

INSTRUCTOR'S GUIDE

# Make it a Round Trip

Highway-Railway Crossing Awareness Training for School Bus Drivers



OPERATION  
LIFESAVER

## WHAT WE DO

Operation Lifesaver is a nationwide, non-profit public information and education organization dedicated to eliminating collisions, injuries, and fatalities at highway-railway crossings and from trespassing on railway rights-of-way. The program provides information to professional truck drivers, school bus drivers, motor coach and transit drivers, emergency responders, and the general public.

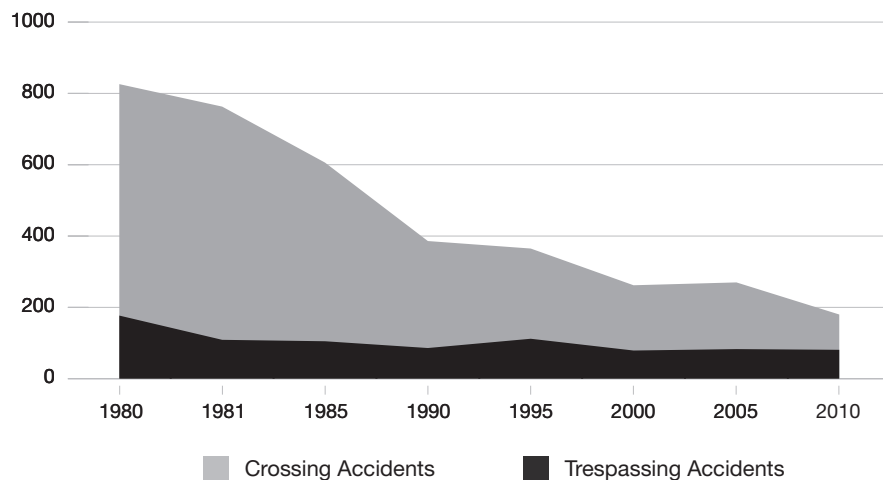
## WHO WE ARE

Operation Lifesaver is a partnership initiative of the Railway Association of Canada and Transport Canada and works in cooperation with the rail industry, government, police, unions, and many public organizations and community groups.

## WHY WE DO IT

The program has contributed significantly to a more than 75 percent reduction in train/vehicle collisions and casualties since 1981, despite a nationwide increase in train and vehicle traffic.

## PROOF IT WORKS



## MORE RESOURCES

For additional learning materials and access to supplementary videos and audio recordings, visit [www.operationlifesaver.ca](http://www.operationlifesaver.ca).



# TABLE OF CONTENTS

<b>INTRODUCTION</b> .....	<b>1</b>
NEED TO KNOW	
TARGET AUDIENCE	
GOALS	
TOOLS	
<b>PRESCREENING DISCUSSION TOPICS</b> .....	<b>2</b>
<b>STUDENT STUDY MATERIALS</b> .....	<b>3</b>
<b>WARNING SIGNS AND DEVICES</b>	
Passive Signs/Pavement Markings in Advance of Highway-Railway Crossings	
Active Signs in Advance of Highway-Railway Crossings	
Passive Signs/Pavement Markings at Highway-Railway Crossings	
Active Devices at Highway-Railway Crossings	
<b>RECOMMENDED PROCEDURES AT HIGHWAY-RAILWAY CROSSINGS</b> .....	<b>6</b>
General Safety Tips for All School Bus Drivers	
Additional Safety Tips for School Bus Drivers Required to Stop at All Crossings	
Other Considerations	
It's the Law	
Penalties	
Safe Practices	
<b>TRAIN FACTS</b> .....	<b>8</b>
<b>HIGHWAY-RAILWAY CROSSING FACTS</b> .....	<b>8</b>
<b>SAFETY QUIZ ANSWER KEY</b> .....	<b>9</b>
<b>MORE INFORMATION</b> .....	<b>10</b>





# INTRODUCTION

## NEED TO KNOW

- Highway-railway crossings are intersections where the road crosses the railway tracks.

## TARGET AUDIENCE

- Professional school bus drivers and substitute drivers.

## GOALS

- Increase driver awareness of potential dangers at highway-railway crossings.
- Teach drivers procedures to follow at highway-railway crossings to make sure their young passengers make it home safely.

## TOOLS

- **Instructor’s Manual & Student Notes:** these materials will help you to prepare school bus drivers to successfully navigate the potential dangers at railway crossings.
- **Video, “Make it a Round Trip”:** teaches school bus drivers the correct procedures to follow at highway-railway crossings and how to keep their young passengers safe.
- **Safety Quiz:** 20 questions based on the Video and Student Notes: six multiple choice questions, 14 true or false.
- **Website:** visit [www.operationlifesaver.ca](http://www.operationlifesaver.ca) for additional learning materials, including access to supplementary videos and audio material.



### Recommended Time Frame For Training Module (using a 60-minute format)

- Introduction ..... 5 minutes
- Discussion ..... 15 minutes
- Video ..... 10 minutes
- Student Study Material..... 15 minutes
- Safety Quiz ..... 10 minutes
- Question & Answer Period ..... 5 minutes



*The primary contributing cause of vehicle-train collisions is **driver error**.*

# PRESCREENING DISCUSSION TOPICS

*Before viewing the video, engage students in discussion using the following topic suggestions:*

- 1** Engage students in a discussion about their everyday experiences as school bus drivers. Consider the following questions:
  - How well do they know their routes?
  - What are their everyday stress factors and expectations, and what safety habits do they currently practice?
- 2** Discuss situations where vehicle size and clearance is an issue. Consider:
  - Do drivers know the length of their buses?
  - Do they know the clearance at the crossings on their route?
  - How do they determine whether it is safe to stop on the other side of the railway tracks?
  - How do they deal with multiple sets of tracks with varying spaces between them?
- 3** Discuss the fact that all vehicles, including school buses, must yield the right-of-way to trains. Remind drivers that trains cannot stop quickly for any vehicle.
- 4** Ask one or two drivers to explain how they judge the train's speed and its distance from them and then discuss:
  - How do they decide how much time they have to get across the tracks before the train arrives?
  - Do they wait whenever they hear or see a train coming?
- 5** School bus drivers should "Always Expect a Train".
  - Remind drivers that train traffic has been steadily increasing in the last ten years.
  - Inform them that freight trains do not travel on schedule, and passenger trains change schedules.
- 6** Before viewing the video, ask the drivers if they have ever tried to "beat the train" or driven around lowered crossing gates.





# STUDENT STUDY MATERIAL

The following information is provided in the *Student Notes*

## WARNING SIGNS AND DEVICES

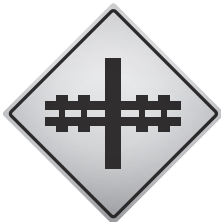
Visit the Operation Lifesaver website at <http://www.operationlifesaver.ca/facts-and-stats/signs-and-devices/>, for further information on this section.

Signs and traffic control devices are installed along roads near highway-railway crossings to:

- Regulate, warn and guide traffic.
- Alert drivers to the presence of railway tracks and the possibility of an approaching train.
- Provide a safety message and remind drivers of the laws regarding highway-railway crossings.

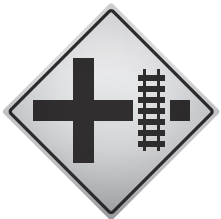
## PASSIVE SIGNS/PAVEMENT MARKINGS IN ADVANCE OF HIGHWAY-RAILWAY CROSSINGS

These are non-active signs that warn that a highway-railway crossing is ahead.



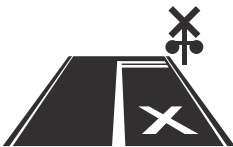
### Yellow Diamond-Shaped Advance Warning Sign

- Warns drivers that the road crosses railway tracks ahead.
- Shows the angle of the track to the road.
- Reminds you to slow down, look and listen for a train and be prepared to stop if a train is approaching.



### Yellow Diamond-Shaped Parallel Track Sign

- Identifies highway-railway intersections that appear immediately after making either a right or a left turn.

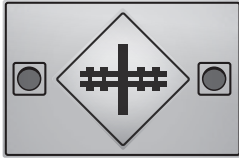


### Pavement Markings

- A white "X" may be painted on the pavement in advance of highway-railway crossings.
- A double Stop line may be painted on the pavement five metres prior to the crossing.
- You must stop your vehicle no closer than five metres and no farther than 15 metres from the nearest rail.

## ACTIVE SIGNS IN ADVANCE OF HIGHWAY-RAILWAY CROSSINGS

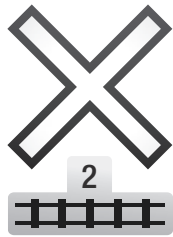
*These are automated devices that warn of an approaching train.*



### Yellow Diamond-Shaped Advance Warning Sign with Yellow Flashing Lights

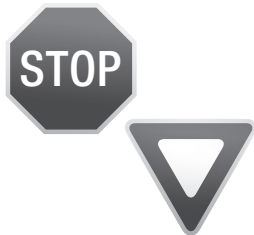
- Warns drivers that they are approaching a highway-railway crossing.
- When the yellow lights are flashing it indicates that the crossing signals are, or are about to become, active.
- Be prepared to stop.
- Shows the angle of the track to the road.

## PASSIVE SIGNS/PAVEMENT MARKINGS AT HIGHWAY-RAILWAY CROSSINGS



### The Railway Crossing Sign – also known as a “Crossbuck”

- The most common sign at public highway-railway crossings.
- Indicates to drivers that they must yield the right-of-way, stopping if necessary, before entering the railway crossing area and must not proceed until it is safe to do so.
- If there is more than one track, a sign below the Crossbuck indicates the number of tracks present. After one train has passed, look and listen for another train approaching from either direction. Be especially careful at crossings without gates, flashing lights or bell(s).
- Always expect a train.



### STOP and YIELD signs (when used at highway-railway crossings)

- Mean the same as they do at highway intersections.
- The Stop sign indicates to drivers that they must stop their vehicles completely before entering the railway crossing area and must not proceed until it is safe to do so.
- The Yield sign indicates to drivers that they must yield the right-of-way, stopping if necessary, before entering the railway crossing area and must not proceed until it is safe to do so.



### The EXEMPT sign

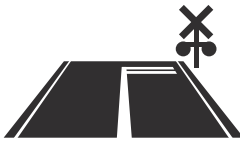
- Used in some provinces and placed below the Crossbuck.
- Informs drivers of vehicles required by law to stop at all highway-railway crossings, that a stop is not required, except when a train is approaching or occupying the crossing, or the driver's view of the sign is blocked.





### DO NOT STOP ON TRACKS sign

- Usage and placement varies from province to province.
- Reminds you not to stop on the railway track for any reason.

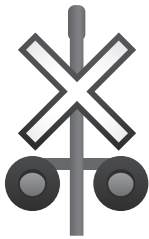


### Pavement Markings

- A double stop line may be painted on the pavement five metres prior to the highway-railway crossing.
- You must stop no closer than five metres and no farther than 15 metres from the nearest rail.

## ACTIVE DEVICES AT HIGHWAY-RAILWAY CROSSINGS

*These are automated devices that warn of an approaching train.*



### Flashing Red Lights

- Used to close to road when a train approaches.
- Accompanied by bell(s).
- Red lights flashing means a train is approaching.
- Stop and wait for the train to pass.
- Proceed when the lights and bell(s) have stopped, the train has passed and you can do so safely.



### Flashing Red Lights With Bell(s) and Gates

- Used to stop traffic when a train approaches.
- Stop when the lights and bell(s) are activated and prior to the gates lowering across your side of the road.
- Remain stopped until the gates are fully raised and the lights stop flashing.
- It is illegal to go around the gates.

For additional information related to Signs and Devices, please visit:  
<http://www.operationlifesaver.ca/facts-and-stats/signs-and-devices/>

# RECOMMENDED PROCEDURES AT HIGHWAY-RAILWAY CROSSINGS

## GENERAL SAFETY TIPS FOR ALL SCHOOL BUS DRIVERS

- 1** When approaching a crossing, slow down by shifting to a lower gear (manual transmission) and test your brakes.
- 2** Look beyond the tracks to see if traffic is backed up, or if there's a signal or STOP sign that could affect traffic flow or your ability to completely clear the crossing.
- 3** Ask your passengers to be quiet.
- 4** Open the window and door while you look and listen for an approaching train. Note: This is a legal requirement in some provinces.

## ADDITIONAL SAFETY TIPS FOR SCHOOL BUS DRIVERS REQUIRED TO STOP AT ALL CROSSINGS

- 1** Scan your surroundings and check for traffic behind you. Make sure other drivers know your intentions.
- 2** Place the transmission in neutral and press down on the service brake or set the parking brakes.
- 3** Check the crossing signals again before proceeding.
- 4** At a multiple-track crossing, stop **ONLY** before the first set of tracks. When you are sure no train is approaching on any track, proceed across all of the tracks until you have completely cleared them.

## OTHER CONSIDERATIONS

### *POLICE OFFICER OR FLAG PERSON AT THE CROSSING*

If a police officer or properly identified railway flag person is at the crossing:

- Obey directions.
- Remember that you are still responsible for the safety of your passengers.
- Confirm that it is safe to cross the tracks by looking and listening for the approach of a train.

### *VIEW OF THE TRACKS AT CROSSINGS*

Cross the tracks only if you can see far enough down the track to ensure that no trains are approaching.

- Be especially careful at crossings without gates, flashing lights or bell(s).
- Always look and listen to be sure it is safe to proceed - even if there are active warning signals, and they do not indicate a train is approaching.

### *VEHICLE SIZE AND CLEARANCE*

*- IF IT WON'T FIT, DON'T COMMIT!*

- Know the length of your bus and the amount of space available on the far side of the highway-railway crossings on the bus route.
- When approaching a crossing with a signal or STOP sign on the opposite side, pay attention to the amount of available room.
- Be certain the bus has enough space to completely clear the railway tracks on the other side.
- Remember that the train will be a metre wider than the rails on both sides.
- Do not stop on the tracks.





## REPORTING HAZARDS

Report any conditions at highway-railway crossings that may be dangerous to highway or rail traffic.

- Ensure that your dispatch centres know which railways operate in the area and have railway emergency numbers.
- Call the railway emergency number, generally posted prominently at crossings, often on either crossing posts, behind a crossing sign or on a signal box.
- If this number cannot be located immediately, call 911 or the local emergency number.

## EVACUATING A BUS

If your bus stalls on a crossing:

- Get all the students off the bus and away from the track immediately.
- Move quickly to a point at least 30 metres away from the track and the bus.
- Contact the railway – emergency numbers are generally posted prominently at crossings.
- If this number cannot be located immediately, call 911 or the local emergency number.

## IT'S THE LAW

Your actions at highway-railway crossings are governed by provincial laws and regulations that vary from province to province. Be aware of and follow your province's laws. Also know that local law and company policy may require further action.

## PENALTIES

Penalties for not obeying the law while operating a school bus include:

- Fines.
- License downgrade or suspension.
- Driver record which could result in higher insurance cost, loss of employment or being screened out of other job opportunities.
- Penalties vary depending on the offence and the province in which the infraction occurs.

## SAFE PRACTICES

Here are some safe practices to always follow at highway-railway crossings:

- Activate the four-way hazard lights no less than 150 metres before the crossing.
- Stop no closer than five metres and no farther than 15 metres from the nearest rail (wherever you have the best view of the tracks).
- Turn off radio and fans.
- Open door.
- Check for clearance of right-of-way.
- Always cross tracks with your bus in a gear that will not require you to change gears, as it is illegal to shift gears while crossing the railway tracks.

# TRAIN FACTS

- A train traveling at 90 km/h covers a distance of 25 metres a second. (Give an example by identifying 25 metres.)
- The train is a metre wider on each side of the rails.
- Trains cannot stop quickly. An average freight train of 100 railcars, weighing approximately 8,000 tonnes and traveling 100 km/h, can take up to two kilometres to stop, after an emergency brake application.
- Passenger trains, either light rail or intercity, cannot stop quickly. Some passenger trains can travel up to 160 km/h. In an emergency, it can take as much as 1.6 kilometres to stop.
- When stopped at the crossing, as you look down the tracks, you may experience an optical illusion. The train may appear to be farther away and traveling slowly. The reality is the train can be much closer and going quite fast. Don't misjudge a train's speed and distance. When in doubt, WAIT for the train to pass.

# HIGHWAY-RAILWAY CROSSING FACTS

- 1 Nearly 70 people are killed or seriously injured in approximately 250 highway-railway crossing collisions annually.\*
- 2 On average, over the past five years, there have been 29 vehicle-train fatalities each year.
- 3 A motorist is 40 times more likely to die in a collision with a train than in a collision involving another motor vehicle.
- 4 In most years, more people die in collisions with trains than in commercial airline crashes.\*
- 5 Approximately 50 percent of collisions at public highway-railway crossings occur where active warning devices have been installed.
- 6 There are approximately 20,000 public and 17,000 private highway-railway crossings in Canada.
- 7 The majority of vehicle-train collisions occur when the train is traveling less than 50 km/h.

**SOURCES:** Operation Lifesaver, Transport Canada, Transportation Safety Board of Canada.

\* Based on Transportation Safety Board of Canada data.

For updates, check the Transportation Safety Board of Canada website: [www.tsb.gc.ca](http://www.tsb.gc.ca).





# SAFETY QUIZ ANSWER KEY

- 1 b) 250
- 2 c) 29
- 3 d) Approximately 2 kilometres or the equivalent of about 18 football fields.
- 4 d) Know your bus length. If you have doubt as to the available space of the other side of the crossing, do not take a chance. If it won't fit, don't commit.
- 5 b) An optical illusion makes the train appear to be farther away and moving slower than it actually is.
- 6 d) Keep going. It takes less time than trying to back-up off the crossing.
- 7 **False.** No motor vehicle has the right-of-way at highway-railway crossings. The laws of physics make it impossible for a train to stop quickly enough to help prevent a collision.
- 8 **True.** A highway-railway crossing is marked with a crossbuck sign, which should be considered the same as a YIELD sign.
- 9 **True.** A STOP sign at a highway-railway crossing requires a full stop, as it does at any intersection.
- 10 **False.** A number posted below the crossbuck indicates the number of tracks at that crossing. It warns the driver to beware of trains approaching from either direction on more than one track.
- 11 **True.** Lowered gates and flashing red lights mean do not proceed. Even if a train has just passed, another could be approaching. It is extremely dangerous and against the law to go around lowered gates.
- 12 **True.** Advance warning signs are used to alert drivers to the presence of railway tracks and to the possibility of an approaching train.
- 13 **False.** When there is more than one set of tracks, a train could be approaching from either direction.
- 14 **False.** If the bus stalls, evacuate the students immediately.
- 15 **True.** Do not stop.
- 16 **False.** By the time the locomotive engineer can see a school bus on the tracks, it is too late to be able to avoid a collision. Trains cannot stop quickly, even after applying the emergency brakes.
- 17 **True.** This is the law in every province.
- 18 This question is included to initiate discussion. Provincial laws and regulations vary in each province. Please ensure you review the applicable requirements in your area or district.
- 19 **False.** There is no way to know if the signals are malfunctioning. If it appears they are malfunctioning, call the dispatcher, 911, or the railway emergency number posted at the crossing. If necessary, use another crossing.
- 20 **True.** Learn lifelong, lifesaving habits at highway-railway crossings.

# MORE INFORMATION

For more information, visit the Operation Lifesaver website at [www.operationlifesaver.ca](http://www.operationlifesaver.ca), or contact us at:

**Operation Lifesaver**

99 Bank Street, Suite 901

Ottawa, Ontario K1P 6B9

Phone: 613-564-8100

Fax: 613-567-6726

Email: [admin@operationlifesaver.ca](mailto:admin@operationlifesaver.ca)

This document may be reproduced without modification or alteration.

© 2011 Operation Lifesaver

All Rights Reserved.









**OPERATION  
LIFESAVER**

A Partnership in Public-Rail Safety