



Participant Handout

Core I: Defensive Driving Techniques for the Intersection

Participant Name: _____

Introduction

Defensive driving is defined as "driving to save lives, time, and money, in spite of the conditions around you and the actions of others."

Source: National Safety Council's Defensive Driving Course

Training Objectives

By the end of this training the participants will know the concepts involved in safely executing an intersection, including:

- Two effective observation techniques
- How to manage distractions and anticipate other motorists' actions
- Examples of direct and indirect communication behind the wheel
- The right of way rules of the road for selected examples of intersection designs
- The importance of proper mirror adjustment
- At least two defensive driving techniques for intersections

Defensive Driving Techniques for the Intersection

- Effective Observation
- Manage Distraction
- Anticipate Other Motorist Actions
- Traffic Lights
- Right of Way Confusions
- Lane Changes
- Effective Mirror Use

Let's look at each of these in greater detail...

Effective Observation

As you approach the intersection start carefully scanning the area to identify the specific hazards at this location. Look for traffic controls or other restrictions to travel in the intersection.

Use your defensive driving observation skills to identify anything that may present a unique danger for collisions. Be sure that you are not just looking but also seeing. We have discussed inattention blindness in the past, stay focused to really see what you are looking at. Many times, motorists will see, I looked, but I didn't see anything coming. Just about every driver has experienced this at one time or another.

- Check for traffic and then check again, check as many times as you need to be sure your access is clear
- Be sure to follow all yield rules
- Always cover the brake and use extreme caution in the intersection
- Drivers and attendant/monitors must develop an awareness of how each other work:
- Attendants should be able to determine if the driver sees the risk to safely executing the intersection and is responding accordingly.
- This awareness also works for drivers who may notice something related to student behavior which the attendant may not notice.
- Attendants/Monitors should vocalize anything perceived as potential safety risks to each other.
- This awareness will prevent becoming annoying when assisting with observation, student behavior or other safety issues.

Manage Distraction

As professional school bus drivers, attendants and monitors we have all heard many times how dangerous the overhead mirror is while driving. Approaching or in an intersection is one of the more dangerous times to become distracted by student behavior. Similar to the task of loading and unloading, it is much safer to manage student behavior before or after the intersection has been traveled through safely. This allows you to stay focused on the task of visually identifying hazards and defensive techniques.

Although we like to think of ourselves as having the ability to perform several things at once, the truth is we really cannot. If we attempt to, we will not do any of it well.

- Avoid multi-tasking, while behind the wheel, to the degree possible.
- It is a law in NYS that you may not operate a school bus and use a cell phone at the same time.
- Turn off the cell phone and put it away. Turning it off will prevent the temptation to look when you hear the "buzz".

- Control the volume of music or other background noise that may distract your focus from the specific task at hand.
- Verbalizing what you are doing will force your brain to stay focused on what you are doing. This technique is especially important when performing critical safety functions, such as loading and unloading students.
- Driver, attendant/monitors working as a team to manage student behavior will result in effectively controlling the driver's distraction from the traffic environment.

Be alert to signs that other drivers may be driving while distracted:

- Vehicles drifting
- Traveling at inconsistent speeds
- Preoccupied with maps, food, cigarettes, cell phones, or other objects
- Driver having conversations with passengers
- Give them plenty of room – increase your following distance
- Distracted driving can be as dangerous as drunk driving

The National Safety Council reports that one in every 4 drivers you meet on the road is distracted behind the wheel.

Anticipating Other Motorist's Actions

Part of defensive driving is always taking in the big picture and putting together the puzzle pieces you have in front of you. Drivers, attendants and monitors watching and anticipating the behavior of other drivers is part of getting the big picture. How many times have you said to yourself or others, "I knew they were going to do that!" That sense of knowing what the other person will do behind the wheel comes from these cues you receive by observing their behaviors.

Pedestrians and bicyclists are challenging simply because they are small enough to be consumed by a blind spot on your school bus. Both pedestrians and bicyclists will present with behaviors that help you to anticipate dangerous behavior or movements in the traffic environment.

The instability of riding a bike, makes the movements very unpredictable. They are subject to several things which can occasionally make it difficult to maintain control.

- Rough pavement
- Lack of bike lanes
- Lack of respect on the part of other motorists
- Distractions while walking or biking are just as dangerous as driving while distracted.

Always assume the pedestrian or bicyclist is not going to yield to you when you have the right of way. A pedestrian or bicyclist in the crosswalk always have the right of way.

Drivers, attendants and monitors must continually hone their ability to work together to increase observations which can lead to avoiding a collision. Attendants and monitors bring a different perspective from their seat and may not experience the same blind spots the driver is challenged by – work together!

Direct Communication

There are several ways to let another motorist know what maneuver you are about to take with your bus. The obvious is to use the signals, lights and equipment built into the design of your vehicle. But as a driver you also have a few effective ways to communicate with other motorists, pedestrians and bicyclists: Eye contact and hand signals and gestures are very effective tools. It is very important to make sure you are communicating from behind the wheel.

Direct communication may take verbal and non-verbal forms including the use of:

- Turn signals hazard flashers
- Horn
- Brake lights
- Eye contact
- Verbal instruction
- Hand signals
- Use of loading lights

Indirect Communication

Indirect communication occurs simply by the other motorists understanding what your action or position means in the traffic environment.

Examples are:

- Turning lanes – if your vehicle is in this lane, they know you are going to turn
- U-turn signs – your presence in this position allows other motorists to know you will make a U-turn
- Slowing down, means you are about to stop or there is something/hazard in front of you

When sharing the road with pedestrians and bicyclists, communicating your presence is critical to safety. Make eye contact and use your vehicle's signals and make hand gestures to create an understanding of what to expect from each other. Always use caution near parked vehicles, in anticipation of a driver or passenger opening the vehicle door into your lane of travel.

Pedestrians or small children may "dart out" from between the parked cars. They may not be seen until they are in your lane of travel.

Traffic Lights

When traffic lights are out of order, you should treat the intersection as an unmarked crossroad. Be cautious, as you may need to yield or stop. Look for traffic attempting to cross the intersection, unaware of right of way rules.

A stale green light does not mean you may speed up to beat the yellow light. Use caution and cover the brake top allow you to respond to a yellow light appropriately. When a traffic light is malfunctioning, treat the intersection as if it were unmarked – yield to the vehicle on your right.

When you are turning left and you have the green light, do not creep into the intersection while yielding to oncoming traffic, to allow you to complete the turn when the light changes. This is an unsafe practice.

Right of Way Confusions

There are several types of intersections, we will discuss the proper right of way procedures for 4 of them:

1. 4-way stops
2. T Intersections
3. Y Intersections
4. Traffic Circles

Let's look at the yield process for each of these...

Right of Way: 4-Way Stops

A four-way intersection is the most common type and involves the crossing of two roadways. Four-way intersections are either controlled by stop signs or a traffic signal. At a four-way intersection controlled by a traffic signal, only proceed when you are presented with a green light. Only turn left on a green light when there is no approaching traffic. At a four-way intersection controlled by a stop sign, vehicles gain right of way in the order they reach the intersection.

Right of Way: T-Intersections

A T-Intersection is an intersection at which a minor roadway meets a major roadway. The minor roadway at a T-intersection is almost always controlled by a stop sign, whereas the vehicles on the major roadway continue driving without having to stop. The most important thing to remember about T-intersections is that the vehicles on the major roadway always have right of way. The vehicle that is planning to turn right or left onto the major roadways must come to a complete stop and look both directions before pulling out onto the major roadway.

Right of Way: Y-Intersections

There are 2 types of Y-intersections:

1. There will be a stop sign on both roads a short distance from the actual junction. All traffic is required to stop and the vehicle that arrives at their respective stop sign first proceeds first
2. The second type of Y-intersection, the drivers on one road proceed uninhibited while the drivers on the second road must come to a complete stop and look in both directions for incoming traffic before pulling out onto the other road

This type of intersection is dangerous because it may cause confusion for drivers. As a professional school bus driver – remember the importance of making sure you communicate your intentions with other motorists. When in doubt – give the right of way to the other motorists and wait for it to become very clear that you have the right of way to proceed.

Right of Way: Traffic Circles

A traffic circle or roundabout is often used to control an intersection of four or more roadways. As you approach a roundabout, yield to oncoming traffic then turn right so that you are driving around the circle in a counterclockwise direction. Turn right again to exit the traffic circle when you reach the roadway you want. It is important not to stop while driving in a traffic circle because pile-ups can occur quickly from this unexpected action.

Right of Way: Crosswalks & Pedestrians

The law states: “Every pedestrian crossing a roadway at any point other than within a marked crosswalk or within an unmarked crosswalk at an intersection shall yield the right of way to all vehicles upon the roadway.” Always yield right of way to pedestrians in the cross walk.

Use caution when turning right – pedestrians standing on the corner are at risk. Intersections inherently have higher concentrations of traffic because two or more roadways are travelling through one small space. Adding pedestrians to this environment increases the risk of not seeing them.

However, you cannot be certain that a pedestrian will obey this law and give you the yield. Always use extreme caution whenever a pedestrian is present anywhere near or on the roadway.

Right of Way: Controlled Highways

On ramps are provided as a space to accelerate up to the speed of the flow of existing traffic in the roadway you are entering.

Off ramps allow you to maintain flow of traffic speed until leaving the highway – slowly reduce speed on the off ramp, instead of in the flow of traffic becoming a highway hazard.

Yield signs at highway entrances require extreme caution when entering flow of traffic – allow yourself the time and space to get up to the speed of traffic on the highway you are entering. As in all intersections extreme caution is required.

Entering the Intersection

Always look to each side of your vehicle at intersections, crosswalks, and railroad crossings. Look both ways even if other traffic is required to stop, to be sure other motorists are obeying their traffic controls. Look to the left first, since vehicles coming from the left are closer to you than vehicles coming from the right, then right and left again.

When you determine it to be clear, enter the intersection. If once you start into the intersection, you notice something, it may be a better decision to continue rather than stop or go back. This is referred to as the “Point of No Return”.

Lane Changes

Anticipate what lane you will need to be in once exiting the intersection and position for that lane going in.

Never change lanes in the middle of an intersection – others using the lanes and turning lanes will not be able to yield to any lane change and it will serve to confuse those around you. Intersections can be confusing, get the big picture and use extreme caution.

Turning in the Intersection

Right Turns:

- Signal intent to turn
- Advance into the intersection until the right vehicle rear wheels will clear when making the turn
- Check right side mirrors frequently for vehicles “squeezing” up the right side
- Adjust for parked cars or other obstructions
- Be aware of pedestrians

Left Turns:

- Signal intent to turn
- Wait for on-coming traffic to clear

- Advance into the intersection until the left vehicle rear wheels will remain in your lane when making the turn
- Check mirrors for tail swing clearance
- Adjust for parked cars or other obstructions
- Be aware of pedestrians

Off-Tracking

- The front wheels turn, the rear wheels are being pulled behind.
- The front wheels make an arc into the intended lane of travel; however, the rear wheels follow a more diagonal path and may track into adjacent lanes, parked cars etc.
- In sharp right turns, the bus will track into the outside lane or on-coming traffic – make sure these lanes are clear before executing the turn.

Tail Swing

- When a large vehicle turns, the rear wheels do not exactly follow the path of the front wheels.
- At the pivot point, the tail (rear) of the bus will swing wide, outside the track of the bus.
- Caution must be used to not strike a fixed object, parked car or pedestrian with the tail of the bus.
- The rear of the bus can swing out over the edge of sidewalks and shoulders and risk striking a pedestrian.
- Carefully account for the space needed for the tail swing to execute safely.

Case Study: Rochester NY Roll Over

Summary:

A fire truck responding to an emergency ran a red light and collided with a 65 passenger school bus with 29 students on board. The school bus driver did not hear the fire truck because her view was obstructed by an automotive service building.

The fire truck broad-sided the school bus, pushed it sideways and flipped it on its side. The fly section of the fire truck ladder caught the bus crossbar. The school bus came to rest against the Eastman Kodak building. There were mostly minor injuries such as scrapes, lacerations, bruises and a few broken bones. One student suffered a head injury and was hospitalized.

Quickly review the intersection collision summary and then in your group discuss the following:

- What were the contributors to this intersection collision?
Was there anything about the design of the intersection that contributed?
Why do you think the school bus driver did not hear the fire truck?
- Should the school bus driver have anticipated the action of the fire truck?
If so, what things should they have noticed to help them anticipate it?
- Could the school bus driver have done anything to avoid this collision?
If so, what specifically?
If an attendant was on board, how might they have contributed to avoiding this collision?

Notes:

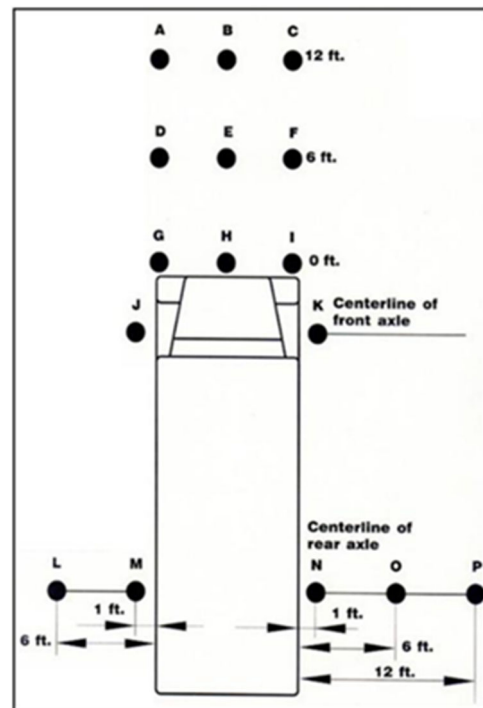
Effective Mirror Use - FMVSS 111 – Mirror Grid

Properly adjusted mirrors reduce the blind spots on your bus and are critical to the safe transportation of students.

When mirrors are properly adjusted you should see:

- From the front bumper of the bus, out 12 feet.
- 12 feet out to the side from the rear wheels.
- 200 feet behind the bus

Checking the mirror adjustments on a bus should be done regularly. Rough road surfaces and jarring from normal travel will vibrate your mirrors out of adjustment. Make it a habit to check mirrors often.



“Rock Before You Roll”

The mirrors can help the driver to see around the vehicle – however, they also can create blind spots. Every school bus has vision obstructions created by mirror brackets, posts and pillars (bus structure) which may obscure the driver’s view.

They are especially challenging when turning the bus – it is possible to block the driver’s view of a pedestrian or a vehicle in the opposing lane. The driver who is aware of the blind spots can learn to eliminate them by moving in the seat - Rock Before you Roll!

“Rocking” in the seat requires you to lean forward, lean back, lean to each side making a circular motion with your body while observing around any view obstructions in, on or around your bus.

Rolling Blind Spots

Visually searching is never more important than when executing an intersection of any type. There are blind spots in the front of the bus that are inherent in the design of the bus as we previously discussed.

When you and another vehicle are approaching an intersection at a 90-degree angle, at approximately the same speed, they may remain in your blind spot without detection. This is called a rolling blind spot because as you roll, the other motorist rolls along with you, staying in your blind spot.

Actively moving in the driver’s seat allows you to see the roadway approaching the intersection from different perspectives allowing you to see a vehicle in a rolling blind spot. This seat movement is called “Rocking & Rolling” in the seat. This seat movement enhances the visual search at intersections and allows you to identify the hazard.

Case Study: Snyder, Oklahoma

Summary:

In Snyder, Oklahoma 1993, a school bus was traveling at the same speed as a tractor trailer on a perpendicular road. Both vehicles were traveling at approximately the same speed. The tractor trailer was in the school bus’s rolling blind spot. School bus stop at intersection was so brief that the tractor trailer continued to be in the bus blind spot (driver failed to rock and roll in seat). Bus entered intersection in path of 18-wheeler killing 4 children.

Quickly review the intersection collision summary and then in your group discuss the following:

- What were the contributors to this intersection collision?
Was there anything about the design of the intersection that contributed?
How might this collision have changed if an attendant was on the bus?
- Should the school bus driver have anticipated the action of the truck?
If so, what should have been noticed to help anticipate it?
- Could the school bus driver have done anything to avoid this collision?
If so, what specifically?

Notes:

Intersection Tips

- Scan far ahead carefully to get the big picture
- Slow down as you approach
- Enter the intersection in the lane you need immediately following
- Cover the brake
- Beware of stale traffic lights – don't rush
- Follow all right of way rules
- Rock & Roll in seat to avoid rolling blind spots

Conclusion

- Intersections are extremely hazardous
- Approach them with maximum caution
- Reduce speed and cover brake
- Maintain adequate space around the vehicle
- Use defensive driving techniques

*Thank you for participating in this important training
– have a safe school year and execute safe intersections!*