

Curriculum Scope and Sequence Modules for Driver Education in Virginia

Module Five

Information Processing: Moderate Risk Environment

- Processing Information
- Intersections, Curves, and Hills
- Passing

Virginia Department of Education
in cooperation with the
Virginia Department of Motor Vehicles

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Standards of Learning Addressed In This Module

- DE.4 The student will demonstrate the ability to manage visibility, time, and space to avoid conflicts and reduce driving risks. Key concepts/skills include
- synthesizing information visually from the driving environment, using a space-management process;
 - applying following-interval concepts;
 - selecting gap and judging distance;
 - estimating passing-time and space needs.
- DE.5 The student will demonstrate appropriate adjustments when approaching controlled and uncontrolled intersections, curves, railroad crossings, and hills with line-of-sight or path-of-travel limitations. Key concepts/skills include
- roadway signs, signals, and markings;
 - right-of-way rules;
 - slope/grade of terrain;
 - vehicle position.
- DE.6 The student will identify the characteristics of an expressway and apply risk-reducing expressway driving strategies. Key concepts/skills include
- entering, merging, integrating into, and exiting from traffic flow;
 - managing interchanges;
 - selecting vehicle position and changing lanes.
- DE.7 The student will demonstrate the ability to communicate presence and intentions with other highway transportation users. Key concepts/skills include
- vehicle position and driver action;
 - vehicle communication devices.

Module Five Introduction

Module Five—Information Processing: Moderate Risk Driving Environment

The student will define driver information processing; apply information processing principles; recognize moderate risk driving environments; utilize space management concepts to determine roadway position, establish vehicle speed, and communicate with other roadway users; synthesize information from the driving environment; demonstrate an ability to select the appropriate intersection entry, and to manage curves, hills, and passing maneuvers for a given situation.

Topic 1—Processing Information

The student will define driver information processing and apply processing principles to determine roadway position, establish vehicle speed, and communicate with other roadway users.

Topic 2—Intersections, Curves, and Hills

The student will utilize basic space management concepts to adjust speed or the path of travel when approaching controlled and uncontrolled intersections, and curves and hills with line of sight or path of travel limitations.

Topic 3—Passing

The student will demonstrate an ability to select and safely execute speed and position adjustments for passing another vehicle.

Minimum Time Frames	
Module Five—2 Hours	
Classroom Instruction	Recommended Minutes
Topic 1—Processing Information	40
Topic 2—Intersections, Curves, and Hills	25
Topic 3—Passing	20
Supplemental - Parent/Homework Materials	60
In-Car Instruction (Option 1)	60
Behind-the-Wheel Instruction/Break	60
Observation	60
Laboratory Multiphase (Option 2)	60
Behind-the-Wheel Instruction/Break	60
Observation	120
Simulation	120
Parental Involvement	60

Module Five
Topic 1—Processing Information

40 Minutes Instructional Time
Prerequisites: Successful Completion of Modules 1 to 4

Instructor Activities	Time Frame
<p>Review Module Five, Topic 1 Lesson Plans Prior to Lesson</p> <p>Show Transparencies</p> <p>T-5.1 "Basic Requirements for Driving" (2-3 minutes)</p> <p>T-5.2 "Space Management System Components" (2-3 minutes)</p> <p>T-5.3 "Visual Fields" (2-5 minutes)</p> <p>T-5.4 "Search Practices" (2-5 minutes)</p> <p>T-5.5 "Communicating" (1-2 minutes)</p> <p>T-5.6 "Managing Visual Searches" (1-2 minutes)</p> <p>T-5.7 "Managing Visual Searches" (2-3 minutes)</p> <p>T-5.8 "Determining Following Intervals" (2-5 minutes)</p> <p>T-5.9 "Visual Search Categories" (2-5 minutes)</p> <p>T-5.10 "Highway Conditions" (1-2 minutes)</p> <p>T-5.11 "Traffic Controls" (1-2 minutes)</p> <p>T-5.12 "Motor Vehicles" (2-3 minutes)</p> <p>T-5.13 "Non-Motorized Users" (2-5 minutes)</p> <p>T-5.14 "Controlling Space to the Front" (1-2 minutes)</p> <p>T-5.15 "Make Space with Lane Position" (1-2 minutes)</p> <p>T-5.16 "Staggered Stops" (2-3 minutes)</p> <p>Distribute and Review Student Worksheets</p> <p>W-5.1 "Using Information to Manage Space" (5-10 minutes)</p> <p>Review Module Assessments Prior to Lesson</p> <p>W-5.1 "Using Information to Manage Space"</p> <p>MA-5.1 "Module Five Assessment"</p> <p>Additional Resources (Media and/or Text)</p> <p>Video: "Using Your Eyes Effectively" (AAA)</p> <p>Video: "Teaching Your Teens to Drive" (AAA)</p> <p>Video: "Following Time and Space" (IDS)</p> <p>"Drive Right," Ch. 1, 4, 10</p> <p>"How to Drive," Ch. 8, 9, 10</p> <p>"Handbook Plus," Ch. 10, 11</p> <p>"License To Drive," Ch. 2, 10</p> <p>"Responsible Driving," Ch. 8, 10, 12</p>	<p>35-40 minutes</p> <p>(2-3 minutes)</p> <p>(2-3 minutes)</p> <p>(2-5 minutes)</p> <p>(2-5 minutes)</p> <p>(1-2 minutes)</p> <p>(1-2 minutes)</p> <p>(2-3 minutes)</p> <p>(2-5 minutes)</p> <p>(2-5 minutes)</p> <p>(1-2 minutes)</p> <p>(1-2 minutes)</p> <p>(2-3 minutes)</p> <p>(2-5 minutes)</p> <p>(1-2 minutes)</p> <p>(1-2 minutes)</p> <p>(2-3 minutes)</p> <p>5-10 minutes</p>

Processing Information

Knowledge and Skills

The student is expected to relate driver information processing to space management skills.

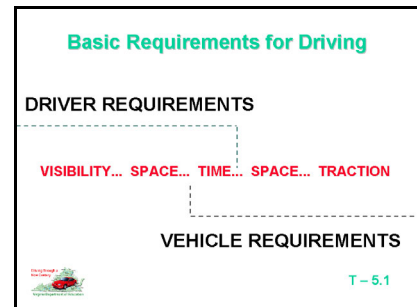
Activities & Resources

Hand out Worksheet W-5.1 "Using Information to Manage Space" as a classroom activity or to assess learning.



Show Transparency T-5.1 "Basic Requirements for Driving" to discuss of the requirements for safe traffic maneuvers. Relate time, as the common element of both driver and vehicle needs. Analyze how information processing takes time, and how more problems require greater time periods to respond.

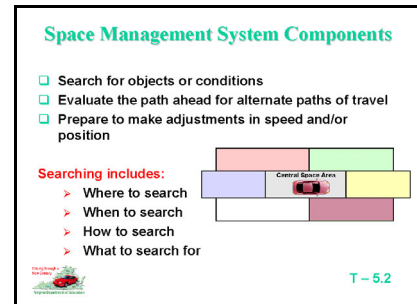
- Driver requirements
- Vehicle requirements



T-5.1 Basic Requirements for Driving

Show Transparency T-5.2 "Space Management System Components," and review the necessary components of any space management system.

- Searching for objects/conditions
- Evaluating the path of travel
- Executing in time—changing speed and direction, and communicating



T-5.2 Space Management System Components

Moderate Risk Environment

A moderate risk environment is limited to speeds under 60 mph, with controlled intersections in urban, suburban, and rural settings. Traffic flow should be moderate, allowing time for the novice driver to identify risks through changes to line of sight or path of travel. The instructor should be able to control the level of risk regarding the traffic flow around the vehicle by changing speed or position. Two-way, one-way, and multi-lane roadways are recommended for use when teaching about moderate risk environments.

Space Management System

Up to this point, searching skills have focused on assessing the position of the vehicle in relation to fixed or moving objects. Further attention has been directed to drivers' visual search pattern limitations as a result of learned behaviors and misunderstandings of either vehicle or operator capabilities. In this unit, the instructor will emphasize where to search, how to search, and what to search for.

Emphasis should be placed on the importance of using central and fringe vision while adjusting to objects in or near the path of travel. Communication among drivers and how to group elements by category to gather information more efficiently when driving is also a focus in this section. To be effective, a space management system must be easy to use and apply to all highway situations.

The purpose of this lesson is to help students understand ways they can control risk to the front.

- Adjusting lane position
- Timing their arrival at a given point
- Ensuring correct placement of the vehicle when stopping
- Controlling speed

Further, by identifying an alternate route of travel 12 to 15 seconds in advance, limitations to their projected path of travel need not cause an emergency.

Driver Requirements: Drivers need visibility, space, and time to perform all maneuvers in traffic whether crossing, turning, passing, or adjusting speed and/or position.

Vehicle Requirements: When performing any maneuver with the vehicle, the vehicle needs the time to do it, the space to perform it, and adequate traction to control the maneuver.

Search for objects or conditions: For instance, other roadway users or conditions in or adjacent to the projected path of travel that could limit the line of sight or the path the driver intends to travel.

Evaluate the projected path ahead for alternate paths of travel: Checks to sides and rear of the vehicle for speed and lane position options are essential.

Prepare to make appropriate adjustment(s): The driver can change speed, change direction, or communicate need for adjustment.

Processing Information

Knowledge and Skills

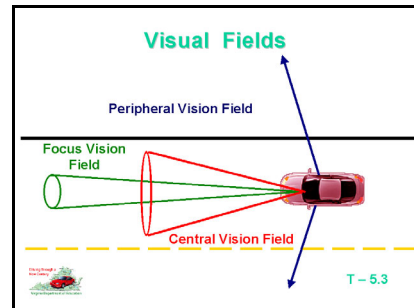
The student is expected to:

- apply visual search process to the driving task.
- relate managing visibility, time, and space to the visual search process.

Activities & Resources

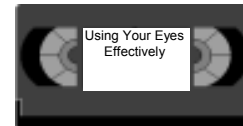
Show Transparency T-5.3 “Visual Fields” to discuss searching near and far to plan alternate paths of travel based on the field of vision.

- Focus vision
- Central vision
- Peripheral vision



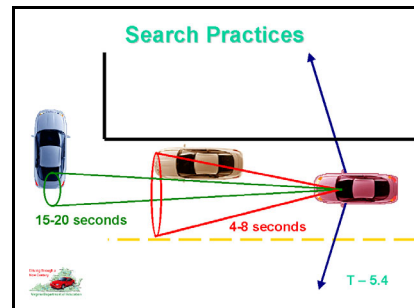
T-5.3 Visual Fields

Use video “Using Your Eyes Effectively” (AAA) to support these concepts.



Show Transparency T-5.4 “Search Practices” and discuss searching near and far to plan alternate paths of travel.

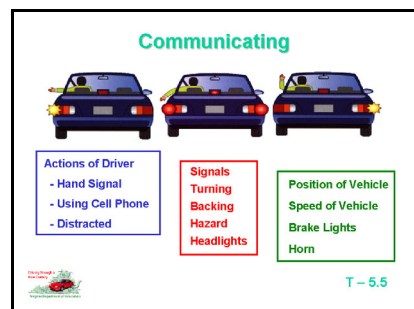
- 15-20 seconds
- 4-8 seconds



T-5.4 Search Practices

Show Transparency T-5.5 “Communicating” and ask students to give reasons why certain methods of communication might be used or be more effective.

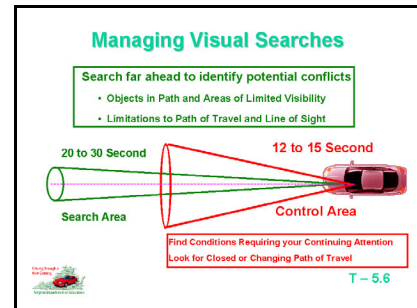
- Signals
- Brake lights
- Headlights
- Speed of vehicle
- Vehicle position
- Horn
- Actions of driver
- Hand signals



T-5.5 Communicating

Show Transparency T-5.6 “Managing Visual Searches” to discuss various search areas necessary for a space management system. Explain why a 4-second following interval is preferred.

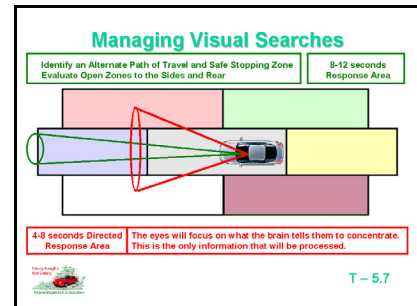
- 20-30 seconds
- 12-15 seconds



T-5.6
Managing Visual Searches

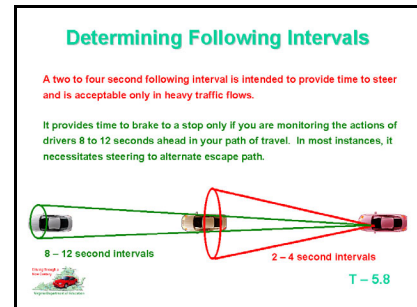
Show Transparencies T-5.7 “Managing Visual Searches” and T-5.8 “Determining Following Intervals” to discuss the various search areas necessary for a space management system. Also discuss the following:

- 4-8 second directed response area
- 8-12 second response area



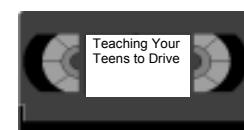
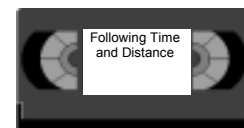
T-5.7
Managing Visual Searches

Show Transparencies T-5.8 “Determining Following Intervals” to discuss following intervals recommended as part of the space management system. Explain when a 2-4 second following interval is preferred.



T-5.8
Determining Following Intervals

Show video, “Following Time and Distance” (IDS) to illustrate the need for a 4-second following interval. Another video, “Teaching Your Teens to Drive” (AAA) may be used to illustrate searching principles



Support Information**Visual Search Process**

The first space management skill a driver must develop is an effective visual search process. The driver needs to know where, when, how, and what to search for.

Where to Search

This involves moving the eyes from near, as close as the dashboard and mirrors, to 20 to 30 seconds ahead of the vehicle to identify objects or conditions that could increase the level of risk. (If environmental conditions limit one's line of sight to less than 20 seconds, adjust speed as appropriate and look to the furthest point possible.) If the planned path of travel should become closed or threatened, determine an appropriate speed and position and identify an alternate path 12 to 15 seconds ahead. Searching also involves monitoring the immediate path of travel, four to eight seconds ahead, the instrument panel, and regular mirror usage to monitor traffic to the sides and rear.

When to Search

When to search requires consciously looking to determine conditions all around the vehicle before initiating any maneuver. It involves timing and systematic direction of the search pattern.

How to Search

Involves looking in a systematic pattern of far ahead to near, as well as to the left, right and rear of the vehicle, and making efficient use of both central and fringe vision.

Searching 20-30 Seconds Ahead

Rockwell's research demonstrated that the typical driver search pattern is only four to five seconds ahead of their vehicle. While adequate to avoid stumbling when walking, this short visual search leads to excessive braking, and adjustments of speed and position when driving. Development of an adequate visual search process is difficult to master. However, it is the only way an individual can effectively assess a safe travel path, and identify possible sightline changes well in advance to determine appropriate speed or position adjustments. By searching ahead 20 to 30 seconds to identify an intended path of travel and possible alternative paths 12 to 15 seconds in advance, the driver has more time and space to exercise options. By looking as far ahead as possible and adjusting speed to the visual field, the driver has more time to identify potential problems. Early identification and assessment of objects and/or conditions provides time to adjust speed and/or position with awareness of adjacent, oncoming, and/or following vehicles. Depending on the driver's level of attention to driving and where that attention is directed at a specific point in time, four to eight seconds should provide sufficient time to bring most passenger cars to a stop on a dry paved road or improved shoulder. It is essential to remember, however, that a loaded tractor-trailer rig may require 10 to 15 seconds to stop under the same conditions.

Searching 4-8 Seconds Ahead

Searching 20 to 30 seconds ahead and identifying an alternate path 12 to 15 seconds ahead into which the vehicle can be steered, will help drivers avoid most threatening situations. The driver must also diligently monitor the immediate path, 4 to 8 seconds ahead. The path 4 seconds ahead represents the following interval, and the 8 second area provides a safe stopping zone under most conditions. In heavy traffic, the old 2 second following interval provided time to steer, assuming the driver was able to monitor the actions of the vehicle five units ahead, but rarely provided sufficient time to safely brake to a stop.

What to Search for Requires Forethought and Planning

To be effective when searching the highway and traffic scene, the driver must be looking for specific kinds of information. Simply stated, "The eyes don't tell the brain what it sees—the brain tells the eyes what to look for." If the brain is not programmed to look for specific information, the eyes simply scan the scene and primarily respond to the more colorful and/or moving objects. Since the brain is limited in the amount of information it can process at any one time, a more effective method is to search for and classify information by category. Traffic elements can be classified into one of four groups:

1. **Roadway Features**—road and lane width, lane markings, roadway surface, shoulder condition and slope, curb type and height, hills and curves, intersections and interchanges, areas of limited visibility, location and type of structures adjacent to the roadway
2. **Signs, Signals, and Markings**—warning, regulatory, directional, and informational
3. **Motorized Vehicles**—cars, trucks, tractor-trailer rigs, buses, motor homes, motorcycles, construction/ farm tractors, and other slow moving equipment and horse drawn equipment
4. **Non-Motorized Highway Users**—pedestrians, bicyclists, and animals

Communication

To be effective, communication must be clear and take place early enough for others to receive and act upon the information that was sent. Drivers can communicate with other highway users in several ways: through the use of turn and emergency flasher signal lights, brake lights and headlights; by lane selection and position of the vehicle within a lane; the use of hand signals, the horn and speed of the vehicle; the actions of the driver, such as the use of a cell phone. Depending on circumstances one communication method may be more effective than another, and at other times more than one method may be needed.

Few drivers realize that signal lights flash only one to three times per second and, as a result, the signal should be activated several seconds in advance of any planned move so that other highway users have enough time to see and interpret the drivers' intentions. This suggested time/distance is typically well beyond the minimum distances required by the motor vehicle code.

Communicating Intent

- Signals - turning, backing, approaching hazards
- Headlights - visibility, approaching hazards
- Brake lights - slowing, stopping, turning
- Horn - warning, increase eye contact
- Hand signals - never intentionally offend anyone
- Position of vehicle - space management, turning intent
- Speed - danger, hazards
- Driver actions - inattentive, confused, lost, talking

Managing Visibility, Time and Space

- 23-30 seconds ahead (awareness zone)—Identify potential problems.
- 12-15 seconds ahead—Identify objects that require a change in speed or direction.
- 8-12 seconds ahead (stopping zone)—Identify alternate paths of travel.
- 4-8 seconds ahead (stopping zone and following interval)
- 2-second following interval—Designed for use if there was an alternate path into which one could steer. Stopping in this time frame is usually not possible unless the driver is searching well ahead for clues.

A safe following interval is defined as the distance that allows a person to stop before striking another vehicle. With this in mind it is critical that instructors not use “one car length for every ten miles per hour” or the “two second” minimum following distance. Speeds above 30 mph require more than two seconds of space to stop the vehicle. Add weather or vehicle weight as other factors, and some vehicles would take longer than two seconds at speeds in excess of 20 mph to stop.

Processing Information

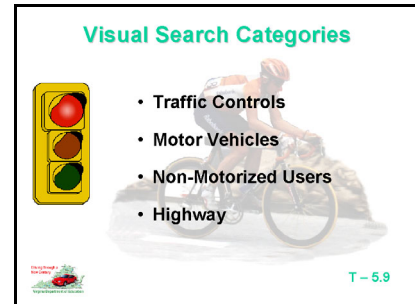
Knowledge and Skills

The student is expected to know what to search for in the driving environment.

Activities & Resources

Show Transparency, T-5.9 “Visual Search Categories” to discuss the types of elements that drivers search for on the highway.

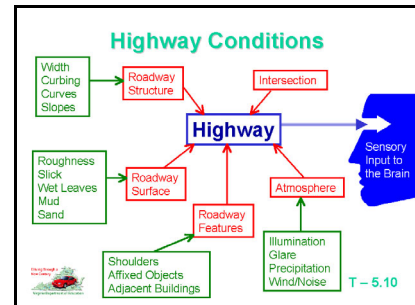
- Highway
- Traffic controls
- Vehicles
- Non-motorized



T-5.9
Visual Search Categories

Show Transparency T-5.10 “Highway Conditions” to discuss conditions to search for and how the number of conditions affects the information processing time.

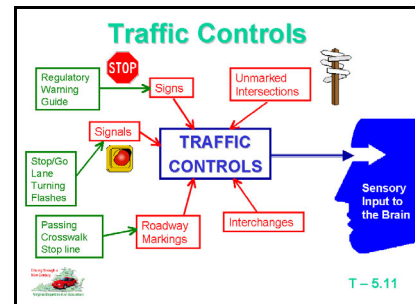
- Structure
- Intersections
- Atmosphere (weather)
- Surface
- Sensory input
- Features



T-5.10
Highway Conditions

Show Transparency T-5.11 “Traffic Controls” to discuss traffic control elements to search for, and how the number of controls impacts the information processing time.

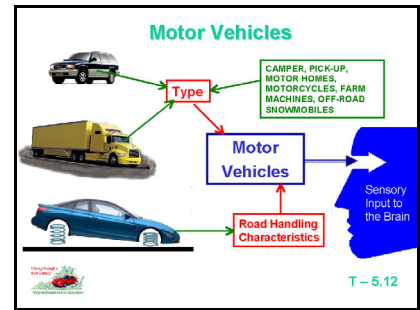
- Signs
- Signals
- Roadway markings
- Marked/unmarked intersections
- Interchanges
- Sensory input



T-5.11
Traffic Controls

Show Transparency T-5.12 “Motor Vehicles” to discuss what to search for and how different vehicles affect the information processing time.

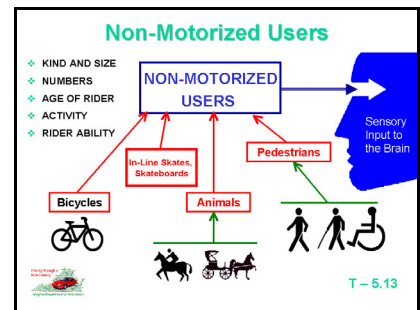
- Type of vehicle
- Handling characteristics
- Sensory input



T-5.12
Motor Vehicles

Show Transparency T-5.13 “Non-Motorized Users” and discuss how non-motorized users affect information processing time.

- Bicyclists
- Pedestrians
- Skateboards/inline skates
- Sensory inputs



T-5.13
Non-Motorized Users

Support Information

Highway Conditions

- Structure
- Surface
- Features
- Atmosphere
- Intersections
- Effects on sensory input

Traffic controls

- Signs
- Signals
- Marking
- Intersections/Interchanges
- Effects on sensory input

Motor Vehicles

- Campers
- Pickups
- Motor homes
- Motorcycles
- Farm machines
- Off-road snowmobiles

Non-Motorized Users

- Pedestrians
- Animals
- Bicycles
- In-line skates
- Skateboards

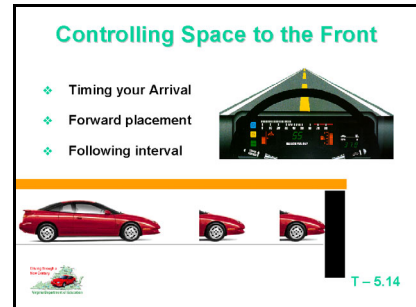
Knowledge and Skills

The student is expected to list the methods to control space around the vehicle.

Activities & Resources

Use Transparency T-5.14 "Controlling Space to the Front" to discuss the three ways to control space to the front.

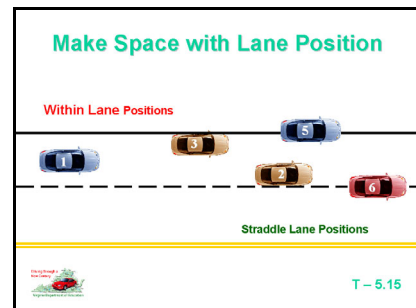
- Timing your arrival
- Forward placement at intersection
- Following interval



T-5.14 Controlling Space to the Front

Use Transparency T-5.15 "Make Space with Lane Position" to discuss lane selection and positioning.

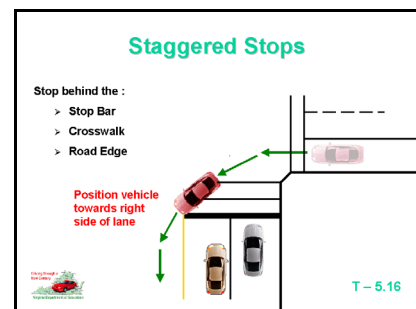
- Within lane positions
- Straddling lane position



T-5.15 Make Space with Lane Position

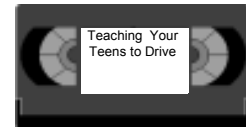
Use Transparency T-5.16 "Staggered Stops" to discuss lane selection and positioning in the left lane at an intersection.

- Stop position
- Position in the right side of the lane



T-5.16 Staggered Stops

Show Lessons 4 and 11 of video “Teaching Your Teens to Drive” (AAA) to support this section.



Support Information

Lane Selection

There are five choices for lane position without making a lane change. Most cars are less than six feet wide while highway lanes are 10 to 12 feet wide. This leaves four to six feet of space to the side without having to change lanes.

Lane Positions

- Lane positions 1, 2, and 3 are positions within a given travel lane.
- Lane positions 4 and 5 involve moving the vehicle so that the left or right wheels are straddling the lane line markers.
- Other options involve changing lanes or moving to the shoulder of the road.

Controlling Space to the Front

There are three ways to control space to the front. The driver can time arrival at a given point by adjusting speed, placement of the vehicle when stopping, and controlling speed while in motion.

The purpose of an aggressive visual search is to better enable the driver to identify safe projected and alternate paths of travel. The vehicle must be positioned properly so that the driver has an adequate sight path. Maintaining an adequate sight path requires a following interval of at least four seconds. (The two-second following distance rule was intended to provide time to steer, not stop.) At highway speeds, even a four-second interval is inadequate when braking to a stop to avoid striking a fixed object if the vehicle following behind is a tractor-trailer rig. In such instances a stopping zone of 10 to 15 seconds may be required. Therefore, one of the goals of the decision making process is to always attempt to identify an alternate path, an open area to at least one side, 12 to 15 seconds ahead into which the vehicle can be steered and safely brake to a stop. Under conditions where there is no alternate path into which the vehicle can be steered, the only option is to reduce speed to increase following interval. Anytime a driver moves into an area of reduced space with a vehicle tailgating, it is essential that the driver start reducing speed earlier. Slowing earlier and tapping the brakes to alert the following driver provides greater control over the vehicle to the rear.

To improve following interval when traveling under heavy but free-flowing traffic conditions, take advantage of the tendency of drivers to travel in platoons or packs. Rather than driving in a pack, position the vehicle in the first or second lane from the right, behind the last vehicle in the pack, and establish a four-second following interval. Now reduce speed by two to three miles per hour. Within a matter of seconds, a 12-15 second gap will clear. True, faster moving vehicles in the next platoon will overtake and pass, but there will be many fewer vehicles to deal with at any one time.

In the past, on multiple lane higher speed highways, faster moving traffic tended to travel in lane one, the lane furthest to the left. However, over the past few years there appears to have been a move away from such lane discipline, and weaving has increased between all lanes. This behavior obviously calls for increased vigilance in monitoring traffic to the sides and rear, regardless of the lane selected.

Making Safe Lane Position Choices

Using the SEEIT system approach, lane adjustments are based on restrictions to the line of sight or to the intended path of travel. Assigning lane position numbers or colors to the basic positions within a lane allows the new driver to move to the position quickly and can be communicated more easily than asking the student to “move over a little.” Each lane position (LP) has a reference guide to make it easily used. LP 1 is centered 2-3 feet from left and right sides of lane, while LP 2 is within 6 inches of the left line, and LP 3 is within 6 inches of the right line. Straddle positions are to the left (LP6) or right lines (LP5) or edges of roadway. Other adjustments are lane changes and should be considered to the left or to the right.

When Space to the Front is Clear

When traveling in lane position one, search 20 to 30 seconds ahead along the planned path of travel and 12 to 15 seconds to the left and right frontal areas to identify planned and alternate paths of travel. Continually reassess the immediate path four to eight seconds ahead. If an object or condition adjacent to the projected path of travel reduces space to either side, check to the rear and side and move to position two or three as appropriate.

When More Than One Object or Condition Adjacent to Path of Travel Poses a Possible Threat

Having identified that the planned path of travel is open, determine which object or condition poses the greater risk and decide whether change of speed and/or position is appropriate. Depending on which object represents the more serious consequence, a reduction in speed and movement to lane position two or three is typically sufficient.

When the Planned Path of Travel is Closed, but Alternate Paths are Open

Having identified alternate paths of travel 12 to 15 seconds ahead and maintained an area into which the vehicle can be steered on at least one side, more time is provided to reassess traffic to the side(s) and rear and communicate intentions prior to adjusting position and speed.

When the Planned Path of Travel is Closed and There is no Alternate Path

Having determined when searching 20 to 30 seconds ahead that there is no alternate path available 12 to 15 seconds ahead, the driver should immediately check to the side(s) and rear to detect the presence, location, size, and speed of any following vehicles. If present, flash brake lights to alert the following driver and begin to apply the brakes. Attempt to maintain forward motion while opening up the space ahead. If the distance ahead cannot be increased, brake to a stop while monitoring the gap to the rear.

When the Planned Path of Travel is Open, but Threatening Objects or Conditions Exist on Both Sides

When there are threatening objects or conditions to both sides of the path of travel, reduce speed, cover brake while in the area of reduced space, and maintain lane position one.

When There is No Following Traffic

The absence of traffic to the rear provides the maximum level of control to the rear. It permits quicker and more abrupt changes of speed and/or direction in response to changes in ongoing and oncoming traffic or other roadway users.

Module Five
Topic 2—Intersections, Curves, and Hills

25 Minutes Instructional Time
Prerequisites: Successful Completion of Modules 1 to 4

Instructor Activities	Time Frame
<p>Review Module Five, Topic 2 Lesson Plans Prior to Lesson</p> <p>Show Transparencies T-5.17 "Intersection Search Patterns" T-5.18 "Lane Markings" T-5.19 "Line of Sight Through Curves" T-5.20 "Line of Sight Through Curves" T-5.21 "Line of Sight Through Curves" T-5.22 "Line of Sight Over Hill"</p> <p>Distribute and Review Student Worksheets W-5.2 "Approaching Curves and Hills"</p> <p>Review Module Assessments Prior to Lesson W-5.2 "Approaching Curves and Hills" MA-5.1 "Module Five Assessment"</p> <p>Additional Resources (Media and/or Text) Video: "Approaching Curves," (IDS) Video: "Searching Intersections," (IDS) Video: "Teaching Your Teens to Drive," (AAA) "Drive Right," Ch. 1, 4, 10 "How to Drive," Ch. 8, 9, 10 "Handbook Plus," Ch. 10, 11 "License to Drive," Ch. 2, 10 "Responsible Driving," Ch. 8, 10, 12</p>	<p>20-25 minutes (2-4 minutes) (2-4 minutes) (3-5 minutes) (3-5 minutes) (3-5 minutes) (3-5 minutes)</p> <p>5-10 minutes</p>

Knowledge and Skills

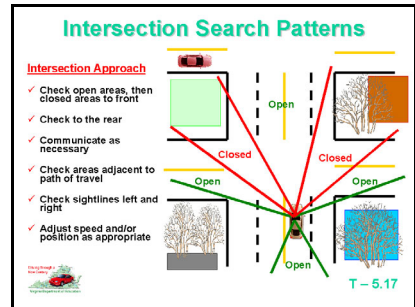
The student is expected to:

- appraise risk when approaching an intersection.
- understand shared left turn lane procedures.

Activities & Resources

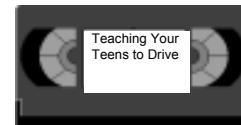
Show Transparency T-5.17 "Intersection Search Patterns" to discuss higher speed intersection searching patterns prior to access.

- Crossing and joining traffic
- Intersection controlled by traffic signals
- Intersection controlled by signs
- Managing a space gap
- Mirror usage
 - When turning
 - Blind spot checks
- Responding to LOS/POT restrictions
- When stopping



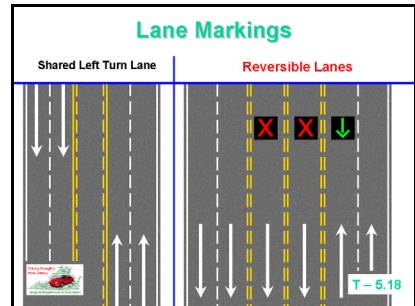
T-5.17 Intersection Search Patterns

Show suggested Video Lesson 10 of "Teaching Your Teens to Drive" to support instruction on approaching an intersection at speeds up to 55 mph.



Show Transparency T-5.18 "Lane Markings" to discuss markings found on special lanes and multiple use lanes.

- Shared left turns markings
- Recommendations for lane use
- Lane flow and markings



T-5.18 Lane Markings

Intersection Maneuvers

It is important that students understand the increased risk at intersections controlled either by stop signs or traffic signals when joining and/or crossing multi-lane traffic traveling at speeds up to 60 mph. While the maneuver procedures remain consistent, gap requirements increase substantially at higher speeds, whether crossing or turning left or right. New drivers must learn to be alert to multiple turn lanes with drivers cutting across lanes on multi-lane higher speed roadways.

Crossing and Joining Traffic at Intersection

The procedures for crossing or joining traffic traveling at higher speeds on multi-lane roadways is similar to those employed for basic intersection maneuvers, but require a larger space gap.

Intersections Controlled by Traffic Signals

Before entering a signalized intersection, check again for oncoming vehicles signaling a left turn and look for pedestrians in the crosswalk, bicyclists, and cross traffic to make sure that they are stopped before you start to move. Whether first in line or in a line of vehicles, try to develop the habit of checking traffic and counting to three (1-2-3) before moving. This provides some protection against drivers who fail to stop for a red signal or drivers ahead who suddenly brake to a rapid, unexpected stop. Do not move into the intersection until there is space in the next block. If turning right, yield right-of-way to pedestrians in the crosswalk. Where there is more than one right turn lane, exit and enter the corresponding lane, and be alert for drivers crossing or drifting while making the turn. Remember when turning right on red, first stop and yield right-of-way to any vehicles, bicycles, or pedestrians in the intended path of travel. While many signalized intersections on multi-lane streets with faster moving traffic provide special left turn lanes and/or delayed or advanced left turn signal lights, such protection is not always available. When such protection is not provided, the risk associated with a left turn increases significantly. In addition to the precautions listed for right turns, the driver must check for oncoming drivers signaling for either left or right turns, identify an adequate gap in oncoming through traffic, determine whether there is space available in the lane to be entered, and check for the presence of pedestrians in the crosswalk to the left.

Frequently, a driver wishing to turn left will signal left and move into the intersection on a green signal light, with wheels pointed straight ahead only to find that it is necessary to wait until the signal light turns red before it is safe to make the turn. It is important to remember that prior to moving into a signalized intersection and stopping, the law requires that a driver wishing to make a left turn make certain there is space available in the street to be entered. Failure to do so frequently results in being unable to clear the intersection, creating what is commonly referred to as grid lock. This will certainly annoy other drivers and may lead to a traffic citation for blocking traffic.

Intersections Controlled by Stop or Yield Signs

Entering or crossing a multi-lane street with traffic traveling at higher speeds at an intersection controlled by a stop or yield sign requires critical time-space judgments. At a brisk rate of acceleration, crossing a two-lane roadway 30 feet wide requires a gap of about six or more seconds. For an approaching vehicle traveling 30 mph, it is 264 feet, or about a half block. At 60 mph, the same vehicle would travel 528 feet. If turning right into traffic traveling 30 mph, a gap of about eight or more seconds, 352 feet, is needed to turn into the lane, accelerate to the speed of traffic while leaving the driver approaching from the left a following interval of four seconds. With traffic traveling at 55 mph, a gap of about 11 seconds, about 880 feet, is needed.

Similar, but more complex problems exist relative to left turns. Since it is necessary to first cross the lanes of traffic traveling from left to right, the decision of when it is safe to go becomes more complex. Assuming no stop is required for a vehicle crossing the intersection from the opposite direction before merging with traffic closing from the right, a gap of three to four seconds to the left is needed. If traffic from the right is moving 30 mph, a gap of 11 or more seconds, 484 feet, is needed to drive to and turn into the left lane.

Accelerate to the speed of traffic while allowing the driver approaching from the right a 4-second following interval. With traffic traveling at 55 mph a gap of 14 or more seconds, about 1130 feet is needed. When crossing a divided highway, it may be necessary to yield right-of-way before crossing both sets of roadway.

Mirror Usage

Anytime an object (e.g. traffic control device, vehicle, pedestrian) or condition [e.g. interchange, area of limited visibility, water on the roadway] in or adjacent to the path of travel indicates the possible need to adjust speed or position, the driver needs to be aware of the location, size, and speed of any vehicles to the sides and/or rear. It is equally important to remember that while a vehicle is in motion, mirror usage is intended to assist in detection and not intended for gathering detail. As indicated previously, drivers cannot afford to divert attention from the path ahead for more than a second at a time. Three quick mirror checks can answer the following questions: Are there vehicles present? If yes, where are they located? If yes, are they large or small? If yes, what is the relative speed?

When Stopping

Anytime a driver prepares to stop before braking, the eyes should go to the rear view mirror. Flash the brake lights to alert any following driver. When stopping, stop back at least one car length from the stop bar or vehicle ahead. (Stopping in a position to see the rear tires of the vehicle in front contact the road, provides room to steer around a stalled car.) Direct attention to the rear view mirror until two cars, or a truck, have stopped to the rear. Concentrating on the mirror and allowing extra space ahead increases ability to steer out of the lane if it becomes apparent that a vehicle closing from the rear is traveling too fast to stop in time. Once stopped, ease off the brake pedal and allow the vehicle to slowly move forward. If stopped behind another vehicle, retain the safe distance.

Mirror Usage When Turning

When a turn is anticipated, mirrors should be checked before any change of speed or position is made, to enable the driver to assess and control rear and side space. An update of space to the rear should be made as soon as the turn is completed and the space to the front has been reassessed.

Checking Mirror Blind Zones

Regular side view mirrors, even when angled out an additional 12 to 16 degrees, do not provide sufficient information to safely make a movement to the side without first making a mirror blindspot check. A mirror blindspot check involves making a quick eye check to the left or right in the direction of intended movement. A partial solution to the problem of restricted vision [mirror blind spots to the left and right] is the use of convex mirrors such as those found on the right outside of new cars. Due to their rounded surface, convex mirrors provide a much wider view. A problem associated with such mirrors, however, is that objects are much closer than they appear to be when viewed in the mirror. If details are recognized when checking a convex mirror for objects to the left or right side and rear (i.e. headlights or grill), the vehicle is generally too close to allow movement in that direction.

Using A Shared Left Turn Lane To Enter A Driveway

Shared left turn lanes are marked with solid and broken yellow lines on both sides of the lane and white turn arrows indicating that drivers traveling in either direction can use the lane. Shared left turn lanes are intended only for vehicles making left turns. As a rule, drivers should not travel more than about 200 feet while slowing to stop or turn across traffic, or accelerating to enter traffic. When traffic is so heavy that a safe gap in oncoming traffic is not available, drivers can move out of the left travel lane, slow, or stop, if necessary, and then complete the left turn when there is a safe gap in traffic.

Steps for Preparing to Use a Shared Left Turn Lane to Turn Left from Moving Traffic

- Check the shared left turn lane for vehicles already stopped waiting to turn from or onto the highway.
- Check ahead on the right to see if anyone wanting to make a left turn onto the highway will be entering the shared left turn lane.
- Check oncoming traffic for vehicles signaling a left turn.
- Check the driveway to the left for any vehicle signaling a left turn with intentions of moving into the lane while waiting for a gap in traffic to the right.
- Check traffic to the rear and signal intention to turn left.
- Adjust speed and enter lane.
- If an adequate gap is not available, brake to a stop.
- When oncoming traffic is clear, complete the turn.

Using A Shared Left Turn Lane to Enter a Street from a Driveway

- Signal a left turn and stop at edge of the roadway.
- Check for drivers on the opposite side of the roadway waiting to turn left.
- Check for drivers approaching from the right, signaling or waiting to turn left.
- Check for a safe gap in traffic to the left.
- If traffic is clear in both directions, enter the nearest through lane. Do not use the shared left turn lane.
- If there is a gap to the left but not to the right, turn into the shared left turn lane, stop, and apply the right turn indicator.
- When traffic in the lane to the right is clear, accelerate and steer into the nearest traffic lane.

Lane Flows and Lane Marking

While you should always apply SEEIT space management rules when driving, it is especially important when traveling in moderate to heavy traffic in a complex street grid.

Move with the flow of traffic—Try to keep speed the same as that of the surrounding vehicles. (Any speed more than five miles per hour slower or faster than the flow of traffic tends to cause disruption in the flow.)

Anticipate lane blockages and select the lane that allows movement with the least conflict—A visual lead of one to one-and-a-half blocks [20 -30 seconds ahead] helps to identify the better lane. Identifying double-parked vehicles or turning vehicles backed up in a lane well in advance provides time to make a lane change if necessary.

Sometimes there is no gap in which to make a lane change—Do not force it. Ask for permission to make the lane change by turning on the turn signal, changing vehicle position and making eye contact. In short, ask the other driver to cooperate by helping to make a gap. Remember to return the courtesy when someone else needs help.

Predict traffic stoppages that could cause an intersection trap—As previously noted, position the vehicle so that a traffic search 20 to 30 seconds ahead enables the driver to spot conditions and determine whether an intersection can be cleared when a signal light turns red.

Identify street as one-way or two-way—One-way streets are usually marked with arrows mounted on corner posts and close to the overhead signal light, have only white and no yellow lane markings, and have cars parked on both sides of the street facing the same direction.

Reversible Lanes—In some large cities during rush hours, additional lanes are designated for traffic traveling into or out of the city. Identified as reversible lanes, they are marked with special double yellow broken lane line markers. In addition, signs at the side of the road and overhead lane signals tell the driver which lanes can be used.

Plan ahead for anticipated turns—In heavy traffic, know where to turn. Since it is frequently difficult to change lanes, plan to get into the proper lane two or three blocks in advance.

Using a shared left turn lane—Shared left turn lanes are frequently found between intersections where a large number of vehicles turn left across a moderate to high volume of traffic that is traveling at higher rates of speed. Shared left turn lanes may be used by drivers turning from or onto a roadway. They are to be used only by drivers making a left turn.

Yield to oncoming traffic and pedestrians in the crosswalk when turning left—Finding a gap in oncoming traffic, while at the same time yielding to pedestrians in the crosswalk, can be very difficult when turning left at a major intersection.

Frequently turns are allowed from more than one lane—It is important to remember that regardless of the number of lanes from which turns can be made, the driver maintains lane position throughout the turn. Also, it is important to check traffic in the other turn lane(s) to be sure other drivers are not crossing into the lane you are entering.

Position within lane important on turns—While it is always important to move well to the left or right when preparing to make a turn, it is especially important in heavy traffic when pedestrians in the crosswalk may cause a vehicle to stop. By moving as far left or right as possible, movement may be continued.

Notes

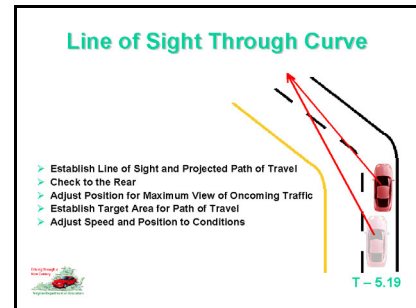
Knowledge and Skills

The student is expected to describe vision, motion, and steering control as they relate to entering and exiting a curve and approaching and managing hills.

Activities & Resources

Use Transparency T-5.19 “Line of Sight Through Curves” to illustrate correct approach to curve.

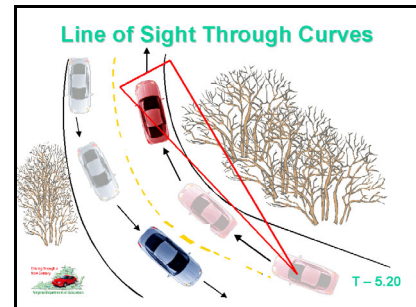
- Establish line of sight/path of travel (LOS/POT)
- Check to rear
- Adjust position
- Establish target to exit
- Adjust speed and position



T-5.19
Line of Sight Through Curves

Use Transparency T-5.20 “Line of Sight Through Curves” to illustrate an approach to a curve or hill in the right lane.

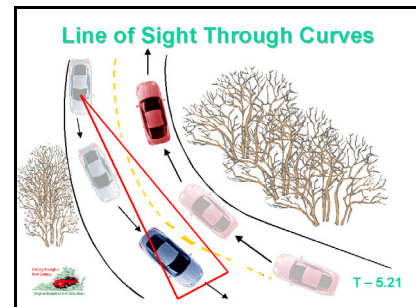
- Sightline
- Position to the left on entry (LP2)
- Drive to apex of curve (LP3)
- Move back to center (LP1)



T-5.20
Line of Sight Through Curves

Show T-5.21 “Line of Sight Through Curves” to illustrate an approach to a curve or hill in the left lane.

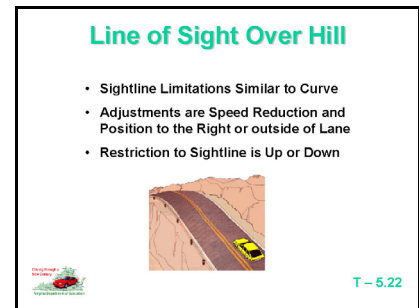
- Sightline
- Position to the left on entry (LP3)
- Drive to apex of curve (LP2)
- Move back to center (LP1)



T-5.21
Line of Sight Through Curves

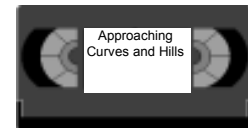
Show Transparency T-5.22 “Line of Sight Over Hill” to discuss the similarity between handling curves and hills.

- Sightline limitations
- Speed adjustments
- Position adjustments
- Restrictions are vertical rather than horizontal as in a curve



T-5.22
Line of Sight Over Hill

Use video “Approaching Curves (*and Hills*)” (IDS) as a culmination activity for the curves and hills approach that reviews the entry apex and exit skills.



Assign Worksheet W-5.2 “Approaching Curves and Hills” as an assessment tool or for class discussion.

Worksheet

Techniques for Hills and Curves

Searching into a Curve

Seeing the curve and/or downgrade 12 seconds ahead as a front zone change or a limitation in the path of travel (POT) will cause less stress and give the driver more control because he/she will now test the braking capabilities and get the best speed and lane position to negotiate the curve.

If a driver notices that the front POT is closed due to a red light or a stopped car, you can save fuel if you stop accelerating and use the energy of the car's momentum. You should also apply the brake with light pressure. Looking 12 seconds ahead would enable you to see the right zone change created by the traffic that is pulling out of parking spaces or by the bus that is stopped or stopping in the right lane. The control you have of the front zone will be changed by the curve of the entrance ramp and by the traffic flow that will be coming from your left. Trees can cause a LOS limitation.

Curves and hills reduce a LOS. You are unable to see what you are driving into; therefore, you cannot know how your POT is. Looking 12 seconds ahead into curves means to direct your eyes through the curve, trying to see to the end of the curve as soon as you possibly can. By looking through hills and curves, you are consciously looking to see if your POT is open or closed to your vehicle's movement.

If you were looking ahead, you would see the zone change to your LOS-POT created by the curve. Your LOS is closed. As you get closer to the curve, by looking into the curve you would be able to see the condition of your POT as early as possible. While looking into the curve you will be using your central vision to see any changes to your POT, and your fringe vision should keep account of your tracking path. As you are more confident in the use of reference points, your fringe vision will be more comfortably and efficiently used.

By searching into the curve you are able to immediately evaluate any problem to your LOS-POT at a time when you may need to avoid a surprise crash situation.

1. After seeing a curve in the roadway, make a mirror check for rear zone awareness.
2. Check the left, front and right zones to know what your options are.
3. To evaluate your POT, search into the curve before you turn the steering wheel.
4. Search 12 seconds ahead for new LOS-POT changes.

For example: a car stalls while backing out of a driveway into our POT. What's the solution? We must view the curve and hillcrest as a LOS change, then aggressively look for the actual POT available to us. We must maintain sightline with the POT—and not look at the hazard we are trying to avoid, since we have a tendency to steer in the direction we look.

Looking for Problems

The problem most drivers have is that they usually don't have problems. For example, the previous 9,000 times going into the curve, there wasn't a problem. Drivers then begin to feel comfortable going a little faster than they perhaps should.

-- Mottola, F. R. 1997. Empower Yourself with Zone Control Driving, Interactive Driving Systems, Inc. Chesire CT.

Basic Cornering

As you approach a curve or release the accelerator, do your braking in a straight line. Remember to factor in the limitations of the tire patches. If you are braking at 1.05 Gs, and that is the limit of the tires, you will experience limited vehicle control if you start to turn. As the driver turns to the apex, he should release pressure on the brake. If the driver is still braking while steering, he should release pressure in the same manner as he steers. This is called trailing brake and will allow the driver to control motion of vehicle into curve.

The apex of the corner is the point at which your car is closest to the inside edge of the usable roadway surface. With most cars, the driver should use a late apex so that they can use the power sooner on the exit of the curve.

-- Rich, C. 1998. MBI Publishing Company. Osceola, WI.

Driving Through Curves

Searching as far ahead as possible and identifying the existence of a curve provides more time to evaluate and control the level of risk.

- Does the roadway curve to the left or right?
- Can the exit of the curve be seen ahead?
- What is the sharpness of the curve?
- What is the lane width, shoulder conditions, posted speed, or traffic volume?
- Is the curve on grade, up or down hill?
- Is the field of view restricted?
- Can an apex point for exiting the curve be determined?

Answering these questions and checking traffic to the rear better enables a driver to determine the best speed and lane position for negotiating a curve. Also, this is one more situation where driving with headlights on during daylight hours helps manage the level of risk, since doing so makes a vehicle more visible to oncoming drivers.

It is generally best to approach the curve in Lane Position 3, as far away as possible from oncoming traffic. This position also provides the best targeting point for the line of sight. On narrow rural roadways with limited traffic and limited visibility, curves to the right present special problems in that oncoming drivers are more apt to drive over the centerline. Under such circumstances, with headlights on and after making appropriate speed adjustments, approach the curve in Lane Position 2, near the center line, to maximize the probability of being seen by the oncoming driver and the ability to establish a line of sight and target line. Establish Lane Position 3, near the right edge of the roadway, using the apex of the curve as the target and assess off road conditions if an escape path is required.

Speed Control

The driver should slow the vehicle on entry to the curve based on the ability to maintain the line of sight through the curve. The foot should squeeze the brake on entry and trail off the brake through the central part of curve until the apex or exit point is determined. Once the apex (the point where the car is closest to the inside of the curve line) is reached, light acceleration is used to pull the car out of the curve through the exit. The acceleration should be progressively firmer until adjusted to speed limit.

Road Position

The outside road position on entry to a curve allows for a longer braking effort on entry and a better chance to establish a sightline to the apex and exit of the curve. Entering from the outside, moving the late apex point, and then backing out to the top of the curve allows the driver to maintain the best sightline and steer the least amount through the curve. Traction loss into a curve (under-steer) is often caused (in front wheel drive vehicles) by excessive speed, excessive braking, or excessive steering. Traction loss on the exit of a curve (oversteer) is often caused by excessive acceleration, sudden braking, or sudden steering efforts. The goal of positioning the vehicle is to reduce the amount or suddenness of braking, accelerating, or steering efforts. Your speed, the sharpness and bank of a curve, and the car's load affect vehicle control.

When Rounding a Curve

The sharper the curve, the more traction your car needs to grip the road. The higher the speed, the less traction you will have. Energy of motion in a curve changes in proportion to the square of the increase or decrease in speed. The energy of motion or inertia attempts to continue traveling in a straight line, giving the driver the feeling of being "pulled" outward when rounding a curve in a car. If you cut your speed in half, the force pulling you off the road will be cut four times.

Cresting Hills

Hillcrests on roadways with opposing traffic and limited sight lines should generally be approached in lane position 3 near the right edge of the roadway. Also, it is essential to check traffic to the rear and reduce speed prior to cresting the apex, in order to assure a better position for responding appropriately if some object is blocking the path of travel on the downgrade. Keep in mind that hills can be taught as vertical curves with the same entry, apex, and exit rules of a curve.

Traveling Downgrade

When driving down long, steep grades (6 degrees or greater), it is important to control the vehicle's speed and to check to the rear about every five seconds for the presence of large vehicles. Any rapidly approaching large vehicle (particularly one with white smoke boiling out from beneath the rig) is apt to be a run-away, generally one that has lost its brakes. Do not attempt to outrun the truck. Instead, pull off the road as far as possible to give the driver the maximum amount of room.

**Module Five
Topic 3—Passing**

20 Minutes Instructional Time
Prerequisites: Successful Completion of Modules 1 to 4

Instructor Activities	Time Frame
<p>Review Module Five, Topic 3 Lesson Plans Prior to Lesson</p> <p>Show Transparencies T-5.23 "Determining Passing Time/Space Needs" T-5.24 "Determining Passing Time/Space Needs" T-5.25 "Passing Considerations" T-5.26 "Passing Procedures" T-5.27 "Passing Procedures"</p> <p>Distribute and Review Student Worksheets W-5.3 "Passing Concepts"</p> <p>Review Module Assessments Prior to Lesson W-5.3 "Passing Concepts" MA-5.1 "Module Five Assessment"</p> <p>Additional Resources (Media and/or Text) Video: "Teaching Your Teens to Drive," (AAA) "Drive Right," Ch. 1, 4, 10 "How to Drive," Ch. 8, 9, 10 "Handbook Plus," Ch. 10, 11 "License To Drive," Ch. 2, 10 "Responsible Driving," Ch. 8, 10, 12</p>	<p>15-20 minutes (4-6 minutes) (2-3 minutes) (2-3 minutes) (2-3 minutes) (3-5 minutes)</p> <p>5-10 minutes</p>

Passing

Knowledge and Skills

The student is expected to determine adequate passing time and space needs.

Activities & Resources

Distribute Worksheet W-5.3 “Passing Concepts” as a classroom assessment or a home activity.



Show Transparency T-5.23 “Determining Passing Time/Space Needs” to discuss the consequences of poor judgment of time/space needs when passing.

- Time
- Space
- Calculate speed and distance

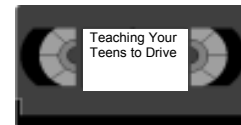
T-5.23 Determining Passing Time/Space Needs

Show Transparency T-5.24 “Determining Passing Time/Space Needs” to discuss the consequences of poor judgment of time/space needs when passing.

- Speed
- Time
- Space
- Calculate speed and distance

T-5.24 Determining Passing Time/Space Needs

Use video “Teaching Your Teen To Drive” (AAA), Lesson 12, to discuss laws that regulate the conditions under which one driver may pass another, and the requirements placed on both drivers.



Show Transparency T-5.25 “Passing Considerations” to discuss consequences of poor judgment of time/space needs when passing.

- Larger vehicles
- Oncoming vehicles
- Headlight use

Passing Considerations

- ❑ **Larger Vehicles**
 - > 24 seconds to pass tractor trailer rig (80 feet) traveling @ 60 mph, when passing @ 60 mph
 - > 2160 feet needed to complete 24-second pass
- ❑ **Oncoming Vehicles**
 - > Approaching vehicle travels 2160 feet @ 60 mph
 - > Total clear distance needed to pass becomes 4320 feet when approaching vehicles exist
- ❑ **Daylight Headlight Use Critical**

T – 5.25

T-5.25 Passing Considerations

Show Transparency T-5.26 “Passing Procedures” and discuss procedures to follow when preparing to pass, and the time/space gaps necessary to complete a pass at various speeds.

- Position yourself
- Check traffic flow
- Check for safe passing distance
- Signal your intentions

Passing Procedures

Prepare to Pass

- > Position yourself two to three seconds behind the vehicle you want to pass
- > Check mirrors and oncoming traffic
- > Check ahead for safe passing distance
- > Signal your intention

2-3 Seconds Behind

T – 5.26

T-5.26 Passing Procedures

Show Transparency T-5.27 “Passing Procedures” to complete discussion on procedures to follow when preparing to pass, and the time/space gaps necessary to complete a pass at various speeds.

- Overtake the vehicle
- Return to lane

Passing Procedures

Overtake the oncoming car

- > Signal and accelerate into passing lane
- > Accelerate quickly to an appropriate speed
- > Concentrate on the path ahead
- > Check your mirror for following cars

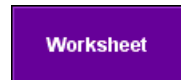
Return to lane

- > Check for the front of the car you are passing
- > Signal intention
- > Change lanes and maintain speed
- > Cancel turn signal

T – 5.27

T-5.27 Passing Procedures

Distribute, collect, and grade Worksheet W-5.3 “Passing Concepts.”



Support Information**Passing and Being Passed**

Head-on collisions, typically involving a passing maneuver, annually account for approximately 8,000, or nearly 20%, of all traffic fatalities. While some crashes occur due to impatience or illegal actions, many occur due to lack of knowledge regarding time/space gap requirements. The purpose of this lesson is to assist students in learning the passing laws and the legal responsibilities placed on both the driver doing the passing and the driver being passed. Emphasis is placed on developing the ability to determine a safe gap at various speeds.

Impatience, errors in timing, and poor judgment of space result in approximately 5,500 fatal head-on collisions annually. There are a number of instances when it is illegal to pass. Passing is not permitted when the left lane marker is a solid yellow line, or a sign indicates a no passing zone. It is illegal to pass on a two-lane road when approaching a hillcrest, curve, or intersection. It is also illegal to pass within 100 feet of bridges, tunnels, and railroad crossings where traffic is limited to one lane of travel in each direction.

Learning to Estimate Passing Gap Needs

A four-lane divided or undivided highway can also be used to practice identifying space gap needs when passing a vehicle on a two-lane roadway. A driver traveling 40 mph is going to make a flying pass of a vehicle traveling 30 mph. If the driver makes all of the visual checks, signals intentions, and starts the pass from an interval two seconds behind the vehicle ahead, it will take about 13 seconds to complete the pass (at 50 and 40 mph, about 16 seconds, and at 60 and 50 mph, about 19 seconds). If the passing maneuver is started from three seconds back with both vehicles traveling at the same speed, the passing driver will have to accelerate to a speed 15 mph faster than the vehicle to be passed to complete the pass in the same time limits.

To estimate the time and distance of an oncoming vehicle, begin counting one, 1,000; two, 1,000; etc. When an oncoming vehicle is seen, continue the count until the approaching vehicle is opposite your vehicle. Keep trying until accuracy at estimating necessary passing time is achieved.

Passing is one more situation in which the use of headlights during daylight hours is critical. The combined distance traveled by the passing and oncoming vehicle at 60 mph is 38 seconds, or 3,344 feet. Without headlights on, an approaching vehicle may not become visible until it is within 2,200 to 2,500 feet. This is in contrast to about 4,500 feet with headlights or daytime running lights illuminated. The difference in enhanced visibility can be critical.

What the Law Requires of a Highway User**Passing**

- On the Left
- Safe
- Return to lane when safe
- Return to lane 200 feet from oncoming vehicle

Being Passed on the Left

- Give way to right
- Must not increase speed

Passing On the Right

- Vehicles turning left
- Two or more lanes same direction
- Safe
- May not drive on shoulder

Passing is forbidden:

- On two-lane roadways.
- When approaching crest of hill.
- On curves where view is obstructed.
- Within 100 feet of intersection or railroad crossing.
- If view is obstructed.
- Within 100 feet of a bridge, viaduct, or tunnel.

Related Passing Laws**Driving on Roadways with Solid Lane Lines**

Vehicles are to be driven within a single lane.

Center Lane of Three Lane Roadway

- Passing when safe to do so.
- Preparing for left turn.
- Where center lane is allocated to traffic moving in one direction.

Obedience to Traffic Control Devices

Traffic control devices often designate lanes to be used by traffic moving in a particular direction, e.g., reversible lanes.

Two-way Left Turn Lanes

- Are to be used only to make left or “U” turns to or from roadway.
- May enter only if clear of opposing traffic.
- Travel is restricted to shortest distance practicable prior to or after making left or “U” turn.
- Where such lanes exist, left and “U” turns must be made to or from that lane.

Following Too Closely

- Must maintain a reasonable and prudent following interval with regard to other vehicles, taking into consideration the condition of the highway, and the speed of traffic.
- Where two or more vehicles are traveling in a caravan, they must allow enough space between each two vehicles so that passing vehicles can enter safely. (Does not apply to funeral processions.)

Reduce speed when:

- Approaching and crossing intersections where cross traffic is not required to stop by traffic control devices.
- Approaching and crossing railroad grade crossings.
- Approaching and going around curves or cresting hills.
- Traveling on narrow or winding roads.
- Approaching pedestrians or other traffic.
- Encountering inclement weather or dangerous highway conditions.

Passing Procedures

Prepare to Pass

- Position vehicle two to three seconds behind the vehicle to be passed.
- Check mirrors and oncoming traffic.
- Check ahead for safe passing distance.
- Signal intention.

Overtake the Ongoing Car

- Signal intention and accelerate into passing lane.
- Accelerate quickly to an appropriate speed.
- Concentrate on the path ahead.
- Check the mirror for following cars.

Return to Lane

- Check the rear-view mirror for the front of the car being passed.
- Signal intention.
- Change lanes and maintain speed.
- Cancel turn signal.

Demands are also placed on the driver of a vehicle being passed. The law specifically prohibits a driver who is being passed from increasing the speed of the vehicle. Further, upon audible signal, the driver of an overtaken vehicle shall give way (move) to the right in favor of the overtaking vehicle.

Curriculum Scope and Sequence Modules for Driver Education in Virginia

Module Five

Worksheets

- W-5.1 Using Information to Manage Space
- W-5.2 Approaching Curves and Hills
- W-5.3 Passing Concepts

Simulation

- SLS-5.1 Simulation Laboratory Session
- SLS-5.2 Simulation Laboratory Session

Assessment

- MA-5.1 Module Five Assessment

Virginia Department of Education
in cooperation with the
Virginia Department of Motor Vehicles

Name _____

List the basic requirements for driving.

- 1. The driver needs: A. _____ B. _____ C. _____
- 2. The vehicle needs: A. _____ B. _____ C. _____

List the components of a space management system.

- 1. _____ 2. _____ 3. _____

List eight basic ways to communicate.

- 1. _____ 5. _____
- 2. _____ 6. _____
- 3. _____ 7. _____
- 4. _____ 8. _____

List four visual search areas for drivers.

- 1. _____ 3. _____
- 2. _____ 4. _____

What is the length of the following interval that allows a driver to stop in the space provided?

_____ seconds.

List four elements to search for when driving.

- 1. _____ 3. _____
- 2. _____ 4. _____

List three ways to control space to the front.

- 1. _____ 2. _____ 3. _____

What is the purpose of a staggered stop?

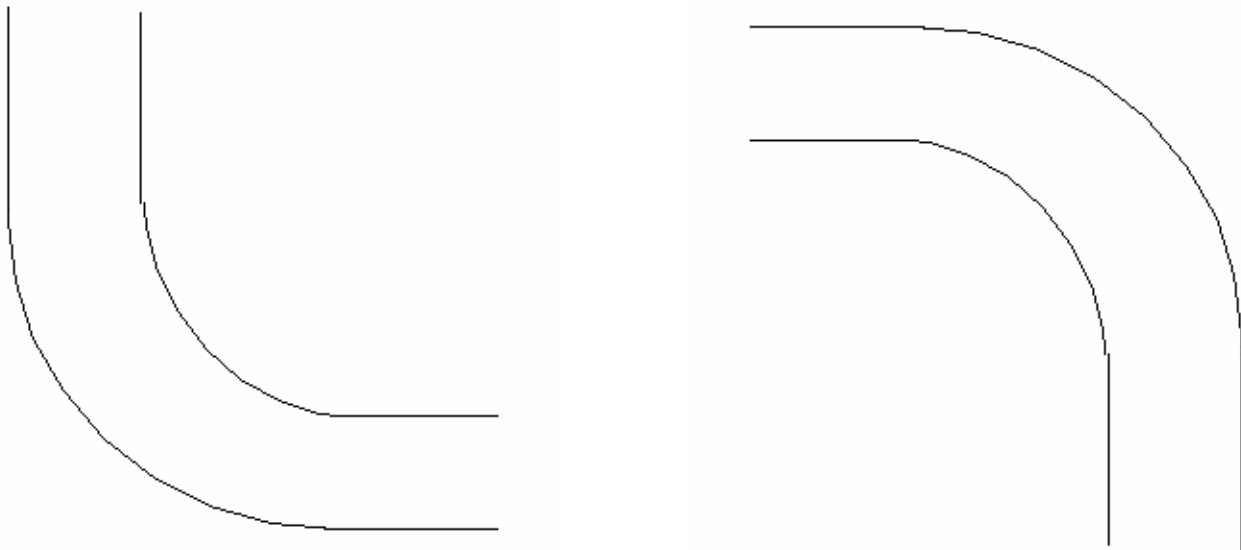
Name: _____

Explain a basic search pattern used when approaching high speed intersections.

List two special lane markings used for special traffic lanes.

- 1.
- 2.

Draw the pathway through the curves below:



Mark the entry, apex, and exit points above.

Mark the squeeze brake point, trail brake point, and the acceleration point.

Draw the pathway to the approach of the hill below.



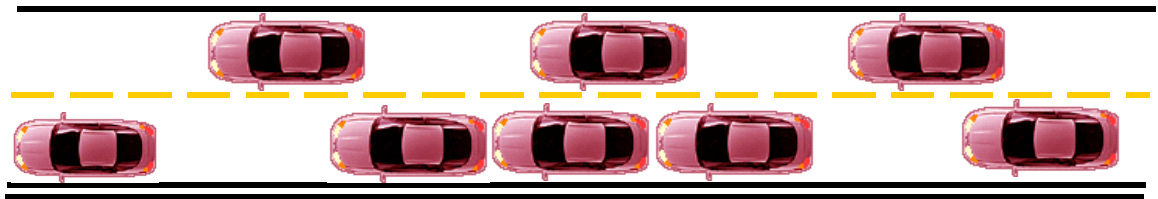
Name: _____

How long does it take to make a pass when starting at 40 mph and accelerating to 50 mph?
Explain.

List three considerations when passing another vehicle.

1. _____ 2. _____ 3. _____

Draw and explain the procedures to pass another vehicle.



Simulation Laboratory Session

Suggested Titles: “Good Driving Strategies” (DORON Video or Laserdisc)
“Communications” (DORON Video or Laserdisc)
“Understanding Intersections” (SSI Safe Driver Training Series)
“City Streets” (SSI Safe Driver Training Series)

Learning Goals: The student demonstrates comprehension of speed control and vehicle positioning in lane, which will increase the ability to position vehicle for moderate risk vehicle maneuvers.

Performance: Performances are based on the simulation video used for this section. In each situation, the student will demonstrate correct positioning for vehicle control.

Assessment: Instructor records assessment of speed, positioning, and techniques on the district on-street records form. Student assessment of simulation activities may also be added to the student portfolio.

Instructor Activities	Student Driver Activities	Materials Needed and Notes

- Suggested Titles:** “Stopping In Time” (DORON Video or Laserdisc)
“Rural Roadways” (DORON Video or Laserdisc)
“Handling Roadway Hazards” (SSI Safe Driver Training Series)
“Expressways” (SSI Safe Driver Training Series)
- Learning Goals:** The student demonstrates comprehension of speed control and vehicle positioning in lane, which will increase the ability to position vehicle for moderate risk vehicle maneuvers.
- Performance:** Performances are based on the simulation video used for this section. In each situation, the student will demonstrate correct positioning for vehicle control.
- Assessment:** Instructor records assessment of speed, positioning, and techniques on the district on-street records form. Student assessment of simulation activities may also be added to the student portfolio.

Instructor Activities	Student Driver Activities	Materials Needed and Notes

Notes

1. You are traveling 45 mph and approaching a curve posted for 30 mph. When should you reduce speed?
 - A. As you enter the curve
 - B. At the apex of the curve
 - C. Before entering the curve
 - D. Gradually through the curve

2. What is the best lane position when driving on a two-lane road with lines of vehicles parked on both sides?
 - A. Lane position 1
 - B. Lane position 2
 - C. Lane position 3
 - D. Lane position 4

3. What is an item that a driver should search for after stopping at an intersection?
 - A. Open space or gap
 - B. Radio controls
 - C. Cars to the rear
 - D. Signs and lane markings

4. When nearing the crest of a hill on a two lane roadway you should _____.
 - A. slow, sound your horn, and maintain lane position 1
 - B. slow and position your vehicle in lane position 3
 - C. slow, sound horn, and maintain lane position 2
 - D. slow, but maintain lane position 1

5. Before changing lanes the most important thing for you to do is to _____.
 - A. increase your speed
 - B. signal direction of movement
 - C. make sure the space areas are open
 - D. check rear and side mirror

6. If your vehicle is not equipped with daytime running lights (DRL's), why is it important that you drive with headlights on during the day?
 - A. To see better on cloudy days
 - B. Because it is required by the vehicle code
 - C. It helps reduce sun glare
 - D. It improves the chances that other highway users will see my vehicle

7. A driver has the least amount of control over space to the _____.
- A. front of their vehicle
 - B. right side of their vehicle
 - C. rear of their vehicle
 - D. left side of their vehicle
8. When another driver is tailgating your vehicle, it is best to allow a greater space area to the _____.
- A. right side of your vehicle
 - B. front of your vehicle
 - C. left side of your vehicle
 - D. rear of your vehicle
9. Communicating should be thought of as _____.
- A. exchanging information
 - B. receiving a message
 - C. sending a message
 - D. providing feedback
10. When stopped for a red signal at an intersection you should
- A. begin moving immediately when the light turns green.
 - B. touch the horn to alert any pedestrian in the intersection when the light turns green.
 - C. check traffic and count 1, 2, 3 before moving after the light turns green.
 - D. check for bicycles before moving after the light turns green.
11. Managing space when you drive means managing the distance between your vehicle and the vehicle _____.
- A. ahead of you
 - B. behind you
 - C. to the sides of you
 - D. all of the above
12. When another vehicle is passing you on the left, _____.
- A. it is illegal to increase your speed
 - B. it is illegal to decrease your speed
 - C. keep your vehicle in lane position 2
 - D. flash your headlights when he is past

13. When driving in moderate traffic, on a multi-lane roadway, traveling at about 55 m.p.h., it is best to _____.
- A. drive more slowly than usual
 - B. drive in lane position 2 of your lane to improve visibility
 - C. drive as close to the speed of traffic as is safe
 - D. drive in lane position 3 of your lane
14. When can a left or right turn be made from a lane other than the far left or right lane?
- A. When turns are controlled by a left or right turn arrow
 - B. When there is no traffic in the adjacent lanes
 - C. When there is no oncoming traffic or pedestrians
 - D. When pavement markings and signs permit such movement
15. You approach an intersection where you plan to turn right. The signal light is red. Before turning you must _____.
- A. maintain speed to keep up with traffic flow, slowing just enough to make the turn
 - B. come to stop and yield to pedestrians and vehicles in your path of travel
 - C. slow for the turn as you would for a yellow light
 - D. come to a stop only if someone is in your way

Completion Questions

16. Drivers can communicate their presence or intended action by **[list at least 4 ways]**
17. When driving, elements can be grouped in four categories for more efficient gathering of information. The groups are identified as:
18. Describe the process of entering a curve or approaching a hill with a limited line of sight or a restricted path of travel.
19. When stopping as the first vehicle in the inside lane, at an intersection of multi-laned streets, controlled by either stop signs or a traffic signal, you can reduce the chance of being struck by a driver who while turning left cuts the corner short, by employing a staggered stop. Describe a staggered stop.
20. The major difficulties to be expected when making a left turn in a shared left turn lane are:

Name _____ Date _____

Multiple Choice Questions

- | | | |
|------------|-------------|-------------|
| 1. a b c d | 6. a b c d | 11. a b c d |
| 2. a b c d | 7. a b c d | 12. a b c d |
| 3. a b c d | 8. a b c d | 13. a b c d |
| 4. a b c d | 9. a b c d | 14. a b c d |
| 5. a b c d | 10. a b c d | 15. a b c d |

Completion Questions

16. _____

17. _____

18. _____

19. _____

20. _____

Name _____

Date _____

Multiple Choice Questions

- | | | |
|------|-------|-------|
| 1. c | 6. d | 11. d |
| 2. b | 7. c | 12. a |
| 3. a | 8. b | 13. c |
| 4. b | 9. a | 14. d |
| 5. c | 10. c | 15. b |

Completion Questions

16. Horn, Turn Signals, Lane Position, Hand Signals, Reverse Lights, Braking, Speed of vehicle, Stopping Position, Eye Contact, Waiting for Others, etc.
17. Roadway conditions; Signs, signals, and markings; Vehicles; and Other users
18. Slow down until the exit of the curve is visible, stay to the outside of the curve on entry to see better through the curve, steer to apex in a curve, stay to the right side until visibility is available over the apex of hill, switch to accelerator when apex is identified, progressively accelerate to speed again.
19. Open ended question which allows for a group of any of these answers... A staggered stop is about 15 additional feet back from the intersection which allows a larger vehicle to make a left turn more easily and reduces the chance of having a driver making a short turn at the intersection crashing into the vehicle. A staggered stop is about one car length back or the midpoint of the car to your right.
20. Open ended question which allows for a group of any of these answers.... Check the shared left turn lane for vehicles already stopped waiting to turn from or onto the highway. Check ahead on the right to see if anyone wanting to make a left turn onto the highway will be entering the shared left turn lane where you expect to turn or stop. Check oncoming traffic for vehicles signaling a left turn. Check the driveway to the left for any vehicle signaling a left turn with intentions of moving into the lane while waiting for a gap in traffic to the right. Check traffic to the rear and signal your intention to turn left. Adjust speed and enter lane. If an adequate gap is not available, brake to a stop. When oncoming traffic is clear, complete the turn.