CHAPTER 9 - URBAN AREAS

I. Complex Traffic Situations
   A) Driving in city - more difficult
      1) more hazards than rural (trucks, cars, buses, people)
      2) deal with hazards more frequently
      3) time, speed, distance - slowing down is best way to increase your distance and gain time to think and respond
   B) use IPDE process .
      1) "I" - be more aggressive (look everywhere)
      2) "P" - predict possible pts of conflict earlier
      3) "D" - be ready to reduce speed and change position
      4) "E" - be prepared to use car's controls in an instant

II. Following and Meeting Traffic
   A) Longer following distance – 3 seconds in ideal conditions
      When:
      1) learning to drive
      2) tailgater
      3) traction is poor
      4) pulling a trailer
      5) following a motorcycle
      6) driver ahead seems unsure what to do
      Why?
      1) better to see farther down road
      2) others see you better
      3) more time to use IPDE
      4) better position to avoid vehicle ahead if stops
      5) 2 Second Following distance- safe space cushion for most normal driving conditions
      6) increase to 3 or more seconds under adverse conditions

What is a space cushion? Distance between your vehicle and vehicle ahead

   7) look over, thru, and around cars when following
   8) know where sudden stops may occur *unmarked intersections - high risks
*intersections with signal lights
*lanes next to parked cars
*parking lot entrances/exits
9) looking away safely
*no immediate hazards before looking away
*lower your speed in close situations
*several split second glances rather than one long
Look

B) Being Followed
1) tailgating - someone following too closely
2) Why tailgaters are hazards - brake suddenly (hard) might be Hit from behind
3) managing tailgaters *increase following distance - 3 or more seconds
*change lane positions (move one side or another)
*signal early for turns, stops, or lane changes
*flash brake lights
*change lanes

C) Responding to Oncoming Traffic
1) may cross your path because:
*driver impaired
*poor judgement
*poor visibility
*reduced space
*sudden moves
*vehicle failure
*turning buses and trucks
*double parked cars
2) avoiding conflicts
*slow down
*flash lights
*turn on lights
*move to right

III. Techniques for Driving in Traffic
A) Look ahead and stay back to increase view of road
B) Approaching traffic signals - look at least one block ahead
    Yellow light prepare to stop if not in intersection
C) Cover brake - foot off accelerator and hold over brake
D) Riding brake - resting foot on brake; lights are on
   *driving past parked cars stay one car doors width away
   in case door opens
E) Adjust speed; go w/flow; w/in speed limit; watch closed zone
F) Select best lane to be in
   1) right lane for slow moving traffic
   2) left lane for faster traffic and turns
   3) center lane for fast straight thru traffic
G) Lane Changes
   1) check traffic in both lanes and mirrors
   2) signal
   3) check blind spots
   4) change lane w/out slowing
   5) cancel signal
H) Overtaking and Passing
I) Special Traffic Lanes for buses and carpool

IV. Urban Situations Miuht Encounter
   A) 2 way streets - be prepared
   B) one-way streets - safer Identifying one-way
      1) entering one-way,
      2) wrong way
      3) signs all facing the same direction
      4) broken white lines
      5) traffic going the same way
   C) Situations - Expected and Unexpected
      1) leaving one-way - position car in lane closest in the
direction of turn
      2) wrong way - slow, steer right, use horn and lights
CHAPTER 10 - RURAL AREAS

I. Rural areas – wide open spaces, less traffic
   Mistake – assume conflicts will not occur
   Collisions – 2x as many highway deaths than in urban areas

A) Roads
   1) concrete, brick, asphalt, gravel, crushed stone, dirt
   2) widths vary
   3) shoulder width varies
   4) traction varies
   5) smooth or rough

B) Speed - affects
   1) how far ahead to look (line of sight)
   2) stopping distance
   3) vehicle control
   4) amount of damage and injury vary
   5) 55 mph on highways; 65 mph interstates (posted)
      Basic Speed Law - do not drive faster than road or traffic conditions permit (other highway users, bad weather, hills, curves, intersections, narrow lanes/roads

C) Traffic Controls
   1) signs, signals, and road markings – direct, regulate, inform, warn drivers
   2) provide advanced warning about driving conditions – hazards cannot see, curves, reduced space, intersections

D) Roadside Hazards
   1) look far ahead and side-to-side to give enough time and space to avoid - collision
   2) shoulders might be narrow or rough
   3) signs posted too close to road
   4) guard rails, bridges, bushes, trees, and fences near edge of road
   5) business - entrances and exits
   6) road side stands
   7) piles of plowed snow or drifted snow

II. BASIC SKILLS
   A) Use IPDE a lot sooner
      1) faster speeds - less control of car; less time to identify, respond to hazard, greater chance of severe collision
2) use orderly visual search pattern - quick glances side-to-side
3) search/scan critical areas in a regular sequence (look ahead, check road, glance at mirrors, check speed)

B) 2 Lane Roads
1) Curves - accelerate gently after entering curve
   - advisory speed limits (250-700 feet ahead)
   - safe speed
2) Hills - sight distance may be shorter; slow
3) Intersections - some busy ones have signals; side roads meet main roads; controlled with stop sign crops, trees may block view

C) Following Traffic
1) normal conditions - 3 seconds
2) 4 or more seconds under adverse conditions
3) always have an escape path
4) longer distances needed for:
   * tailgaters
   * steep downhill slopes
   * following a bus/truck
   * following a motorcycle
   * pulling a trailer
   * wet pavement
   * following a snow plow
   - when other drivers do dangerous things – less likely to affect you if have a 3 or more following distance

D) Multilane Roads – 4 or lanes, higher speed limit
1) with center lines - double solid yellow center line
   - separates traffic in opposite directions
   - cross only when turning left
2) divided roads - 2 way traffic divided by a guard rail or median strip; cross each half as an intersection
3) lane choice - right lane
4) turning at an intersection
   a) left turn - lane closest to the median or center line
   b) right turn - closest lane to you

III. Passing – high level of risk; same lane as oncoming traffic

A) 3 stages of Passing
1) decide to pass - is it legal, safe, worthwhile; major responsibility belongs to driver who is passing
2) prepare to pass - check mirrors, traffic, blind spot
3) execute - do it (10-15 sec)
a) is it safe, signal left, check blind spot and ahead
b) change lanes smoothly, accelerate 10 miles
to faster than car passing, but w/in speed limit
c) maintain speed, see headlights in rearview mirror
    signal right and return to lane, cancel signal

B) No Passing – solid yellow lines
   1) uphill - (700-1000 ft).
   2) intersections (w/in 100 ft)
   3) railroad crossings (w/in 100 ft)
   4) 2 lane bridges and underpasses (100 ft)
   5) curves - not enough sight distance

Other situations
   6) line of sight limited (fog, snow, rain)
   7) several cars to pass
   8) cannot finish pass before no passing zone begins
   9) oncoming traffic too close; space is too narrow
   10) stopping or turning soon

C) Being Passed - be aware and prepared to slow
   - intentionally speeding up while being passed is illegal

IV. Rural Situations
A) Slow moving vehicles - farm machinery
B) Animals - wild or tame
C) Oncoming traffic - slow down; move over - look to right side
    at night
    complete controls
D) Railroads Crossings – slow down
    - 85% do not have complete controls
    - trains always win

IV. Mountains - use caution
   - weather changes quickly
   - higher altitudes can cause shortness of breath in drivers as well as headaches

V. Deserts - hard on car - be prepared for sand or dust storms; flash floods
CHAPTER II - DRIVING ON EXPRESSWAYS

I. Characteristics

A) Expressways

1) most common and efficient way to travel- freeways, tollroads, interstate highways
2) a limited access or controlled access highway (on and off in specific areas)
3) designed to protect you while driving at high speeds

B) 5 reasons why fewer collisions

1) cross traffic is eliminated - no intersections
2) have median strip or barrier between lanes of traffic in opposite directions.
3) pedestrians, animals, slow-moving vehicles are not permitted
4) design helps prevent vehicles from hitting fixed objects
5) designed to help drivers anticipate conditions ahead

C) Expressway Interchanges

1) vehicles can cross over or under expressway
2) vehicles can enter and leave without interfering with the flow of traffic

D) 4 types of interchanges

1) cloverleaf - eliminates left turn and cross traffic conflicts
2) diamond - street that has little traffic crosses a busy expressway
3) trumpet - side road forms a T-intersection with all expressway; traffic able to enter and leave expressway without crossing traffic
4) directional- complicated intersections with high volume of traffic channeled in several different directions

E) Safe driving

1) collisions on expressways are often more serious.
2) higher speeds on expressways place greater demands on both the driver and vehicle
3) stay alert and keep vehicle good condition
4) don't drive too slow - block smooth flow of traffic
5) don't drive too fast - constantly passing other vehicles not safe
F) Strategies
1) prepare yourself and car - long trip; plan for food, fuel, and rest
2) build experience gradually - avoid driving in heavy traffic
3) concentrate on driving task - conflicts can develop more rapidly
4) cooperate with other drivers - resist urge to challenge other drivers; be mature and responsible

II. Entering the Expressways
A) 3 parts to entrance ramps
1) entrance ramp - gives time to evaluate traffic as prepare to merge onto expressway
2) acceleration lane - usually long enough to accelerate to speed of traffic
3) merging area - enter expressway at same rate as traffic in 1st lane

B) Steps to enter expressway
1) make sure entrance is one you want - make sure it is an entrance ramp - Look for signs - wrong way, do not enter
2) once on ramp - be alert - quick glances thru your left outside mirror and over left shoulder to find gap in traffic that car will fit into safely
3) once in acceleration lane - adjust speed and continue to look over shoulder and in mirrors to find gap
4) merge smoothly - adjust to flow of traffic
5) keep a space cushion around you

C) Possible problems
1) know which ramp want to use - if make a mistake and enter a ramp don't want - continue onto expressway
2) never back up on entrance ramp or expressway
3) gaps can be difficult to find in heavy traffic - slow or stop before entering expressway
4) flash your brake lights to warn others behind you
5) if short acceleration lane - need longer gap to enter traffic and accelerate
6) ENTRANCE RAMP ON LEFT - acceleration lane merges into far left lane on expressway- this lane is used for higher speeds of traffic, potential conflict is greater than entering from the right

III. Applying IPDE Process

A) IPDE

1) stay alert and be prepared to adjust to changing traffic
2) higher speeds, multiple lanes to watch, and heavier volume of traffic make the ("I") identify step more difficult
3) stopping distance increases for all vehicles

B) Lane choices

1) safer to drive in right lane
2) left lane - passing
3) center lane - to avoid conflicts from merging traffic in rush hours
4) make every effort to avoid driving between 2 large vehicles
5) trucks, buses, and vehicles towing trailers are required to use right lane

C) Signs, Signals, Markings

1) signs may be overhead to help you plan ahead
2) an overhead sign with a yellow panel indicates the exit lane
3) overhead signals tell you if lanes are open or closed to you
   a) a yellow X gives early warning that lane will be closed farther ahead
   b) a red X appears farther down lane to alert you of closed lane
4) right edge of expressway is marked with a white line
5) left edge of expressway is marked with a yellow line

D) Speed limits

1) 55 on most expressways
2) 65 on rural interstates
3) minimum speed limit - to keep traffic from moving too slowly
4) common speed - speed used by most drivers; blend in
better with traffic drive at posted speed limit; resist temptations to go faster
5) wolf pack - group or bunch of vehicles - reduce speed to avoid
6) following distance - 2 seconds following distance under normal conditions increase to 3 or 4 seconds during limited visibility (fog, rain, snow)

E) Lane Changes
1) one lane at a time even if you need to be in far lane to left or right
2) drive only in lanes open to traffic
3) illegal and hazardous to drive on shoulder or median when traffic is backed up- Put yourself and others at risk; emergency vehicles can not get thru
4) passing on an expressway is safer than on 2 lane highway - little threat-of head on collision
5) passing occurs from both left and right - if in center lane and being passed - move to right lane
6) signal and check traffic behind you

IV. Exiting Expressway
A) Steps to exit
1) move to lane that leads to deceleration lane 1/2 mile before exit - allows you to slow down with out blocking vehicles behind
2) move into deceleration lane - do not slow down
3) cancel signal- slow down
4) identify exit ramp speed
5) if miss exit - go to next one - never stop and back up

B) Possible problems
1) crossing paths - sometimes same lane used to enter and exit - yield
2) ramp overflow - traffic can back up from exit ramp – don't join overflow and risk rear end collision - instead go past and use next exit
3) short deceleration - must reduce speed quickly
V. Situations

A) Driver conditions
1) highway hypnosis - lulled into an in-attentive drowsy state - occurs mile after mile of steady speeds, no hills, curves, or interchanges - if happens sit up straighter, open window, pull off into rest area
2) velocitation - thinking car is going slower than really is – very hazardous especially on exit ramps - occurs after hours of driving

B) Road conditions
1) city expressways have more ramps than rural
2) more ramps increase merging traffic conflicts

C) Disabled vehicle
1) signal and pull off as far as possible onto shoulder or median
2) turn emergency flashers on
3) get everyone out of car
4) raise the hood and tie white cloth to antenna
5) emergency flares to warn others - 500 ft behind vehicle
6) ask someone to phone for help -NEVER GET INTO A STRANGER'S CAR

D) 3 key factors to safe driving on expressways
1) cooperation with other drivers
2) concentration on driving task
3) continual use of IPDE Process
CHAPTER 12-ADVERSE CONDITIONS

I. Reduced Visibility

A) **Windows** - moisture can build up inside your windows when it rains or humidity is high
   - use front window defroster, rear window defroster, air conditioner, or open windows to clear them
   - smoking leaves a thin film on windows

B) **Sun Glare** - bright sunlight early morning or late afternoon
   - use sunglasses along with sun visor to cut glare

C) **Dawn and Dusk** - low level of sunlight just before sunrise at dawn or sun sets at dusk can mislead drivers
   - turn on low beam lights

D) **Night** - low levels of light at night severely limit your ability to use IPDE process
   - headlights use high beam lights to see further ahead only when no vehicles are in front of you
   - low beam lights in bad weather
   - snow, heavy rain, or fog reflect light back into your eyes
   - use low beams

E) **Meeting Others** - if on coming driver fails to use low beam lights - slow down and glance to right edge of road as a guide for your lane position
   - to avoid being blinded by on coming head lights
   - look ahead with frequent quick glances to check traffic
   - over driving head lights - driving at a speed that your stopping distance longer than the dance lighted by headlights
   - your stopping distance under normal conditions is within range of head lights

F) **Fog** - high beams reflect light back at you
   - use low beam head lights
   - be alert and slow down, pull over if necessary
   - if stop, use emergency flashers to warn other drivers that you are not moving

G) **Rain** - heavy rain reduces ability to be seen
   - turn on wipers, defroster/defogger to keep windows clear
   - use low beam lights
   - heavy rain can blind you
   - pull over; use emergency flashers
F) **Snow**  - wind blown snow can block vision and cover road markings (white out)
   - snow can pile up on rear window, ice forms on wipers; if so pull over and clean off (can happen to head lights and taillights)
   - use low beam lights
   - reduce speed to maintain control of vehicle

* When visibility is reduced for any reason - need more time to use IPDE Process
* More time to gather visual information
* More time to respond to hazards
** 1st step. is to slow down**

II. Reduced Traction

A) **Wet Roadways**  - rain slick roads affect more drivers than any other reduced traction condition
   - when rain starts falling - mixes with road dust and oil making it slippery
   - better traction by driving in the tire tracks of vehicle ahead

**Hydroplaning**  - tire rides surface of water rather than grips the road; caused by combination of standing water, speed, and tire condition

B) **Deep water**  - avoid it whenever possible
   - if water is up to bottom of car - do not enter
   - if have to enter; avoid using soft shoulder
   - drive in low gear
   - drive in high center of road
   - light pressure on accelerator and brake gently with left foot to build friction on brake pads to help keep them dry and working - after leaving water
   - tap brake gently to see if they are wet

C) **Snow**  - fresh snow and low temps; traction is fairly good
   - packed snow - traction is reduced
   - worst traction conditions - near freezing temps (32) when snow starts to melt
   - driving in snow - gentleness is the key to maintaining control (gentle acceleration, gentle braking, gentle steering - best results)
Ch 12  p3

- improve traction by use of snow tires and/or tire chains

**D) Ice** - temps can change amount of traction on ice
- very cold temp (0 or below) traction is somewhat better than at slightly warmer temps (32)
- windows and wipers can also ice up
- if cannot keep windows ice free with defroster and wipers; pullover and clean them; best not to drive at all
- bridges - surface tend to freeze before surfaces of roads leading to them because cold air circulates above and below roadway on bridges and overpasses
- shade - ice forms in cool areas

* when traction is reduced- your stopping distance increases (wet leaves, loose gravel)

**E) Skidding** - different combinations of traction and speed can produce this (snow, ice, smooth and dry surfaces too)
- power skid - tires spin when accelerating - ease off
- braking skid - locking your wheels by braking too hard; locked wheels provide no steering control; ease off brake
- sideways skid - rear end of car skids right or left; ease off accelerator or brake; steer in direction of skid; need to keep wheels rolling
- skidding in a curve - enter curve too fast; tires might not have enough traction to hold you in curve; car tends to go straight

* Antilock braking system (ABS) developed to help drivers use controlled braking while maintaining control of vehicle

**III. Other Things**

**A) Wind** - strong wind can reduce your control of vehicle
- head wind - accelerate more
- tail wind - ease off accelerator
- from the side will cause your vehicle to drift that way
- steering is difficult

**B) Hot Weather** - gasoline is a liquid when pumped into car; hot weather it might boil and turn to a vapor - called vapor lock
- engine stops running; need to let it cool off
- temperature light will warn you when your engine is too
hot- engine producing more heat than cooling system can handle
- turn off air conditioner (if on) and turn on heater which will help cool your engine by pulling hot air away

**B) Cold Weather** - exhaust leak could cause carbon monoxide seep into car
- do not set parking brake after driving thru icy or slushy conditions - might freeze
- winter driving - using the IPDE Process in winter conditions will take more effort – do not use cruise control in these conditions – might freeze

**C) Tips**
1) look and listen for traffic reports
2) keep windows clear
3) respect lower speed
4) keep a safe following distance
5) try to keep moving in snow; likely to get stuck if you stop
6) lower gear on slippery roads
7) avoid cruise control
I. Good Maintenance

A) Tire Failure – bad driving, poor maintenance, abrupt braking, sharp steering, bumps, potholes, poor roadway surfaces

1) Blowout - sudden lose of air pressure
   a) front tire - car pulls strongly in the direction of deflated tire
   b) left front tire - especially dangerous - car might pull left toward lane of oncoming traffic
   c) fishtailing - rear of car swerves first in one direction than the other.
   Handle like a skid - steer in direction want to go

2) What to do?
   a) grip steering wheel firmly
   b) do not brake. can cause car to swerve; gain control
   c) move off the road slowly; turn on hazards
   d) Change tire –
      - park on level surface; set brake
      - block wheel diagonally opposite flat tire; keeps car from rolling
      - get passengers out
      - use a jack (hand operated device to lift and hold car off ground); remove lug nuts - devices that hold the wheel on the car
      - remove wheel and put on spare and replace lug nuts
      - lower tire and tighten lug nuts
      - get tire repaired

B) Brake Failure – total failure rarely happens

1) if brakes fail- pump brake pedal fast and hard; will know after 3 or 4 pumps if brakes are going to hold
2) downshift to lowest gear possible; use parking brake
3) when brakes fail must push harder
4) brake fade - occurs when brakes overheat; after a long continuous, hard brake; lose some of effectiveness
   - stop car and let brakes cool
C) **Accelerator Malfunction**
1) lose control of engine's speed
2) accelerator sticks - engine does not return to idling speed when ease off accelerator
   - apply brakes; chose safe escape path and off the road
   - shift to neutral
3) may try to free accelerator while driving - put toe under pedal and lift
4) broken spring - N, hazards, brake and steer to side of road

D) **Engine Failure**
1) when occurs - move out of traffic to safe place
2) shift to neutral - to keep moving when engine first sputters or Stops; restart engine
3) more effort is needed to steer and brake when engine is not running
4) flooded engine - too much fuel; not enough air reach engine
5) overheated engine – turn off air, turn on heater

E) **Steering Failure**
1) complete failure of steering system seldom occurs - when it does extremely serious
2) total steering failure - communicate emergency to other drivers
3) failure in power steering - occurs when engine dies, low power steering fluid in system, drive belt slips or breaks
4) steering mechanism will still work but must exert much more Effort; parking brake and shift to Low

F) **Loss of Forward Vision**
1) must act promptly to regain
2) usually occurs when hood is not securely latched
3) if flies up while driving - look thru crack below open hood
4) or quickly roll down window and look in direction you are driving
5) turn on emergency flashers, slow down and move off road
6) headlights on and slow down
7) headlights fail – slow down and stop

G) **Car on Fire**
1) can be dangerous and heard to extinguish (fuel, oil, grease, electrical)
2) if engine happens to catch on fire - quickly steer car out of
traffic and off road to safe place
3) get passengers out and move 100 ft away
4) passenger compartment - usually caused by carelessly
   handled match, lighter, or burning tobacco product
5) pull off road

H) Stalled Car on RR Tracks
   1) try to restart if no train
   2) can't restart, get passengers out immediately and move in
      the direction of the approaching train

II. Driver Errors
   A) Front Tire Leaves the Road
      1) hold wheel firmly for control
      2) let up on accelerator
      3) brake gently (5 or 10 mph)
      4) straddle edge
      5) check traffic
      6) steer sharply toward road
      7) counter steer sharply once on road

   B) Swerving
      1) last second emergency means of avoiding a collision
      2) do only when braking will not prevent a collision
      3) over 30 mph - swerve to a new path in less distance than the
         distance needed to stop.
      4) identify all possible escape paths - choose best one
      5) distance and speed will determine how sharply must swerve
         and amount of time needed

III. Collision
   A) What to do?
      1) keep control of car
      2) steer for something soft if leave the road
      3) steer for a sideswipe instead of head-on-collision
      4) avoid things that will stop car suddenly (trees, parked cars)

   B) Head on Collision
      1) maintain control of car
      2) slow down as much as possible
      3) do not lock brakes
      4) slowing down lessens the force of impact and gives other
driver space and time to recover
5) blow horn/flash lights
6) steer in direction of shoulder

C) Side Impact
1) brake or accelerate quickly to avoid or lessen the effect
2) blow horn
3) change lanes or swerve away from impact

D) Rear End
1) flash brakes
2) release brake and move forward to lessen impact

E) If You Have A Collision
1) stop immediately
2) aid injured - do not move an injured person unless danger of fire or another collision.
3) prevent further damage - warn others
4) send for police
5) exchange information

***additional steps
6) record witnesses names and addresses
7) give only the facts
8) see a doctor
9) file necessary reports

IV. Roadway Hazards
A) potholes - avoid if possible
B) deep water - turn around if possible
1) unfasten seat belt
2) open window farthest out of water
3) exit promptly through window
4) windows do not open - exit thru door

C) sharp curve
1) brake as soon as realize going too fast
2) do not lock wheels
3) halfway thru accelerate gently and stabilize car

D) objects in the road
1) do not run over
2) drive around, brake, straddle, swerve
3) drive over only as last resort