

Manual

VII. DRIVING ENVIRONMENTS & THEIR CHARACTERISTICS

Manual-Lessons and Hints to Work With Your New Teen Driver

Open Highway

Part 7

Be Ready, Be Safe, Be Responsible

IUP

Institute for

Rural Health & Safety



 Open High Public Publ	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 Learning Skills 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 haz- ards by minimizing, separating or compromising Adjusting speed and/or position and communicating when applicable Safe and efficient use of the parking garage Parallel parking
 OPEN HIGHWAY Sum oundings: Vary-May have Section tial appects driveways, intersections Strinesses Sum appects side roads, curves, hilt Spressway appect multiple tanks, merges Sum or more full lanks. Marked center links, marked white link right edge Two way traffic One-way divided highways 	Open Highway <u>Surroundings-</u> Vary-May have Residential aspects-driveways, intersections Businesses Rural aspects-side roads, curves, hills Expressway aspect-multiple lanes, merges <u>Lanes-</u> Two or more full lanes. Marked center lines, marked white line right edge Two way traffic One–way divided highways
Speeds- • A range of speeds-35 to 55 mph-depends on surroun dings. • Waximum of 55 mph • Un-posted in PA is 55 but can be posted lower. More Stans Stands and Markings • Staps Sign and Watter that Patter kights • Stap, Speed Unit Lone that Patter kights • Stap, Speed Unit Lone that Patter kights • Way be crosswalks and stop lines • Units (Lone Sciences) • Lone Channels Be Reachy, We Sole, Be Responsible	Open Highway <u>Speeds-</u> A range of speeds-35 to 55 mph-depends on sur- roundings. Maximum of 55 mph Un-posted in PA is 55 but can be posted lower. <u>More Signs ,Signals and Markings</u> Signs, Signals -Many more than Residential Stop, Speed Limit, Lane Use, Traffic Lights <u>Warning Signs</u> and Lights, Work Zones <u>Lane Markings</u> May be crosswalks and stop lines Turning Lanes Lane Channels

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

OPEN HIGHWAY

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OPEN HIGHWAY	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:	Driving on an open highway is different than driving on an expressway or freeway.
 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 	 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
OPEN HIGHWAY CURVES 1. When approaching a curve reduce speed and adhere to advisory speed signs. 2. Decelerate and brake <u>STRAIGHT</u> 3. Slow release brake as you come through the apex of the	Open Highway Curves When approaching a curve reduce speed and adhere to ad- visory speed signs. Decelerate and brake <u>STRAIGHT</u>
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) Be Ready, Be Late, Be Responsible	 Slow release brake as you come through the apex of the curve 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)
CPEN 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. • De Ready, Se Sale, BE Reportable	 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.	 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.

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Duration of the most important factors when making a turk. A must concentrate on many factors when making a turk. A must concentrate on a spread that: I allows you to maintain control of your vehicle. I allows you to stay in your lane during the turn and. I allows you to react to unexpected situations. Watch out for pedestrians and for other traffic in the street you are turning onto. I any highways have signs, signals or lane markings to guide you. Some signs show what lanes you Can or must use for turns.	Open Highway TURNING, MERGING AND PASSING You must concentrate on many factors when mak- ing a turn. <u>Speed is probably the most important</u> <u>factor</u> . 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 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 mark- ings to guide you. Some signs show what lanes you can or must use for turns.
TO COMPLETE A MOVING TURN SAFELY	TO COMPLETE A MOVING TURN SAFELY
 Signal three (3) to four (4) seconds before your turn. Position your vehicle in the proper lane. Choose a safe gap to avoid conflict. Yield to oncoming traffic if no gap Control your speed. For moving right angle turns-2-10 mph. Complete your turn in the proper lane. 	 Signal three (3) to four (4) seconds before your turn. Position your vehicle in the proper lane. Control your speed. For moving right angle turns -2-10 mph. Complete your turn in the proper lane. (Steering technique)
 Description of the series of the se	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 road- way 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



LEFT AND RIGHT TURNS

If you are turning onto a highway that 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 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.

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 1.467 feet traveled per second. Therefore, a vehicle going 55 mph will travel 81 feet each second.

STOPPING

Reaction Distance:

- The time it takes to If 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 teet. That means you've passed half a football field before the brakes have even begun to kick in.

Braking Distance:

Stopping 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.

system (reaction distance) plus the distance you travel while the brakes slow you down (braking distance). RD+BD=SD

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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.



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. 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? • Is there oncoming traffic? How fast is it approaching and how soon will it reach you?	You are required by law to signal at least 100 feet before changing lane. Never pass a vehicle that has stopped for a pedestrian to cross. Passing on a Two-lane Roadway Passing on a two- lane roadway can be dangerous. You must be fully capable of making several critical traffic maneuver- ing decisions in a few seconds that are safe and suc- cessful. You must be able to make several critical traffic de- cisions in a few seconds that are safe and success- ful.
	 When you are ready to pass another vehicle on a two-lane roadway, you must consider these questions: Based on the road marking and sign, is it legal to pass? Based on the current traffic situation and/or road and weather condition, is it safe to pass the other vehicles? Is there oncoming traffic and if yes, how fast is it approaching your vehicle and how soon will it reach your vehicle. Is there time
PASSING ON TWO-LANE HIGHWAY Must be able to make several critical traffic decisions in a few seconds that are safe and successful. 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?	 Must be able to make several critical traffic decisions in a few seconds that are safe and successful. 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 is illegal when:
PASSING ON TWO-LANE HIGHWAY Passing is illegal when:	The center line is a double solid yellow line or there is a solid
 The center line is a double solid yellow line or there is a solid yellow line on your side. 	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 	There is a DO NOT PASS sign on the roadway.
speed limit. When you pass a vehicle that speed, you must go at	A vehicle that is already going close to, or above the road's
 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 	speed limit; this is because when you pass that vehicle that
to your lane before reaching a solid yellow line or double solid yellow	speed, you must go at least 10-15 miles per hour over the
 Not enough time to pass the vehicle in front of you and safely return 	speed limit, which is illegal.
to your lane before confronting oncoming traffic within 200 feet of your vehicle.	You do not have enough time to pass the vehicle in front of you and safely return to your lane before reaching a solid
 You are approaching a curve or top of the hill You are within 100 feet of a bridge or railroad crossing. 	yellow line or double solid yellow lines.
 Behind a school bus that is loading or unloading children. 	You do not have enough time to pass the vehicle in front of
	you and safely return to your lane before confronting on-
	coming traffic within 200 feet of your vehicle.
	You are approaching a curve or top of the hill and are unable
	to see oncoming traffic from enough distance to assess if
	they may reach you during the passing maneuver, and/or
	you are also not able to see around the vehicle that you are
	passing.
	You are within 100 feet of a bridge or railroad crossing.
	You are behind a school bus that is loading or unloading chil-
	dren.
PASSING ON TWO-LANE HIGHWAY When passing other vehicles in a two-lane roadway:	When passing other vehicles in a two-lane road-
 Make sure that there are not any of the previous situations, limiting your ability to pass. 	way:
 Make sure that the passing lane is clear and there is no oncoming traffic. Difficult to judge the speed and distance of oncoming vehicles. 	Make sure that there are not any of the previous
 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 	situations, which may limit your ability to pass.
 vehicles) Turn on your left signal. 	Make sure that the passing lane is clear and there is
 Move to the left lane for passing. Speed up by about 10-15 mph over the speed of the vehicle that you are 	no oncoming traffic that makes your turn un-
 After passing, look over your right shoulder blind spot and make sure that it is 	safe. It is hard to judge the speed and distance of
clear and you have enough space to return to your lane and then safely return to your lane.	oncoming vehicles, especially the large vehicles,
For used when the whole front of the passed vehicle is visible in <u>main</u> rear view mirror, not the side view mirror	so proceed carefully.
	Check your mirrors and look over your left shoulder
	blind spot to make sure that there are no cars try-
	ing to pass you.
	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 you pass the vehicle in front of you, 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.
	There is enough space when the whole front of the
	passed vehicle is visible in <u>main rear view mir-</u>
	ror. Not the side view mirror

 PASSING-ON TWO-LANE HIGHWAY When being passed. Sow down a bit and let the other vehicle pass you sately. Never speed up when being passed, it is very dangerous and not legid. 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 firish the pass. You may also need to speed up to allow passing vehicle to re-enter behind. 	 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 ve- hicle to re-enter behind.
OPEN HIGHWAY LESSONS	Open highway Lessons
 Have a set route. Instruct where you want to go, what you want done in plenty of time. 	Have a set route.
• Be Specific, repeat Bample-"Go to the STOP sign, at the sign furnight",""Go to 3rd street and turn left"	Instruct where you want to go, what you want done in plenty of time.
 PRACTICE ENTERING AND LEAVINGTHE HIGHWAY WITH LEFT AND RIGHT TURNS FROM A STOP AND WHILE MOVING, RIGHT OF WAY, SIGN IDENTIFICATION, HAZARD IDENTIFICATION, MIRR OR US E 	Be Specific, repeat
 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 	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 IDENTIFICA- TION, 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

OPEN HIGHWAY LESSONS

CHARACTERISTICS

- <u>TRAFFIC-MODERATE TO HEAVY</u>
- SPEEDS -VARY
 POSTED 30-55 MPH UNPOSTED 55 MPH
- LANES-MULTIPLE

TWO-DIRECTION /ONE DIRECTION

PROTECTED TURNING LANES

INTERSECTIONS & MULTIPLE LANE INT.

<u>SIGNS, SIGNALS, MARKINGS</u>

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

Be Ready, Be Safe, Be Responsible

OPEN HIGHWAY LESSONS

OPEN HIGHWAY	
OBJECTIVES/SKILLS PRACTICE	ORDERLY SEARCH PATTERN/ ACT ON, NOT REACT TO.
VEHICLE CONTROL /LANE POSTIONS @ HIGHER	I.D., READ, ACT ON WARNING SIGNS
SPEEDS	REGULAR & ROUTINE MIRROR USE WHEN:
MAINTAIN A CONSTANT SPEED	PASSING/NO PASSING ZONES
IDENTIFY & ADJUST TO ROAD CONDITIONS & CHANGES	SLOWING, OUT OF CURVES, TRAFFIC SIGNALS, STOPS
ADJUST LANE POSITION	LANE CHANGES
ADJUST SPEED – CONDITIONS, HAZARDS, SIGNS	PROCEDURE-SEARCH, SIGNAL, BLIND SPOT, CHANGE, MIRROR
NEGOTIATING CURVES & INTERSECTIONS	INTO TURNING LANE
-CURVES-SET UP, SPEED –SLOW &BRAKE STRAIGHT	MERGE
-INTERSECTIONS-R OF WAY, GAP, SCAN	PASSING /BEING PASSED
THROUGH SIDES	Be Ready, Be Safe, Be Responsible

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

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- Failing to check blind spot
- Speed control and scanning at yield intersections

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.

Be Ready, Be Safe, Be Responsible

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Videos and Photos: IRHS/ NDSP Other Photos , 3-D models: Creative Commons and IVS online resources

NEXT UP: EXPRESSWAY DRIVING ENVIRONMENT