brake to allow vehicle more space to finish the pass.
- You may also need to speed up to allow passing vehicle to re-enter behind.

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# OPEN HIGHWAY LESSONS

- Have a set route.
- Instruct where you want to go, what you want done in plenty of time.
- Be Specific, repeat  
Example-"Go to the STOP sign, at the sign turn right", "Go to 3rd street and turn left"
- PRACTICE ENTERING AND LEAVING THE HIGHWAY WITH LEFT AND RIGHT TURNS FROM A STOP AND WHILE MOVING, RIGHT OF WAY, SIGN IDENTIFICATION, HAZARD IDENTIFICATION, MIRROR USE
- STAY CALM IN HAZARD SITUATIONS-TAKE CONTROL
  - As needed guide steering with right hand to avoid collisions
  - Bump gear selector to neutral, pull hand brake if needed

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# OPEN HIGHWAY LESSONS

## OPEN HIGHWAY

### CHARACTERISTICS

- TRAFFIC-MODERATE TO HEAVY
- SPEEDS -VARY  
POSTED 30-55 MPH UNPOSTED 55 MPH
- LANES-MULTIPLE  
TWO-DIRECTION /ONE DIRECTION  
PROTECTED TURNING LANES  
INTERSECTIONS & MULTIPLE LANE INT.
- SIGNS, SIGNALS, MARKINGS  
SIGNS-WARNING-EXACT, USUALLY POSTED 3-5 SECONDS AWAY  
REGULATORY-SPEED, LANE USE  
GUIDE-DIRECTION, DISTANCE, ROAD I.D.  
SIGNALS-TRAFFIC LIGHTS/TURNING LANES

### MARKINGS-

- CENTER/PASSING/NO PASSING/COLOR  
YELLOW CENTER LINE-TWO WAY,TWO LANE  
WHITE CENTER LINE- ONE WAY, MULTIPLE LANE  
FOG/ EDGE LINE-WHITE/ ALWAYS ON THE RIGHT SIDE
- SIGHT DISTANCES/VARIABLE SEARCH AREAS  
= CURVES / HILLS
- MAY HAVE RESIDENTIAL OR EXPRESSWAY ASPECTS

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# OPEN HIGHWAY LESSONS

## OPEN HIGHWAY

### OBJECTIVES/SKILLS PRACTICE

VEHICLE CONTROL /LANE POSITIONS @ HIGHER SPEEDS

**MAINTAIN A CONSTANT SPEED**

**IDENTIFY & ADJUST TO ROAD  
CONDITIONS & CHANGES**

**ADJUST LANE POSITION**

**ADJUST SPEED –CONDITIONS, HAZARDS,  
SIGNS**

**NEGOTIATING CURVES & INTERSECTIONS**

**-CURVES-SET UP, SPEED –SLOW & BRAKE  
STRAIGHT**

**-INTERSECTIONS-R OF WAY, GAP, SCAN  
THROUGH SIDES**

**ORDERLY SEARCH PATTERN/ ACT ON, NOT REACT TO.**

**I.D., READ, ACT ON WARNING SIGNS**

**REGULAR & ROUTINE MIRROR USE WHEN:**

**PASSING/NO PASSING ZONES**

**SLOWING, OUT OF CURVES, TRAFFIC SIGNALS,  
STOPS**

**LANE CHANGES**

**PROCEDURE-SEARCH, SIGNAL, BLIND SPOT, CHANGE,  
MIRROR**

**INTO TURNING LANE**

**MERGE**

**PASSING /BEING PASSED**

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# OPEN HIGHWAY LESSONS

## • **Anticipated Problems**

- Limited sight distance and not planning ahead
- Not driving within five miles of the posted speed limits when conditions permit
- Difficulty maintaining a selected lane position
- Failing to identify and select proper lane for travel or maneuver
- Failing to check blind spot
- Speed control and scanning at yield intersections

## **Be Ready, Be Safe, Be Responsible**

This series was produced by the Novice Driver Statewide Program and the IUP Institute for Rural Health and Safety through a grant from the PA Highway Safety Office

Videos and Photos: IRHS/NDSP

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NEXT UP: EXPRESSWAY  
DRIVING ENVIRONMENT