



Transport
Roads & Maritime
Services

Hazard perception handbook



This handbook is only an interpretation of the law made easy to understand by using plain English. Laws change often so make sure you have the most recent handbook available on Roads and Maritime Services website at rms.nsw.gov.au

OTHER RMS PUBLICATIONS FOR LEARNER DRIVER

- Road Users' Handbook
- Driver qualification handbook

Foreword

When you were a learner driver, it might have seemed that driving was all about steering the car, changing gears, using the indicators and knowing the road rules. While these are important, to stay safe as a solo driver you also need to be able to detect and react to any hazards that might arise when you are driving.

A hazard is any possible danger that might lead to an accident. This includes pedestrians crossing the road, roadworks, broken-down vehicles and other cars stopping ahead of you or entering from side roads.

There are many hazards out there on the roads. Good and safe drivers know how to recognise and respond to hazards. They know how to spot them in time to take actions that will avoid accidents. They know these things because they have good **hazard perception skills**.

The *Hazard Perception Handbook* and the associated interactive information on our website have been produced to assist you in developing your hazard perception skills and to drive more safely.

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What is the HPT?

■ THE HAZARD PERCEPTION TEST (HPT)

The HPT involves a touch-screen computer-based test which measures your ability to recognise potentially dangerous situations on the road and react appropriately.

You must pass the HPT to progress from a P1 to a P2 licence.

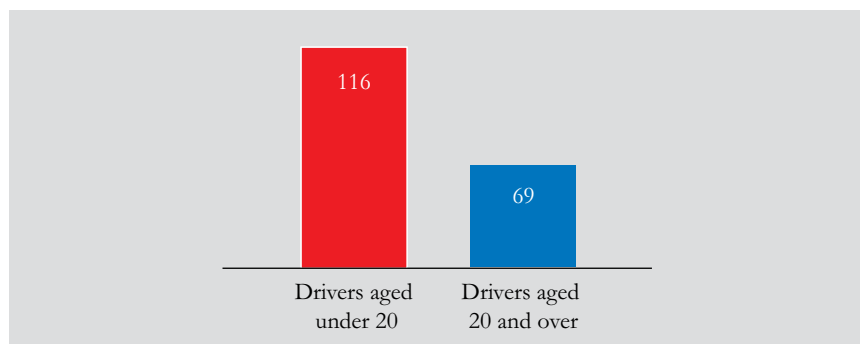
A summary of how the HPT works and what to expect when you take the test can be found at the section titled, *How the Hazard Perception Test works*.

You can also visit the HPT website for a more interactive explanation.

■ WHY THE HPT?

The aim of the HPT is to confirm that P1 drivers have enough hazard perception skills to graduate to the less restricted P2 licence. Research shows that HPT skills are important for safe driving and that drivers with poor hazard perception skills usually have more crashes. Research also shows that screen-based hazard perception tests can detect drivers with a higher risk of crash involvement.

Currently, drivers aged under 20 years are involved in casualty crashes at almost twice the rate of those aged 20 years or more. The graph following shows this clearly.



Number of driver involvements in casualty crashes per 10,000 licence holders, 2007-2009

The HPT is based on the driving situations that lead to the five most common crash types for NSW provisional drivers. More information on these crash types may be found in the section *Crash patterns of provisional drivers in NSW*.

The purpose of the HPT is to reduce the high level of young driver crashes in NSW by:

- Encouraging new drivers to develop hazard perception skills.
- Testing P1 drivers on driving situations that are known to lead to the most common types of crashes involving new drivers in NSW.
- Only allowing P1 drivers with adequate hazard perception skills to graduate to less restricted P2 status.

■ HAZARDS AND HAZARD PERCEPTION

There are three basic hazard perception skills that are assessed in the HPT. The three are keeping a safe distance from other vehicles, selecting safe gaps and identifying hazards.

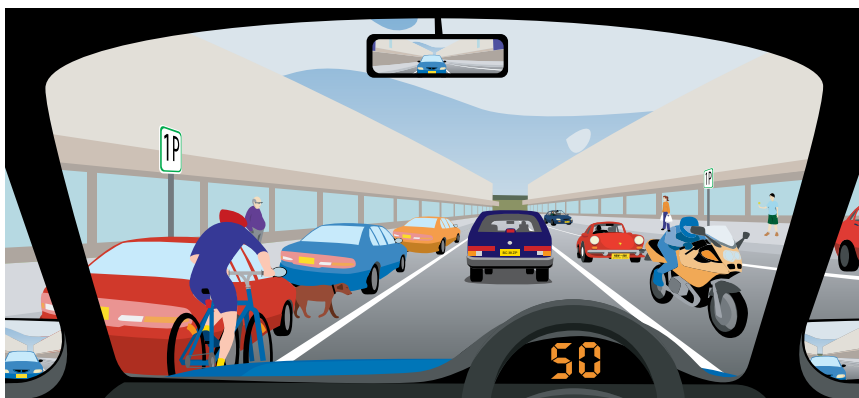
Keeping a safe distance from other vehicles allows you to have more time to detect and respond to hazards.



Selecting safe gaps when turning, crossing traffic or changing lanes will enable you to turn, overtake, change lanes or cross an intersection without being involved in a crash.



Identifying hazards ahead, behind and to the side is a skill that drivers need to use to avoid crashes.



Information on how to develop these key hazard perception skills and other useful safe driving skills can be found in this handbook.

■ DEVELOPING HAZARD PERCEPTION SKILLS

It takes time to develop hazard perception skills. The best way to achieve them is by getting plenty of driving experience across lots of different driving situations. This is how more experienced drivers have developed their hazard perception skills. Because they have these skills, these drivers are involved in fewer crashes than less experienced drivers.

The aim of this handbook is to help you develop hazard perception skills that will make you a safer driver and prepare you to undertake the Hazard Perception Test (HPT). It will also help make the road safer for other road users.

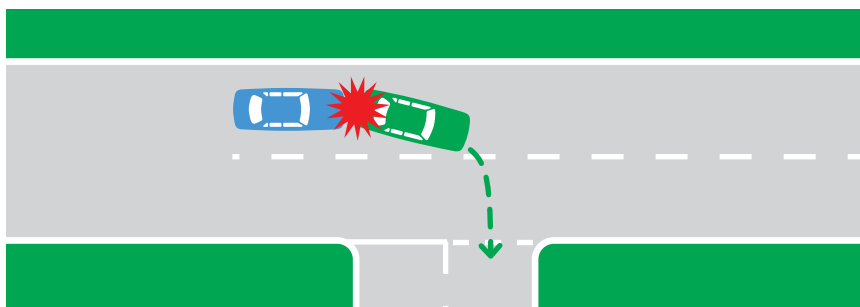
Because it takes time and practice to develop hazard perception skills, you should be working on them from the day that you get your P1 licence.

Crash patterns of provisional drivers

About 80 per cent of all NSW provisional driver crashes fall within five crash types.

■ FIVE MOST COMMON CRASH TYPES FOR PROVISIONAL DRIVERS

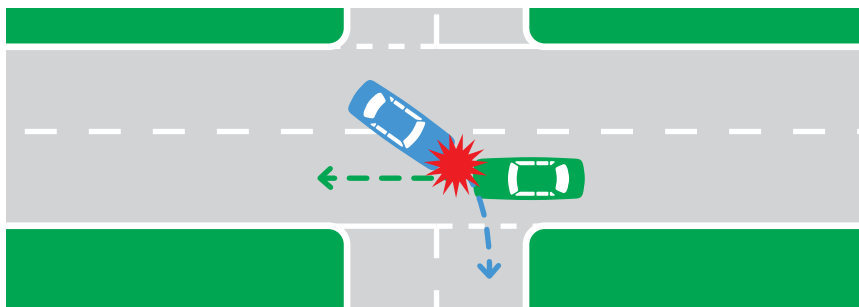
33 per cent involve a rear end collision of two vehicles travelling in the same direction.



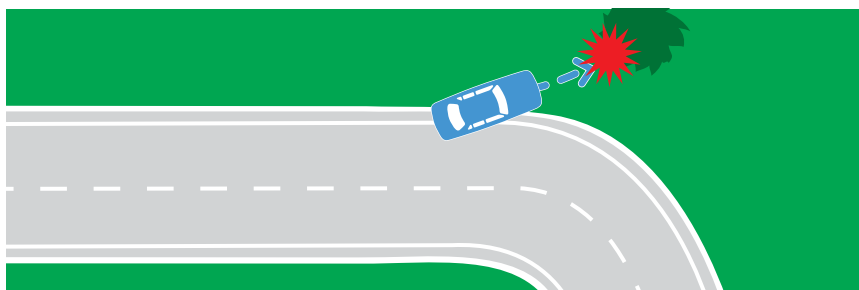
17 per cent involve colliding with other vehicles coming from adjacent directions (generally from the left or right), usually at intersections.



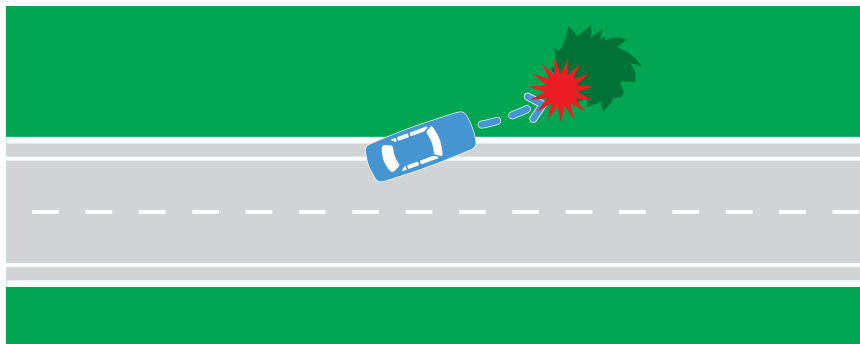
15 per cent involve collisions with vehicles coming from the opposite direction (eg head on collisions).



8 per cent involve running off the road on a curve or bend and hitting an object, such as a tree, a pole or a parked vehicle.



9 percent involve running off the road on a straight section and hitting an object such as a tree, a pole or a parked vehicle.



■ WHERE AND WHEN THESE CRASHES HAPPEN

Most of these crashes occur in daylight in fine weather and on dry roads. They are also more common in built up areas.

■ COMPARISON WITH FULL LICENCE HOLDERS

When compared with full licence holders in NSW, provisional drivers are over-represented in crashes:

- On local roads.
- In darkness.
- Where their vehicle collides with roadside objects such as trees or fences.

■ WHY ARE PROVISIONAL DRIVERS MORE INVOLVED IN CRASHES?

The higher involvement of provisional drivers in crashes seems to be partly due to inexperience because driving is a new skill. When we are new at anything (eg playing tennis or netball) we tend to make mistakes and not be as skillful as those with lots of experience.

However, new drivers also sometimes do things that can increase their risk of crash involvement. These include:

- Travelling too closely behind other vehicles.
- Driving too fast for the conditions.
- Not looking far enough ahead when driving.
- Choosing gaps that are too small when making turns, crossing intersections or overtaking.

■ AVOIDING CRASHES

If you are a provisional driver, it is important to know what driving situations are most dangerous for you. You can then identify the skills you need to practise so you can handle these situations safely. Research shows that one of the most important of these skills is hazard perception. This is why Roads and Maritime has introduced the HPT for P drivers in NSW.

How the HPT works

The Hazard Perception Test is a touch-screen computer-based test that measures your ability to recognise potentially dangerous situations and react appropriately to these situations when driving.

This section of the handbook explains how the test works and what to expect when you take it.

■ BOOKING THE HPT

You will need to book and pay a fee to take a HPT. When you are ready make a booking:

- By booking online at rms.nsw.gov.au/onlineservices
- By calling Roads and Maritime on 13 22 13.
- In person at a registry or a Service NSW centre in your area.

■ WHERE TO GO FOR THE HPT

A HPT can be taken at our registry. In towns without our registry or a Service NSW centre, you can go to an Roads and Maritime agency for the test – the Roads and Maritime agency is usually at the council chambers or police station. On the day you go for the HPT, you need to provide a completed *Licence Application Form* and show acceptable proof of your identity (See the brochure *How to prove who you are to Roads and Maritime*). If your identity documents do not meet Roads and Maritime standards you cannot attempt the HPT.

A fee is charged each time you sit the HPT.

■ NON-ENGLISH SPEAKERS/ APPLICANTS WITH SPECIAL NEEDS

The HPT is also available in nine community languages (Arabic, Chinese, Croatian, Greek, Korean, Serbian, Spanish, Turkish and Vietnamese).

Should you wish to undertake the test in a language other than English, an interpreter service is available. If you require this service please call 13 22 13.

An audio function is also available in English and each of the nine community languages. This allows you to listen to the questions and answer options through a headset. If you wish to use the audio/sound option, please advise the registry or Service NSW officer before starting your test.

Applicants with special needs (or their representatives) should discuss any issues related to their needs or disabilities with the registry manager before booking the test. This allows time for appropriate arrangements to be made for the applicant on the day of the test. Arrangements can be made by calling 13 22 13.

■ WHEN TO TAKE THE HPT

You can attempt the HPT when you have had a minimum of 12 months experience on your P1 licence. However, there is no hurry, you should only attempt the HPT when you feel ready. Ready means that you have had sufficient driving experience, read this handbook thoroughly, visited the companion website: rms.nsw.gov.au/http.htm and apply all the information to your driving.

Remember, you will be charged the HPT test fee each time you sit the test.

■ WHAT HAPPENS WHEN YOU GET THERE

When you go to a registry or testing agency to take the HPT, your licence details will be checked. Your eligibility to sit for the test will also be checked.

Once these checks have been made, you will be assigned to a test kiosk to take the test. A typical kiosk is shown in the following picture. It is simply a special desk with a touch-screen computer mounted on it.

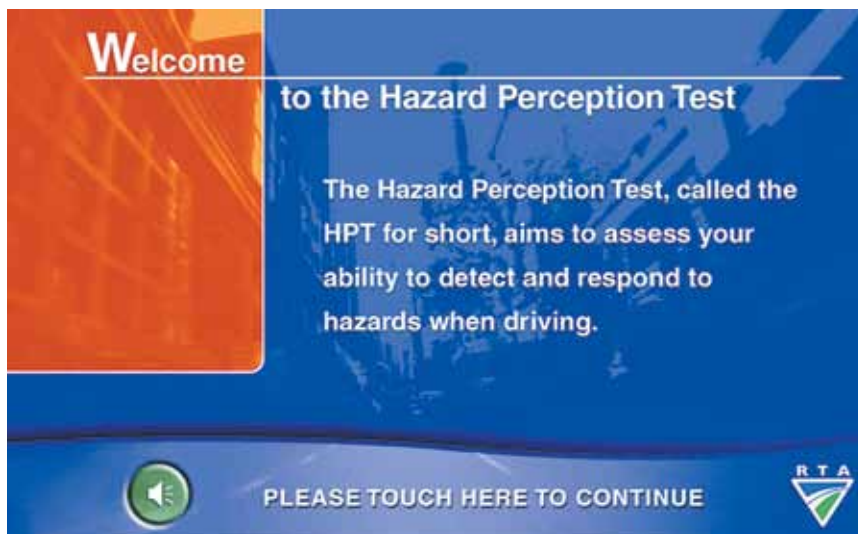
At some testing agencies and in some regional or remote areas, you may take the HPT on a portable or laptop computer. In these situations the HPT is exactly the same.



Interacting with the HPT computer

You do not need to understand computers to take the test. All interaction with the HPT computer is via the touchscreen.

The first screen that you will see is the Welcome screen which is shown below. When you have read the information on the screen you just touch the screen to move to the next screen.



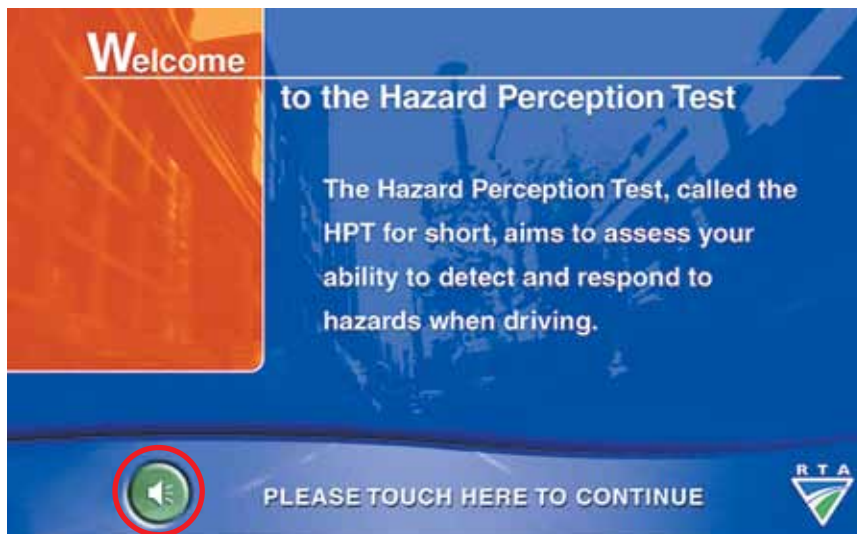
The structure of the test is:

- Welcome screen.
- Test instructions.
- Two practice items.
- 15 test items.
- Feedback screen.

These parts of the test are explained below.

■ AUDIO/SOUND OPTION

You can read the test instructions on the screen, and you can also have the instructions read to you. If you choose to listen to the instructions, you need to advise the Roads and Maritime customer service officer at the counter before the test and you will be given a set of headphones. You will then simply need to plug in the headphones to the base of the computer monitor. After the test, you must return the headphones to the customer service officer.



■ THE SOUND BUTTON

There is a round green sound button marked with a speaker symbol. This button turns the sound on or off during the test. You can use it at any time. When the sound button is on, you will hear the information written on the screen.

■ WHAT YOU WILL SEE AFTER THE WELCOME SCREEN

After the Welcome screen, the computer will take you through an introductory section that tells you about the test. This is followed by the test instructions. You will also be given two practice HPT questions before the actual test starts. This will help you become familiar with the HPT and how it operates.

■ THE TEST INSTRUCTIONS

The test instructions explain that the HPT is made up of 15 test items (or questions). These are 15 film clips of real traffic situations that you will be asked to respond to. These situations are based on the most common crash types in which provisional drivers are involved (see five most common crash types for provisional drivers).

In the film clips you see what the driver would see. You are told what the driver wants to do (eg turn or go straight ahead) and you touch the screen if and when you think it would be safe to do it.

For example, you might be shown the scene in the following picture. The text on the screen (and the voice on the sound support) might say:



You are driving along a 2-way street in a 60 km/h speed zone. You wish to keep driving straight ahead.

Touch the screen when you would slow down.

At the beginning of each HPT film clip you will be told about the situation. This might be as shown in the picture above. To help you understand the situation, you will be shown a still picture for three seconds before the film clip starts moving.

In each film clip the dashboard shows the speed at which you are travelling and if the indicators are operating.

During the film clip you will need to touch the screen if and when you think an action is required. Actions may include such things as slowing down, overtaking or crossing an intersection.

If you think it would be unsafe to take any action you should not touch the screen. Just like when you are driving on a real road, the HPT may show you situations where it would be unsafe to take an action such as turning or overtaking. Therefore, you need to be able to decide when you can take an action and when it would be safer to do nothing.

If you touch the screen during a practice item or actual HPT item, you will hear a sound and the picture will flash. This indicates that the computer has recorded your response.

The film clip may run for another few seconds, but once you have heard the sound and seen the flash there is no need to touch the screen again.

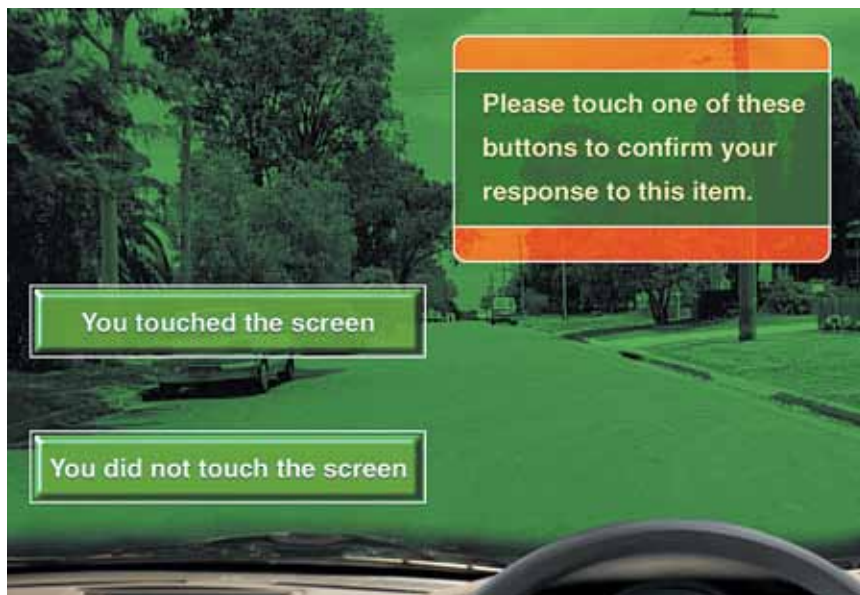
If you did not touch the screen the clip will continue to play to the end and you will not hear the sound or see any flash.

■ THE CONFIRMATION SCREEN BUTTONS

After each film clip, the two buttons shown in the following picture appear on the screen. These let you confirm whether you did or did not touch the screen during the HPT item.

■ AFTER THE CONFIRMATION SCREEN

During the actual test, once you have confirmed your response, a new test item will appear. This process will continue until you have completed the test. At the end of the test a message on the screen will tell you how you went.



■ THE PRACTICE QUESTIONS

The practice questions are just like the actual test questions. However, after each practice question you will get feedback about your response and the chance to repeat the question.

You will be told if your response was good, could have been better or was unsafe. If your response was unsafe or in need of improvement you can try that practice item again.

Once you have completed the two practice questions, you will be asked to touch the screen to show that you want to start the actual test.



■ THE REAL HPT QUESTIONS

Once you move on to the actual HPT, you will be presented with 15 test items. These are randomly selected from a larger pool of questions. You will only be allowed to see each item once and will not be able to change your response to any item. This is just like real driving where you only get one chance to respond to a situation.

There is no feedback after each test item. Once one item has finished the HPT will progress to the next one until all 15 have been completed.

■ THE RESULTS AND FEEDBACK SCREEN

When all 15 items have been completed, a result screen will appear to tell you how you went. This will tell you if you have passed or failed. You will not receive an individual score.

If you pass, you will also get feedback on areas that should be improved (eg selecting safe gaps when turning at intersections).

If you fail, you will get specific feedback on areas that need to be improved before retaking the HPT (eg selecting safe following distance when travelling behind other vehicles).

A printout of the results and feedback screen can be obtained from the registry or agency staff. This may help you to prepare to resit the HPT.

The last message on the results screen will tell you to return to the counter in the registry or agency for issue of your P2 licence or to arrange another HPT appointment.

■ FAILED HPT

If you fail the HPT, another fee is charged to sit the test again. You should only re-attempt the test when you are ready. You need to bring your application form and identity documents.



PROOF OF IDENTITY AND NSW RESIDENTIAL ADDRESS

You need to provide proof of your identity and NSW residential address when you apply for a driver licence.

For more information about proof of identity documents, get the brochure How to prove who you are to the Roads and Maritime from our registry, a Service NSW centre or visit our website. There are also special requirements that apply if you have changed your name.

■ AIDING AND CHEATING DURING THE HPT

It should be noted that you may not be assisted during the HPT. The HPT is a test for individual drivers to see if they are good enough to hold a P2 licence. All instances of cheating or attempts to cheat will be treated seriously by Roads and Maritime officials. Penalties, including prosecution, may be imposed on anyone who accepts aid or provides aid to HPT candidates during the test. At the very least you will not be allowed to resit the HPT for six weeks.

Developing and practising hazard perception skills

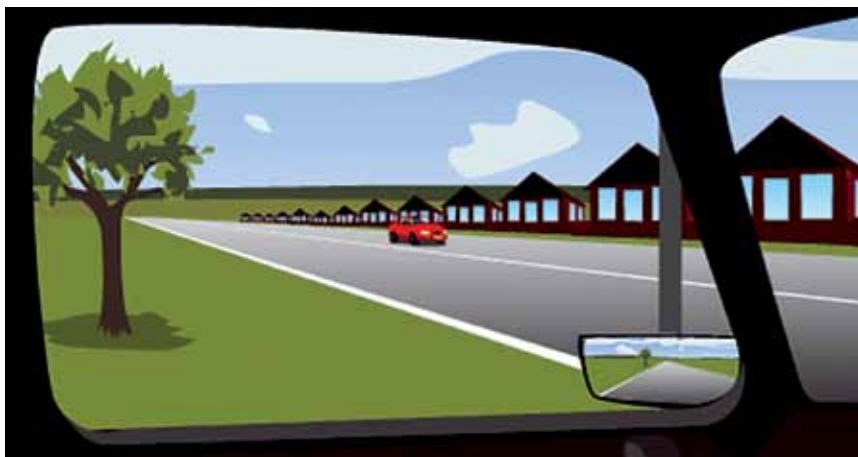
If you have a P1 licence then you have already developed some hazard perception skills. However, you need to develop these skills further as a solo driver because you are no longer under supervision. You must be able to cope on your own with all driving hazards that arise.

The basic hazard perception skills are:

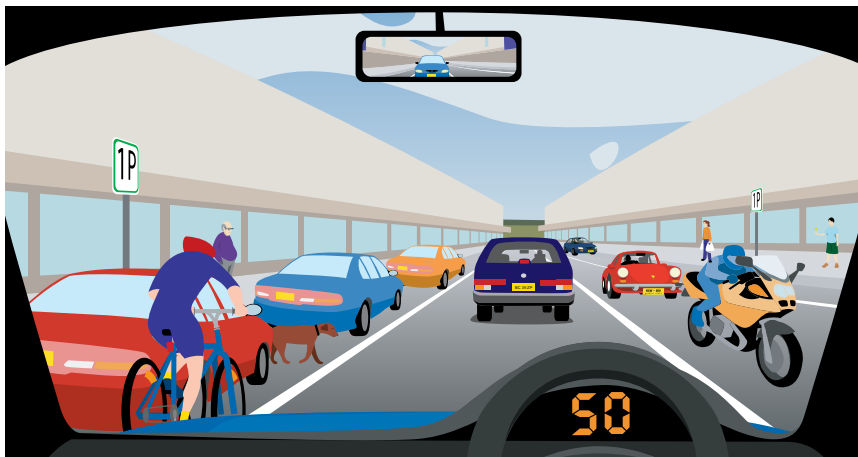
- Keeping a safe distance from other vehicles.



- Selecting safe gaps when turning, crossing traffic or changing lanes.



- Scanning for hazards ahead, behind and to the side.



The next three sections each outline a basic hazard perception skill area. This is followed by a key point summary and suggestions on how to develop and practise this hazard perception skill. Remember that practice on the road is essential to the development of sound hazard perception skills.

You will notice that the practice exercises often ask you to get a friend or more experienced driver who you trust to help you. A common pattern for the practice exercises will be:

- You observe as a pedestrian.
- You then observe as a passenger with a more experienced driver at the wheel.
- You then try it with you as the driver.

This is to help make the exercises easier to learn and safer to do. Involving a more experienced driver allows you to get some feedback from drivers who have more developed hazard perception skills.

You can't learn them properly from a book or a website. It's a bit like learning to play tennis or cricket, books and websites can help you, but you need to get out there and practise to develop and improve your skills.

■ CROSS REFERENCING TO THE HPT MODULE ON OUR WEBSITE

You should visit the HPT module on our website to help you learn about hazard perception skills and how to apply them.

You may find that something that is unclear to you in this handbook is easier to understand on the HPT module of our website. So use this handbook and the HPT website together to help you develop and practise the hazard perception skills needed to be a safe driver and to help you prepare for the HPT.

Keeping space from other vehicles

The more space that you have between your car and other vehicles, the more time you have to detect and respond to hazards that might arise when driving.

Crash avoidance space

Hazards could be other vehicles changing lanes in front of you or the car ahead braking suddenly to avoid a pedestrian who walks onto the road. To stay safe, you need to manage a crash avoidance space around your car. The best way to do this is to imagine an invisible buffer around your car as shown in the following picture.



As you drive along the road, this space needs to be maintained by adjusting your speed or position on the road. For example, if the vehicle ahead slows down, you will need to slow down too.

This section of the handbook explains how you maintain crash avoidance space around your car. It covers how to keep a safe distance to:

- The front.
- The sides.
- The rear.

■ MAINTAINING SPACE TO THE FRONT

This is perhaps the most important part of the buffer for provisional drivers. The space to the front of your vehicle is your crash avoidance space. You may remember that about 29 per cent of NSW provisional driver crashes involve a vehicle running into the back of another vehicle. This is the most common type of crash for provisional drivers (see five most common crash types for provisional drivers).

Maintaining a crash avoidance space to the front also gives you more time to spot other hazards that may arise.

To maintain an adequate crash avoidance space to the front you need to:

- Control your speed to suit the road and traffic conditions.
- Keep a safe distance between your car and the vehicle in front.

The next two sections help you learn how to do this.

Controlling your speed

■ SPEED LIMITS, SPEEDING AND CRASHING

Speed limit signs show the maximum speed permitted on a particular road. This is not always the safest speed. Smart drivers adjust their speed to suit the traffic and road condition.

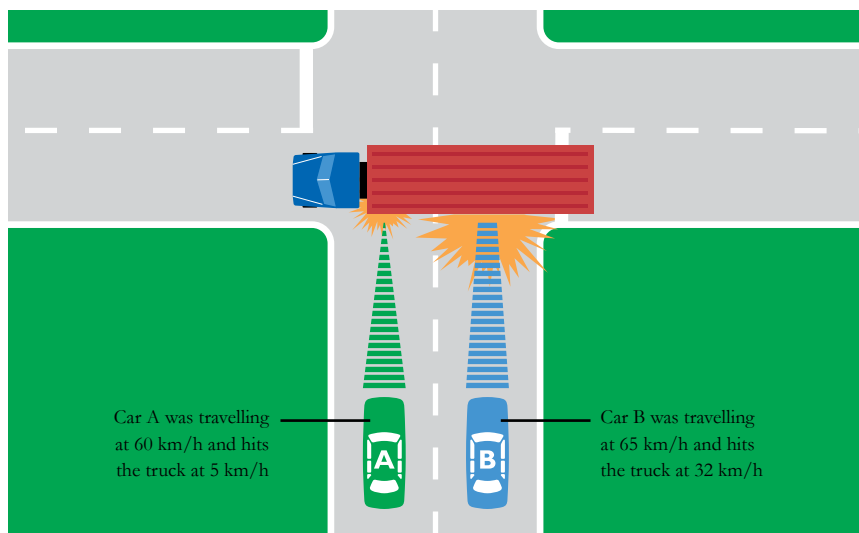
It is important to note that more than one third of all fatal crashes in NSW are speed related. No one forces you to speed. The choice is yours.



Travel time surveys by automobile organisations such as NRMA and RACV show that speeding makes very little difference to your travel time in built-up areas. Apart from the increased risk of a speeding fine and crash, speeding also costs you more in fuel consumption.

■ THE PROBLEMS WITH SPEED

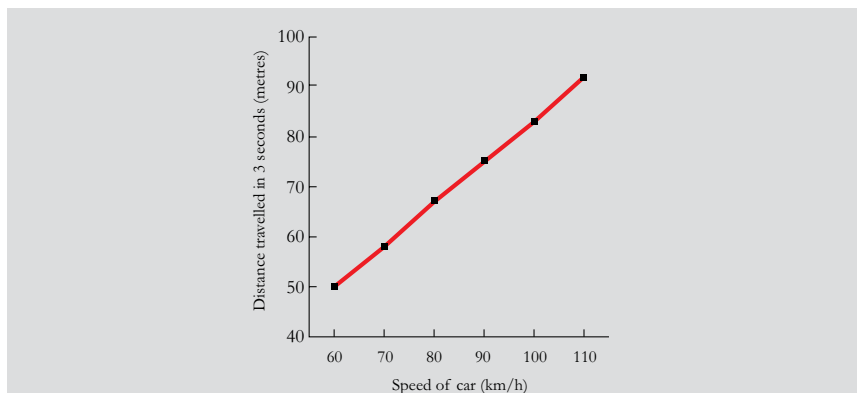
Speeding cuts down the time that you have to detect and respond to hazards that might come up in the traffic ahead. For example, in the following picture the blue car is travelling at 65 km/h and the green car at 60 km/h. When a truck suddenly blocks the road the green car hits the truck at 5 km/h. But the blue car hits the truck at 32 km/h. So even 5 km/h can make a big difference.



The time it takes to stop a vehicle can be broken into two parts; the time it takes to process the situation and the time required to instigate the correct response.

Generally it will take about one and a half seconds to process the situation (reaction time) and a further one and a half seconds to take action (response time), a total of three seconds.

The following graph shows the distance that you travel in three seconds at different speeds. The faster you go, the more distance you need to stop. You need even more distance when the road is wet.



Distance travelled in 3 seconds at speeds of 60 km/h through to 110 km/h.

■ SPEEDING AND CRASH SEVERITY

Speeding also adds to the severity of any crash that you might be involved in. The risk of death and injury increases many times over. For example, if you hit a pedestrian at 60 km/h you will probably kill them. If you hit them at 50 km/h they are more likely to be injured, but not killed. This is one reason why the 50 km/h local speed limit has been introduced into many parts of NSW.

Each year around 2000 pedestrians are killed or injured on NSW roads. Regrettably, provisional drivers are over-represented among drivers who hit pedestrians.



Research shows that speeding is more common at night, particularly by inexperienced drivers. This may be due to having fewer indicators of how fast you are going when it is dark. It is harder to see how quickly objects like trees and poles flash by.

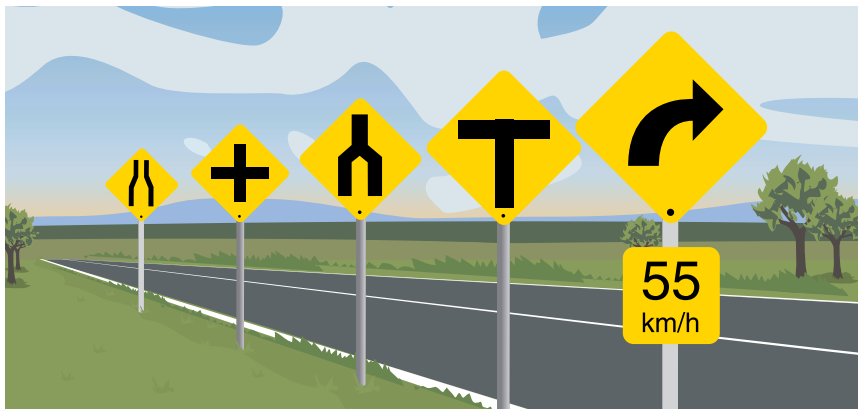
■ SPEED AND SINGLE VEHICLE CRASHES

Speed is a common cause of single vehicle crashes involving P drivers. Put simply, many P drivers drive too fast for the conditions. This reduces their opportunity to detect and respond to hazards such as bends, road narrowings or rough surfaces. As a result some have crashes where they run off the road on a bend or straight and hit something like a tree or a parked car.

You can nearly always avoid these crashes if you control your speed and give yourself enough time to scan ahead for hazards and enough time and space to do something about them. The advice is simple:

- Drive within the speed limits.
- Slow down before entering curves or bends.
- Look for and take note of warning signs indicating curves or other hazards ahead and slow down before you get to the hazard.
- Slow to the speed recommended on the warning signs.
- If the weather is bad or the visibility is poor slow to a speed where you can pull up quickly if a hazard appears.

Warning signs like the ones shown in the following picture are there to help you stay out of trouble when driving, by warning you about hazards ahead. However, they will not help you if you are travelling too fast to detect them or to prepare for the hazards indicated.



■ A FINAL WORD ON SPEED

Controlling your speed is largely in your own hands. Obeying the speed limits and adjusting your speed to suit the conditions will help you avoid a crash, speeding fines or losing your licence through demerit points.

■ KEY POINTS SUMMARY: KEEPING SPACE FROM OTHER VEHICLES

- **Maintain a crash avoidance space**
 - front, sides and rear.
- **Control your speed**
 - obey speed limits and adjust your speed to suit the conditions.



When you are approaching a place where hazards are likely and you may need to slow down or stop quickly eg pedestrian crossings or shopping areas, take your foot off the accelerator and get ready to brake.

■ PRACTICE EXERCISES: CONTROLLING YOUR SPEED

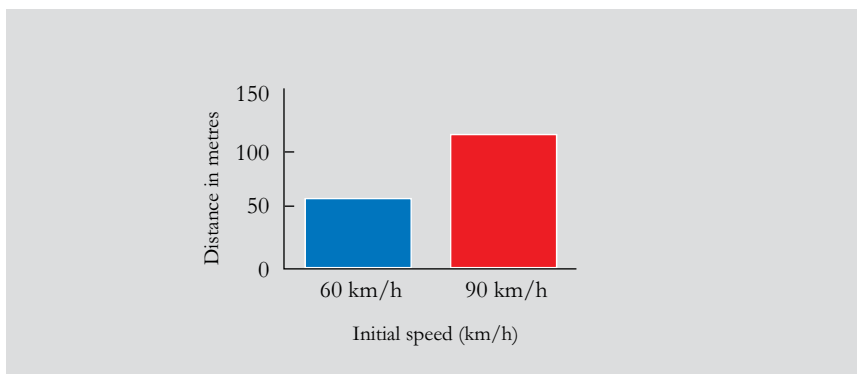
Most experienced drivers have learned to judge how fast they are driving and don't need to look at the speedometer all the time. You do need to check the speedometer regularly, but it is also important to develop a sense of what your car feels like travelling at different speeds, and how the road around you looks. This can help you avoid speeding and give you more time to spot hazards.

For example, when you are driving in a particular speed zone (eg 50 km/h, 60 km/h or 80 km/h) observe how quickly you seem to approach and pass stationary objects (eg power poles) at the side of the road. Also note how the car feels and what feedback you get from the road (eg road noise and vibration).

Without breaking the speed limit, see if you can judge how fast you are going then compare this with the speedometer. Try this from the passenger seat first with someone else driving. Tell the driver how fast you think the car is travelling, then ask them to tell you the actual speed.

Keeping a safe following distance

The distance that it will take you to stop your car depends on the speed at which you are travelling. The faster you go, the longer the stopping distance. For example, you need almost twice the distance to stop from 90 km/h compared with stopping from 60 km/h, even in the best possible driving conditions – that is, on a sealed, dry road.



Stopping distance.

This means that you must increase the following distance between you and the vehicle ahead as you increase speed. If you don't do this you may crash into the back of the vehicle ahead if it has to stop quickly. This type of crash happens to a lot of provisional drivers in NSW each year, but there's an easy way to avoid this. It's called the three second rule.

■ THE THREE SECOND GAP.

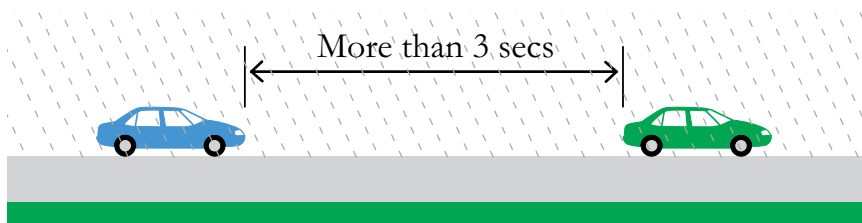
This basic technique applies at any speed and is easy to use. Here's how.



All you need to do when driving is watch the vehicle in front of you pass an object at the side of the road such as a power pole, tree or sign. As it passes the object, start counting 'one thousand and one, one thousand and two, one thousand and three'.

If you pass the object you picked out before you finish saying all the words, you are following too closely. Slow down, pick another roadside object and repeat the words again to make sure that you have increased your following distance enough.

What's good about the three second gap is that it helps you keep a safe following distance at any speed. Using the three second gap gives you a bigger following distance the faster you drive.



You should allow more than a three second following distance in rain, fog and on icy roads. You should also use a longer following distance at night because it's harder to judge distances and spot hazards when driving in the dark.

■ WHAT A SAFE FOLLOWING DISTANCE LOOKS LIKE

What do safe and unsafe following distances look like to a driver? Below is a driver's eye view of following another vehicle at 60 km/h.

- At a one second following distance. (Too close – unsafe).



- At a three second following distance. (OK in good conditions only).



- At a four second following distance. (Better in wet and poor conditions).



■ KEY POINTS SUMMARY: KEEPING A SAFE FOLLOWING DISTANCE

- The faster you drive, the longer the distance you need to stop.
- Use the three second rule to keep a safe distance – you will need more when it is dark, wet, foggy or icy.



You may find it difficult to keep a three second following distance in heavy traffic – other drivers may move into the gap that you leave. This can be annoying, but try to maintain a three second following distance for your own and others' safety.

■ PRACTICE EXERCISES: USING THE THREE SECOND GAP

When you are driving, practise using the three second gap when following behind other vehicles. You might be surprised how close behind other cars you have been driving.

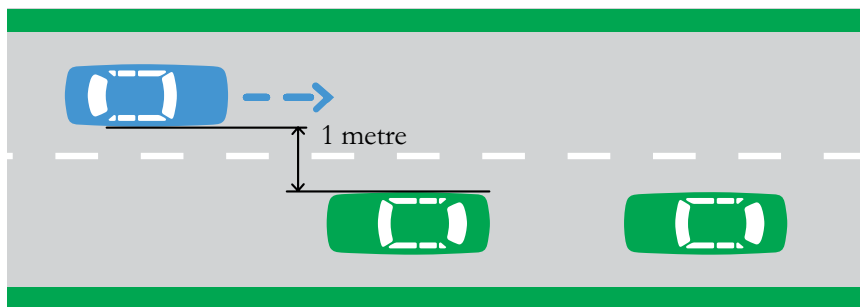
Practise in different speed zones until the three second gap becomes easy to use.

Keeping a safe distance to the side

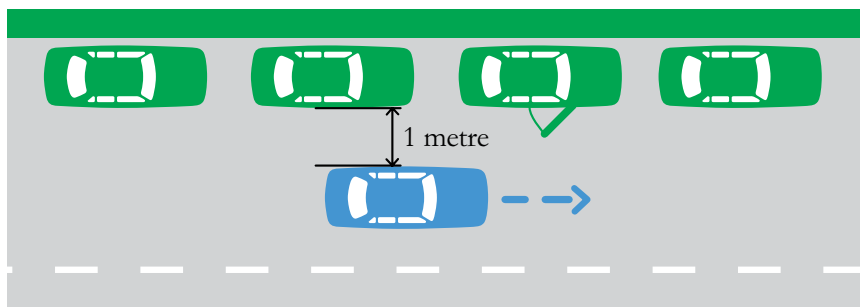
Keeping a safe distance between you and other road users to your right and left is part of maintaining a space around your car.

Try to keep at least a metre between your vehicle and other moving or parked vehicles. This is important when driving beside parked cars because someone might open a car door in front of you. It is also important when passing or overtaking other vehicles and when other vehicles travelling in the opposite direction pass you on narrow roads.

A buffer to the left and right of your car also allows other road users such as cyclists some room to move. This reduces the chances of colliding with them.



You must allow clearance from oncoming traffic.



You must allow space for parked cars to open doors.

■ AVOID TRAVELLING NEXT TO OTHER VEHICLES

It is best not to travel next to other vehicles even on a multi-laned road unless you have to. With a vehicle to your left and right as shown in the picture on the next page, you have no space to protect you.

The picture on the following page also shows that having vehicles to your right or left, or both, also blocks your vision. This may prevent you from seeing a hazard to the left or right (eg a car entering from a side road).

It will be harder to avoid travelling next to other vehicles on multi-laned roads or freeways when the traffic is heavy. In these circumstances, however, the traffic is usually travelling more slowly, so braking is often easier.

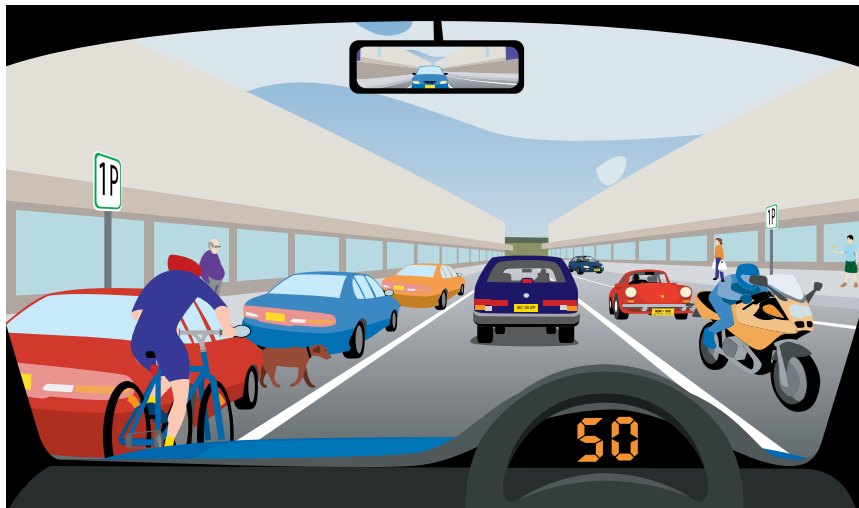


■ KEY POINTS SUMMARY: KEEPING A SAFE DISTANCE TO THE SIDE

- Keep at least a one metre buffer between you and vehicles on your left or right.
- Avoid travelling next to other vehicles, particularly trucks and buses.
- Give cyclists, motorcyclists and pedestrians plenty of room.

Keeping a safe distance to the rear

Maintaining a buffer behind you is difficult as it is the other driver following you who has most control of this space. If, as in the picture below, the vehicle behind you is following too closely, slow down slightly to increase the space in front of you. This means that if you spot a hazard in front of you, you can brake more gradually which will allow the vehicle behind more space to stop.



■ KEY POINTS SUMMARY: KEEPING A SAFE DISTANCE TO THE REAR

- It is difficult to maintain a buffer behind you as the other driver controls the space.
- If the vehicle behind is travelling too closely, slow down slightly to increase the buffer in front of you.

Selecting safe gaps

Selecting safe gaps in traffic when turning, overtaking or changing lanes is a key hazard perception skill.

Gap selection is also very important at intersections. Up to one third of NSW provisional driver crashes happen where the driver selects a gap that is too small and collides with another vehicle.



■ WHAT IS A SAFE GAP?

A safe gap is one that enables you to turn, overtake, change lanes or cross an intersection without impacting on the crash avoidance space of other road users. This means that no other road users should need to slow down or move to avoid your vehicle. For example, if you make a left turn from a side street onto a main road and the traffic on the main road has to brake or change lanes the gap was not safe.

If a gap is not large enough it is unsafe and you should not go. Remember, good hazard perception is as much about recognising when to stay as when to go. As noted in the section titled How the Hazard Perception Test works, the HPT may present you with some situations where it is not safe to turn, overtake or cross an intersection. It is therefore important to recognise safe and unsafe gaps in traffic. For example, in the picture below, the gap is too small for the driver to safely complete a right turn. Would you agree?



Selecting safe gaps is a key part of developing hazard perception skills.

■ KEY POINTS SUMMARY: SELECTING SAFE GAPS

A gap is safe where you can turn, overtake, change lanes or cross an intersection:

- Without impacting on the crash avoidance space of others.
- Without other road users having to slow down or change lanes.

If a gap is not large enough, don't go – wait till it is safe.

■ GUIDELINES FOR SAFE GAP SELECTION

Safe gaps vary with the road conditions, the speed of the traffic and the weather conditions. It is difficult to provide hard and fast rules, but this section will give you some guidelines to help you select safe gaps in traffic. These guidelines will cover:

- Safe gaps when turning left and right.
- U-turning.
- Safe gaps when crossing intersections.
- Safe gaps when overtaking.

Any guidelines in this section will need to be practised by you in real traffic. They will be of little assistance to you without practice. You will need to adapt the guidelines to your own driving circumstances.

You need to try the practice exercises that appear at the end of each section.

Selecting safe gaps when turning

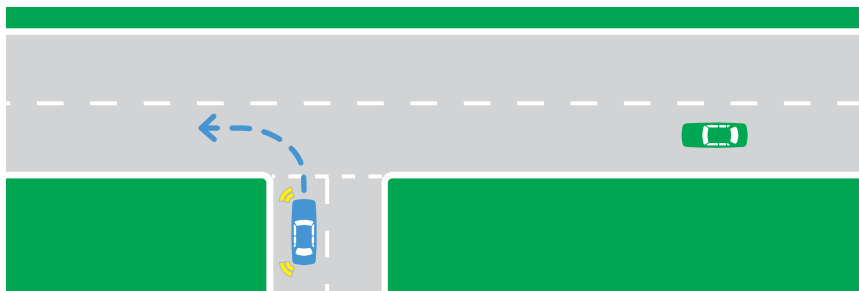
Making turns is often difficult, particularly when the traffic is heavy. You need to watch for traffic, and other road users such as pedestrians, to the front, left and right. The key hazard perception skill, is selecting a gap that is big enough for you to safely complete the turn. This is a skill that comes with practice.

Safe gaps – turning left

Left turns seem less complicated than right turns as you do not need to look for traffic approaching in two directions. However, left turns are sharper than right turns and may take longer to complete. You also need time to accelerate to match the speed of the traffic on the road that you are entering. The faster the traffic, the more time you will need to accelerate to match the traffic speed.

Gap selection for left hand turns is a skill that takes time and practice to develop. But here are some guidelines that may help. If you are turning left in a 60 km/h zone you will need a gap of at least six seconds between your car and vehicles approaching from the right.

A six second gap means that you could count from ‘one thousand and one’ through to ‘one thousand and six’ before a vehicle from the right would be level with your car. Of course, you need to be able to judge what this distance looks like as you can’t use this counting tool when trying to make a left hand turn.

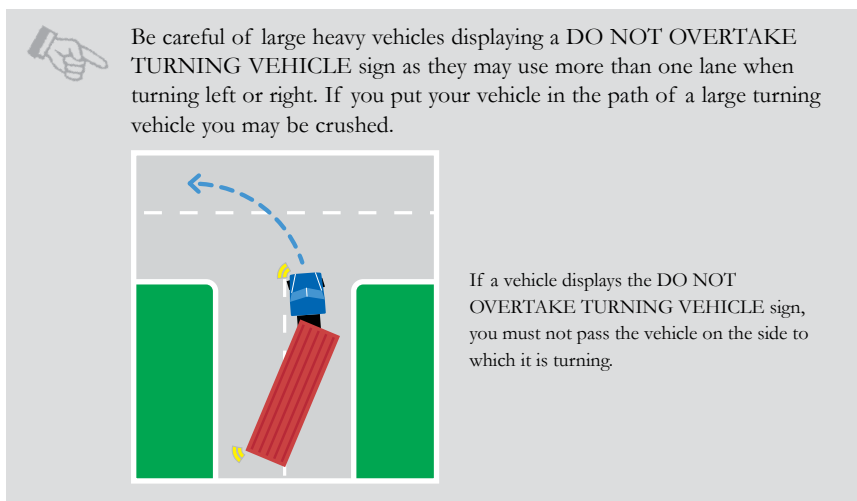


Choose a safe gap so other vehicles are not forced to change speed.

All drivers should be looking for gaps that are at least six seconds. This is shown in the following picture. A six second gap at 60 km/h is the same as a distance of about 100 metres.

If you don't have a gap of at least this size in a 60 km/h zone, it would not be safe to go. In higher speed zones the gap that you will need will be the same in time, but longer in distance. For example, in an 80 km/h zone where the traffic is travelling at 80 km/h a six second gap equals about 135 metres.

A word of caution. These are guidelines only, not hard and fast rules. You will need to build your gap selection skills to establish what a safe gap looks like to you when you are driving.



■ KEY POINTS SUMMARY: SAFE GAPS – TURNING LEFT

- When turning left in a 60 km/h zone you need at least a gap of six seconds (about 100 metres) between your car and vehicles approaching from the right.
- If a gap is not large enough, don't go – you need to wait until it is safe.

Safe gaps – turning right

Right turns are more complicated than left turns because you need to look for traffic approaching from the left and right. You may also need to give way to pedestrians. At an uncontrolled intersection (four way intersection with no Stop or Give Way signs) you may also have to watch for approaching traffic.

■ FEATURES OF RIGHT TURNS

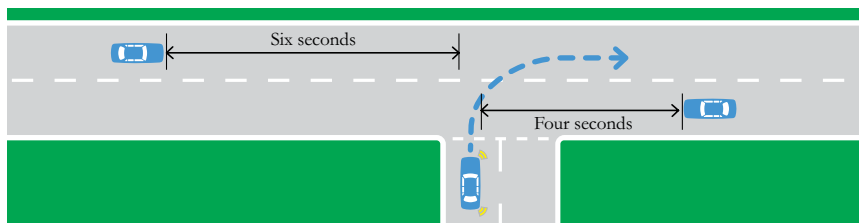
Right turns are generally less sharp than left turns. While you have to cover more road to complete a right turn, it is shallower so you can generally accelerate quite quickly. This is necessary because you need to quickly match the speed of the traffic on the road that you are entering. As with left turns, the faster the traffic, the more time and space you need to complete a right turn.

■ GUIDELINES FOR RIGHT TURNS

Gap selection for right turns is a skill that will take time and practice to develop. Here are some guidelines to help.

If you are turning right in a 60 km/h zone you will need a gap of at least four seconds between your car and vehicles approaching from the right, but a gap of at least six seconds from the left. The picture below illustrates this.

You need a smaller gap on the right because you will more quickly clear the traffic approaching from the right. But you need a bigger gap on the left because you need time to complete the turn on the far side of the road and accelerate to the speed of the traffic. Because it will take you at least three seconds to get to the other side of the road, a six second gap to the left allows you three seconds for accelerating to the speed of the stream speed of traffic you are entering.



Choose a safe gap so other vehicles are not forced to change speed.

■ TURNING RIGHT AT A CROSS INTERSECTION

Turning right at a cross intersection (ie one with four directions) with oncoming traffic and traffic from the right and left, is harder. You will need to look three ways to judge a safe gap – to the front and the left and right. As shown in the picture below, you are also likely to be facing a Stop or Give Way sign.



In this situation you need at least a four second gap to the right, at least a six second gap to the left and at least a four second gap to the front.

Gap selection skills take time and practice to develop. Start with simpler gap selections and work up to the more complex ones when you feel confident.

■ TURNING RIGHT AT TRAFFIC LIGHTS

Making a right turn at traffic lights is simpler than at an uncontrolled intersection (ie one without traffic lights, Stop signs or Give Way signs). You only have to look for a safe gap in the traffic that is approaching you. However, many provisional drivers have crashes when turning right at traffic lights. This is because they pick gaps that are too small or misjudge the speed of the approaching traffic.

If you are turning right at traffic lights in a 60 km/h zone you will need a gap of at least four seconds (about 70 metres) between your car and approaching vehicles.

The picture below shows what a 4 second gap (about 70 metres in a 60 km/h zone) would look like from a driver's eye view.



■ GUIDELINES, NOT RULES

As with other turns, these are guidelines only, not hard and fast rules. You will need to build your gap selection skills so you know what a safe gap looks like to you when you are turning right.

■ KEY POINTS SUMMARY: SAFE GAPS – TURNING RIGHT

When turning right in a 60 km/h zone you need gaps of at least the following:

- Four seconds to the right (about 70 metres).
- Six seconds to the left (about 100 metres).
- Four seconds to the front (about 70 metres)
 - where there is oncoming traffic.

If a gap is not large enough, don't go – you need to wait until it is safe.

■ PRACTICE EXERCISES: SAFE GAPS WHEN TURNING RIGHT

Selecting safe gaps when turning right is harder than turning left or crossing an intersection. The following practice exercises will help you with this. They will also help you develop hazard perception skills to apply to other gap selection tasks.

Learning how to judge what a safe gap looks like in traffic needs practice. It can also be dangerous, so take care. Be careful and allow room for error as it can be very difficult to judge the approach speed of some vehicles.

STEP 1

Find a T intersection on a busy arterial (main) road in a 60 km/h zone where many cars turn right onto the busy road. Park your car somewhere safe and walk to the intersection. Stand on the footpath where you can see the right turning vehicles and the approaching traffic on the busy road.

Watch the traffic on the busy road approaching from the right and left. By counting 'one thousand and one, one thousand and two' and so on, work out where a six second gap would start to the left. Select an object (eg a power pole, bus stop or tree) to mark this spot.

Do the same for traffic approaching from the right, but count to four seconds, not six.

Now watch the drivers turning right from the side street onto the busy road – watch at least 10 to get a good feel for it. When do they go? Do many go inside the safe gap guidelines?

Think about when you would go if you were in your car waiting to turn right at that intersection. Would you have accepted or rejected the gaps taken by other drivers?

STEP 2

Using the same intersection, ask an experienced driver who you trust to make about six right hand turns with you in the passenger seat. The other driver should have a full licence and, if possible, at least five years licensed driving experience.

Without interrupting or distracting the driver, note when you would have gone and discuss this with the driver later when you have stopped somewhere safe. How much did the two of you agree? Who accepted the smaller gaps, you or the more experienced driver? Were there any pedestrians?

Discuss with the more experienced driver why they went when they did and how they judged the gap was safe.

STEP 3

Using the same intersection, ask an experienced driver who you trust to sit in the passenger seat while you make about six right hand turns.

The person in the passenger seat should note when they would have gone and discuss this with you later, when you have stopped somewhere safe. They should not interrupt or distract you when you are driving. How much agreement was there? Who accepted the smaller gaps, you or the more experienced driver? Were there any pedestrians?

Discuss with the more experienced driver why you went when you did and how you judged the gap was safe.

STEP 4

Follow Steps 1-3 for gap selections in other speed zones. You should practise gap selection and compare notes with several more experienced drivers who you trust. Do this until you are confident that you can make consistently safe gap selections when turning right at T intersections when facing a Stop or Give Way sign.

STEP 5

When you feel confident, repeat steps 1-4 for turns at four way intersections where you need to judge safe gaps to the front, left and right and are facing a Stop or Give Way sign.

Safe gaps – making U-turns

U-turns are more complicated than right turns as you need to look for traffic approaching from behind you and traffic coming towards you. U-turns fall just outside the five most common crash types for NSW provisional drivers. However, some advice on coping with them is included as they are obviously hazardous for new drivers.

■ FEATURES OF U-TURNS

U-turns are sharper than right turns. You have to cover more road to complete the U-turn. Because it is a very tight turn, usually from a stationary (stand still) position, you generally can't accelerate quickly until you have completed the turn. Therefore you need to be sure the gap is long enough to let you get up to the speed of the stream of traffic you are entering. As with other turns, the faster the traffic, the more time and space you will need to complete a U-turn.

■ A WORD OF CAUTION

U-turns are difficult and potentially dangerous, particularly on busy, high speed roads. Unless you really have to make a U-turn, don't. An alternative is to do a right turn into a side street, make a three-point turn where it is quieter and safer, then turn left back onto the road you left.

■ KEY POINTS SUMMARY: SAFE GAPS – U-TURNS

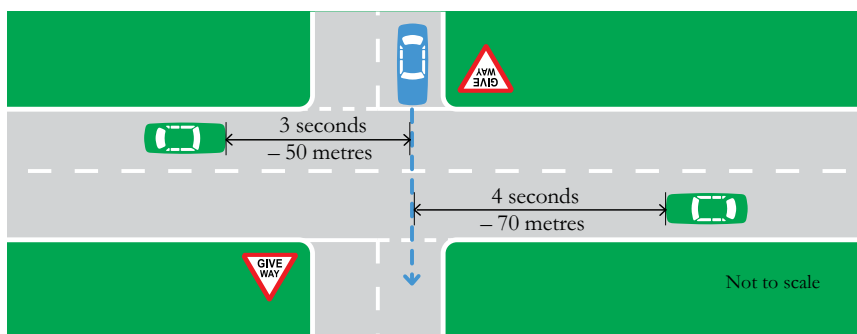
- U-turns can be difficult and dangerous.
- If it is dangerous to do a U-turn, don't – do a three-point turn in a side street instead.

Safe gaps when crossing intersections

Almost half of provisional driver crashes happen at intersections. Selecting safe gaps when crossing intersections is an important hazard perception skill.

■ FEATURES OF CROSSING INTERSECTIONS

Crossing intersections can be almost as complicated as making a right turn. You need to look for traffic approaching from the left and right and look out for oncoming traffic that may be turning right. Most of the time you will be facing a Give Way or Stop sign as shown in the next picture. This means that the task can be very demanding, particularly when the road that you are crossing is busy and the traffic is travelling quickly.



From a stationary (stand still) position it takes at least three seconds to cross a typical intersection on a two-way road. This means that you need at least a three second gap (about 50 metres in a 60 km/h zone) between your car and vehicles approaching from the right. You will also need a bigger gap, at least four seconds (about 70 metres in a 60km/h zone), for traffic on your left to allow you to cross the intersection in safety and not cause the cross traffic to slow down or change lanes. These gaps are illustrated in the previous picture.

You may need less time to cross the intersection if your car is already moving. This may be the case when you are approaching a Give Way sign at an intersection and can proceed across without stopping. However, take care. It is difficult to judge your speed and that of other traffic from the left and right. If in doubt, stop and only cross the intersection when you are sure the gap is big enough.



Where there is a median strip, you may be able to cross the intersection in two stages if the traffic is heavy. Select a safe gap to the right and move to the middle of the road protected by the median. When there is a safe gap from the left, complete the crossing.

■ GUIDELINES, NOT RULES

These are guidelines only, not hard and fast rules. You will need to build your gap selection skills so you know what a safe gap looks like to you when you are crossing an intersection.

■ KEY POINTS SUMMARY:

SAFE GAPS WHEN CROSSING INTERSECTIONS

When crossing a typical intersection in a 60 km/h zone, you need gaps of at least the following:

- Three seconds to the right (about 50 metres).
- Four seconds to the left (about 70 metres).

If a gap is not big enough, don't go – you need to wait until it is safe.

Safe gaps when overtaking

Overtaking other vehicles can be hazardous, particularly on high-speed, two-way roads. If you misjudge the gap needed to overtake safely you could collide head-on with an oncoming vehicle. Head-on crashes are usually very severe because the speed of your car combines with that of the other. For example, a head-on crash where both cars are travelling at only 60 km/h gives a collision speed of 120 km/h. This is the equivalent of driving into a stationary object at 120km/h.



You also need enough space to avoid colliding with the vehicle that you are overtaking. Selecting safe gaps for overtaking is a key hazard perception skill that takes time and practice to develop.

Overtaking is similar to, but not the same as passing other vehicles on multi-laned highways, freeways or arterial roads. It is much harder and far more dangerous. When overtaking on a two-way road you need to cross the centreline and travel on the wrong side of the road.

■ A WORD OF CAUTION

The decision to overtake or not overtake another vehicle is your own. Most of the time you overtake to maintain the speed at which you want to travel. However, sometimes you will need to overtake or pass stationary or broken down vehicles.

The best thing to remember about overtaking is not to do it unless you really have to.

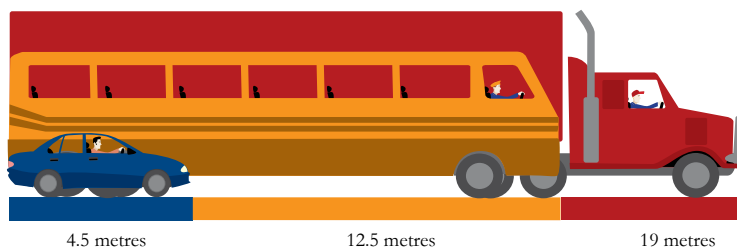
■ FEATURES OF OVERTAKING

The difficulty with overtaking is judging whether the gap between your car and an oncoming vehicle is large enough for you to safely pull out, pass the vehicle and pull in again. Your view of oncoming traffic may be blocked if the vehicle to be overtaken is large (such as a truck or bus). This makes overtaking even more hazardous. You also need to accelerate to pass the vehicle being overtaken. Putting all of this together can be difficult. Many provisional drivers have little experience in overtaking other vehicles, particularly on two-way roads in 100 km/h speed zones.



Other things that affect overtaking are the size of the vehicle you want to pass, and how well your own vehicle can accelerate. For example, overtaking a car takes less time than overtaking a truck, particularly a semi-trailer or road train.

As the following picture shows, a truck or bus can be up to three times longer than your car. Semi-trailers can be up to five times longer and road trains up to nine times longer!



Relative sizes of vehicles.

A car that cannot accelerate quickly will also take longer to overtake another vehicle. Remember that your car's ability to accelerate is generally reduced at higher speeds.

■ GUIDELINES FOR SELECTING SAFE GAPS FOR OVERTAKING

It is not possible to provide firm guidelines for overtaking. This is because overtaking is such a complex task. When you are overtaking you have to be able to take into account:

- The traffic conditions.
- The size of the vehicle you want to overtake.
- The power/acceleration capacity of the car you are driving.

The best approach is for you to learn what a safe overtaking gap looks like for you and your car.

To achieve this you will need to work your way through the practice exercises below.

You will notice that the practice exercises start with passing other vehicles on multi-laned roads such as freeways or divided roads. This is to ease you into the gap selection skills required for overtaking and minimise the risk to you and other road users.

Remember, if you don't feel confident about overtaking or feel that it would be unsafe, don't do it.

■ PRACTICE EXERCISES: SAFE GAPS FOR OVERTAKING

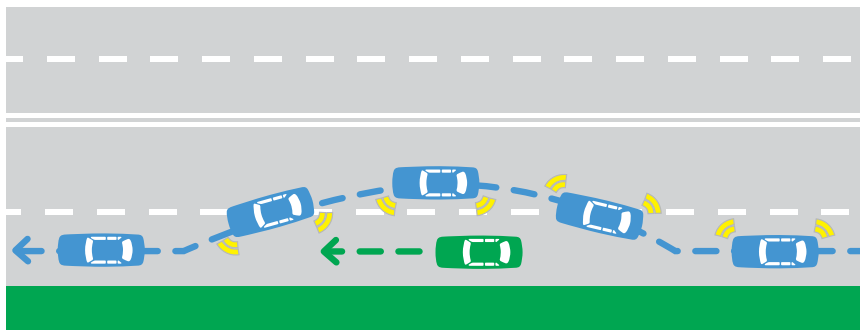
STEP 1

PASSING OTHER VEHICLES ON MULTI-LANED ROADS

Find a road in a 60, 70 or 80 km/h speed zone with two lanes in each direction. Try to find one that has several kilometres of fairly straight road where you can easily see approaching traffic. A street directory may be useful in finding a section of road like this.

In fine weather and in daylight, go to this section of road. Try to avoid peak times as the traffic is likely to be moving slowly.

Drive in the left lane and start to come up behind a vehicle that is travelling below the speed limit. Move up to a three second following distance behind the slower vehicle. When it is safe, indicate and move to the right hand lane, pass the slower vehicle then indicate and return to the left lane in front of the vehicle.

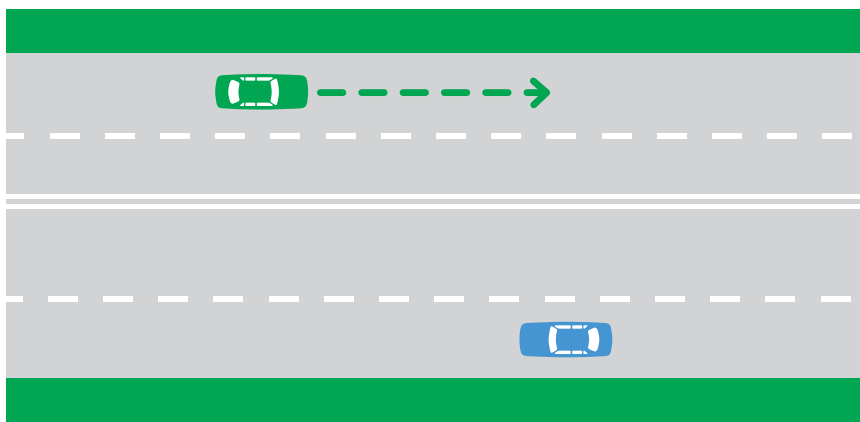


Practise timing how long it takes to perform this passing task on the multi-laned road until you can consistently estimate your passing time. Practise passing vehicles of different sizes, particularly trucks – time this in the same way as you did for passing cars. You will find that it takes you much longer to pass.

STEP 2

ESTIMATING SAFE GAPS TO ONCOMING VEHICLES ON A MULTI-LANED ROAD

When it is safe, travel at the speed limit on the same multi-laned road, (in daylight and good weather) and select an oncoming vehicle. By counting, ‘one thousand and one’ and so on, work out how long it takes for that vehicle to draw level with and pass your car. The task is shown in the picture below.



Once you have tried this several times, select several more oncoming vehicles and estimate how long it will take for them to reach your car. Then count “one thousand and one, one thousand and two” and so on, and compare your estimate with the

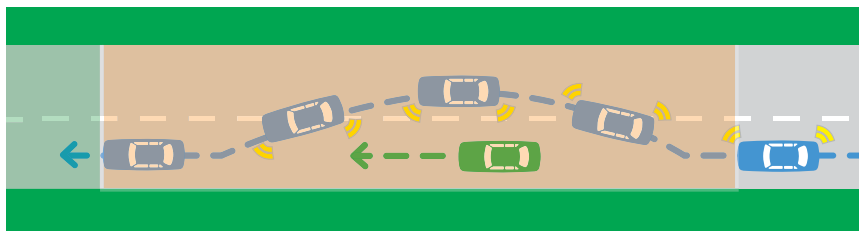
actual number of seconds counted. Practise this until you can consistently estimate how long it will take an oncoming vehicle to reach you, within one second accuracy.

STEP 3

SIMULATING THE OVERTAKING TASK

You have now practised separately the two main parts of overtaking. It is now time to combine them to simulate what it would be like to overtake a vehicle on a two-way road with oncoming traffic.

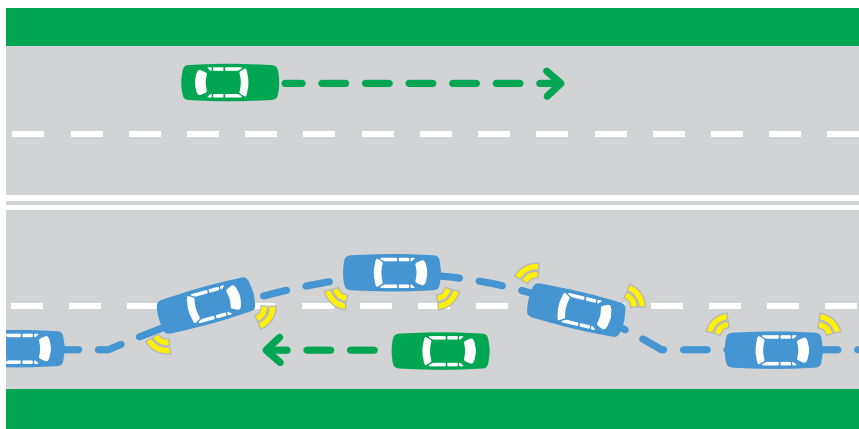
From Step 1 you know how long it takes for you to pass a slower vehicle in a particular speed zone. For example, if it took 12 seconds from when you first indicated until you moved back to the left lane, then 12 seconds is the minimum time that you need to overtake a vehicle travelling at that speed in that speed zone. Using this example, you need to add a safety margin of at least three seconds to give you the minimum time gap you need between your car and an oncoming vehicle if you want to overtake a slower vehicle in this speed zone on a two-way, undivided road. The two components of a safe overtaking gap are shown in the picture.



Now estimate the minimum safe time gap for you to overtake safely. Take the passing time you have already worked out in Step 1 and add a margin of three seconds.

Use the same road that you have practised steps 1 and 2 on. Drive in the left lane and start coming up behind a vehicle that is travelling at just below the speed limit. Move up to a three second following distance behind the slower vehicle.

Watch the approaching traffic and look for a time gap that you think would be large enough for you to safely pass the slower vehicle before the approaching vehicle draws level with your car. Pull out, pass the vehicle and return to the left lane. Check your estimate against your actual performance. Did you manage to complete the passing task before the approaching vehicle was within three seconds of your car?



Practise this task until you can consistently identify a safe time gap between your car and an approaching vehicle and complete the simulated overtaking task with at least three seconds to spare.

STEP 4

EXTENDING THE LESSONS OF STEPS 1-3

The skills that you have learned and applied in steps 1-3 can be applied to other speed zones. You may wish to practise steps 1-3 on a divided 100 km/h road to ensure that you have got a good grasp of gap selection for safe overtaking.

What you have learned from steps 1-3 can also be applied to overtaking on narrower two-way, undivided roads in built-up and rural areas. However, there is less margin for error on these roads. That is, you are in more danger if you make a mistake.

If you have not overtaken on a two-way undivided road before, you may want to observe a more experienced driver that you trust do this first.

The best two-way, undivided roads to practise overtaking on are quieter roads in 60 km/h zones. It is also best to use roads that are broader than local, suburban streets and have few cars parked along them.

Remember, if you don't feel confident about overtaking or feel that it would be unsafe, don't do it.

■ KEY POINTS SUMMARY: SAFE GAPS WHEN OVERTAKING

- A safe overtaking gap is your overtaking time plus a safety margin of at least three seconds.
- If it doesn't look or feel safe to overtake, then don't do it – you need to wait until it is safe.



You are not allowed to exceed the speed limit when overtaking.
Provisional P1 maximum speed is 90 km/h.



On country roads and highways there are often overtaking lanes at regular intervals to allow you to safely overtake. These areas will be signposted in advance and indicate the distance to the area.



Scanning for hazards

Scanning is a key hazard perception skill that drivers need to use to avoid crashes. You need to scan constantly for hazards when you drive.

■ WHAT DOES SCANNING MEAN?

Scanning means taking in the whole scene 360 degrees around your car. Effective scanning means constantly moving your eyes and/or your head when driving so that you can detect hazards that may arise ahead, to the sides and behind your vehicle. Research shows that new drivers are not good at scanning. They tend to focus on the road just ahead of their car. The good news is that new drivers get better at scanning with practice.

This section aims to help you become better at scanning so that you can detect hazards before they become a problem for you and other road users.

■ HOW TO SCAN FOR HAZARDS WHEN DRIVING

To scan effectively you need to move your eyes, your head and perhaps your upper body to get a good view of what is going on right round your car. The picture below shows that you need a 360 degrees view (a full circle).

This means that you need to look out of the windscreen and the side windows to see what is coming up ahead and to the sides. You also need to use your mirrors to see what is behind you. But your mirrors can't cover all of the view behind. You always have blind spots – areas not covered by your mirrors. To check your blind spots you need to turn your head and look out the side windows.

Blind spots will be different on each vehicle that you drive. Vehicles such as vans or trucks often have more blind spots than passenger cars.

Checking the blind spots with a head check (where you look over your shoulder to the sides and rear) is vital when you want to change lanes or when reversing.

A scanning routine

Experienced drivers constantly scan for hazards when driving. They do it automatically. To help you become better at scanning for hazards, here is a good routine to develop.

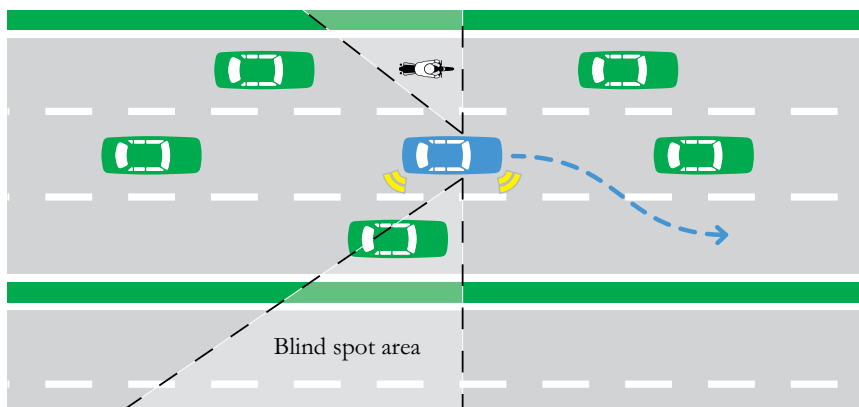
■ LOOK UP TO 12 SECONDS AHEAD

In a 60 km/h zone this means looking up to 200 metres ahead; on a freeway at 90 km/h it is up to 300 metres. Scanning this far ahead gives you a chance to spot hazards that are shaping up well in advance (eg a broken down truck, an accident, the road narrowing to one lane). You will also have time to avoid them.

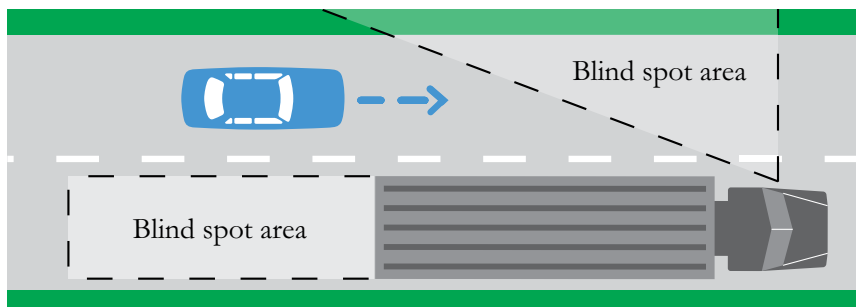
In heavy traffic, you may not be able to look 12 seconds ahead. But you are likely to be travelling more slowly which helps make up for this.

Scanning far enough ahead may mean looking through the windows of vehicles ahead of you to see what is happening. By doing this you will know in advance if a car ahead is braking as you will see the brake lights come on several cars ahead. This gives you more time to brake if you have to. Scanning means that you are not just looking at the vehicle immediately in front of you.

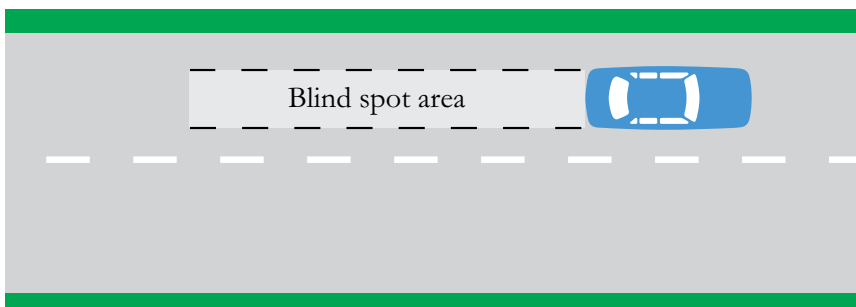
Looking ahead also means scanning from side to side for hazards on the roadside or at intersections. Hazards may be parked cars, cyclists or pedestrians. Effective scanning means keeping your eyes and/or your head moving and not concentrating on just one spot.



Check blind spots before changing your road position.



Do not drive in the blind spot of other vehicles.



All vehicles have a large blind spot behind them. Because of this blind spot, extra care must be taken when reversing as small children can be out of view.

■ CHECK YOUR MIRRORS EVERY 8–10 SECONDS

Things change behind and beside you when you drive. Unless you check your mirrors you won't know if someone is doing something such as trying to overtake or if there is a police car or ambulance coming up quickly.

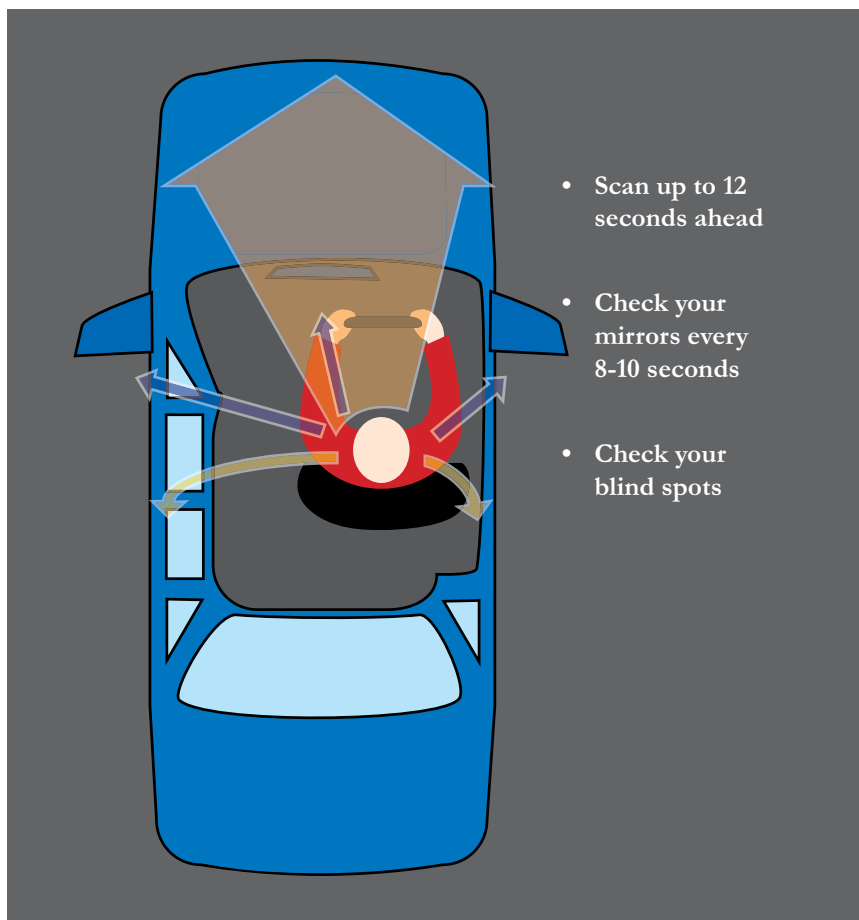
■ CHECK YOUR BLIND SPOTS.

Scanning ahead and checking your mirrors is usually enough when you are driving in the same lane without turning or changing lanes. However, if you need to turn or move right or left, you need to know what is in the blind spots. Head checks enable you to check your blind spots.

■ KEY POINTS SUMMARY: A SCANNING ROUTINE

- Scan up to 12 seconds ahead.
- Check your mirrors every 8–10 seconds.
- Check your blind spots with a head check before you turn or diverge.

This scanning routine is shown in this picture.



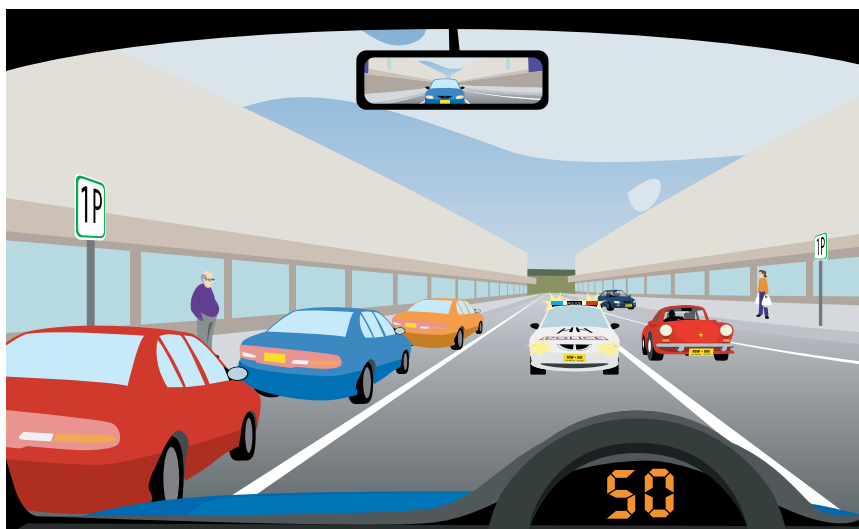
Your scanning routine needs to be constantly repeated as you drive. Of course if you detect a hazard and need to deal with it, this will be your first priority. But once this has passed, you need to return to your scanning routine.

Smart scanning

When you are scanning, there is a lot to look at, a lot to take in. It would be impossible to look at everything that you see in detail. You need to be smart about the way you scan for hazards. This means sorting or filtering what is important from everything that is happening. Here are some ways to make your scanning smarter.

■ LOOK FOR CHANGE

Your vision is designed to pick up movement and change, not what stays the same. This means that moving hazards may be easier to spot than stationary ones like road works or parked vehicles. This can be a problem because you can get distracted by a fast moving hazard (eg a police car coming towards you) and miss a stationary one that may be of more immediate concern (eg a parked truck blocking your lane). You need to look for both moving and stationary hazards.



A hazard perception action plan

Through scanning and hazard perception you are trying to:

See road hazards (eg pedestrian waiting to cross the road ahead).

Think about what might happen (eg pedestrian might walk in front of your car).

Think about possible solutions (eg slow down, change lanes or increase space between your car and pedestrian, sound horn).

Do something to remain safe (eg slow down and give the pedestrian more space).

This hazard perception process can be summarised as:

- See
- Think
- Do

Scanning is the ‘see’ part of the process. Understanding that these three steps are the basis of good hazard perception can be helpful.

Of course, all of this takes place very quickly, sometimes in only a few seconds. This is why you need to practise in real traffic so that hazard perception skills like scanning become automatic.

■ LISTENING FOR HAZARDS

While driving is mainly a visual task, listening can also help detect hazards. For example, you can often hear a siren before you actually see an emergency vehicle like an ambulance. Another example is motorcycles – they can be hard to see, but the sound of an engine can let you know there is one nearby.

To help you listen for hazards, it is good not to have the radio or stereo too loud when you are driving.

■ AVOIDING FATIGUE

Fatigue (being tired and losing concentration) reduces your ability to detect and respond to hazards. Research shows that the more fatigued drivers are, the more hazards they miss and the more likely they are to crash.

You don't have to drive long distances to get fatigued. Working long hours, partying hard and not getting enough sleep can make you fatigued. The only effective way to avoid fatigue is to get plenty of sleep. Fresh air, coffee and loud music won't work.

Do not drive at times when you would normally be asleep. Commencing a trip late at night or early in the morning, or driving through these hours, can be very dangerous. If you do drive long distances, take regular rest breaks at least every two hours.

For information on managing fatigue see our website or the *Road Users' Handbook*.

■ KEY POINTS SUMMARY: SCANNING FOR HAZARDS

- Scanning means taking in the whole scene 360 degrees around your car – including any blind spots.
- You need to scan constantly for hazards when you drive – look and listen for hazards.
- Use a scanning routine:
 - Look up to 12 seconds ahead – at 60 km/h this is about 200 metres, at 90 km/h about 300 metres.
 - Look for change and movement in the traffic scene.
 - Check your mirrors every 8-10 seconds
 - outside and inside mirrors.
 - Check your blind spots with a head check before turning or diverging right or left.
- Remember the hazard perception action plan:
 - See** (hazards).
 - Think** (about what might happen and what to do).
 - Do** (something to stay safe).
- Avoid fatigue – fatigue and tiredness reduce your hazard perception skills.

■ PRACTICE EXERCISES – SCANNING FOR HAZARDS

1. BLIND SPOTS ON YOUR CAR

Ask someone to help you check where the blind spots are on your car. With the car parked safely at the roadside or in a driveway, check that your mirrors are adjusted properly. Roll down the windows. Ask your assistant to walk very slowly around the car. Watch carefully in the mirrors, but don't turn your head. Call stop when your assistant disappears from view. Adjust your mirrors again and see if you can reduce the blind spot area and still get a good view of the road behind. Repeat the process with your assistant again. Did you manage to reduce the blind spots?

Repeat the process again. When your assistant is in a blind spot, try turning your head to do a head check. Can you see them or does part of the car still block them?

Once you have completed this process, you will know where the blind spots are on your car and how large they are. You will also know to what extent head checks compensate for them.

2. SCANNING ROUTINE

Practise the scanning routine summarised in this section. Start with:

- Scan up to 12 seconds ahead.
- Check your mirrors every 8 – 10 seconds.
- Check your blind spots with a head check before you turn, merge or diverge.

Try it with the vehicle stationary at the side of the road. When you are confident that you have the routine worked out, try it in various speed zones. Start with 50 km/h, then progress to faster speed zones. Start on quieter roads then progress to busier ones.

Using the 'one-thousand and one, one thousand and two' counting technique, practise estimating what scanning 12 seconds ahead looks like at various speeds. You may be surprised at how far ahead you need to look.

3. COMPARING NOTES ON SCANNING

Ask an experienced driver who you know and trust to help you with this practice exercise. This person should have a full licence and have been driving for at least 10 years.

Map out a circular route through a nearby built-up area that will take you about 5–10 minutes to complete. Include traffic lights, Stop signs and areas where you are likely to come across other road users such as pedestrians.

Ask your experienced assistant to drive the circular route, with you travelling in the passenger seat. Scan the road as though you are driving. As your assistant drives the circular route, ask them to tell you where they are looking, what they are looking at and what they consider to be hazards. Questions like ‘What are you seeing?’ and ‘What are you going to do now?’ might be appropriate.

This technique is called commentary driving and is used by driver trainers and some licence examiners to find out where a driver is looking, what hazards they are seeing and what they plan to do about them. It might be a bit difficult for you and your assistant to do at first, but it gets easier with practice.

Are they looking at the same things as you? Do they spot hazards that you don’t? Do you agree on what may be hazards? Did they respond to hazards in the way that you would have?

When your assistant has finished driving the route, stop somewhere safe and talk about it.

Once you have talked about how you and the other driver scanned for hazards, swap positions so that you are driving. This time drive the route in the opposite direction. Ask your assistant to scan the road as though they are driving. As you drive along the route tell them where you are looking, what you are looking at and what you consider to be hazards.

Stop somewhere safe and compare notes. Are you looking at the same things as your assistant? Do you spot hazards that your assistant doesn’t? Do you agree on what may be hazards? Did you respond to hazards in the way your assistant would have?

This technique of comparing your scanning with a more experienced driver is a very useful learning tool. Try it with a range of other drivers who vary in age and driving experience. Use it often to build and refine your scanning skills. You can never get enough scanning practice.

Important situations

Hazard perception skills are important no matter where and when you drive. The need for them never goes away. There are some situations where hazard perception skills are particularly vital for your safety and that of other road users.

These situations may not specifically figure in the five most common crash types for provisional drivers (see five most common crash types for provisional drivers), but they are still important. This section summarises these.

■ IMPORTANT HAZARD PERCEPTION SITUATIONS

As a relatively new driver it is important that you learn to handle the following situations when driving:

- Pedestrians on or near the road.
- Cyclists.
- Motorcyclists.
- Dealing with trucks and buses.
- Negotiating roadworks.
- Crashes and breakdowns involving other vehicles or road users.
- Emergency vehicles.
- Animals on or near the road.

■ COPING WITH THESE SITUATIONS

Coping with these situations does not require any new set of hazard perception skills. The same basic skills still apply:

- Scanning for hazards.
- Keeping a safe distance from other road users.
- Selecting safe gaps.

As a driver you still only have the options of slowing down, stopping or changing direction to cope with hazards that you might encounter.

The aim of this section is to help you apply these hazard perception skills to some of the specific driving situations that you are likely to come across.

Pedestrians, cyclists and motorcyclists

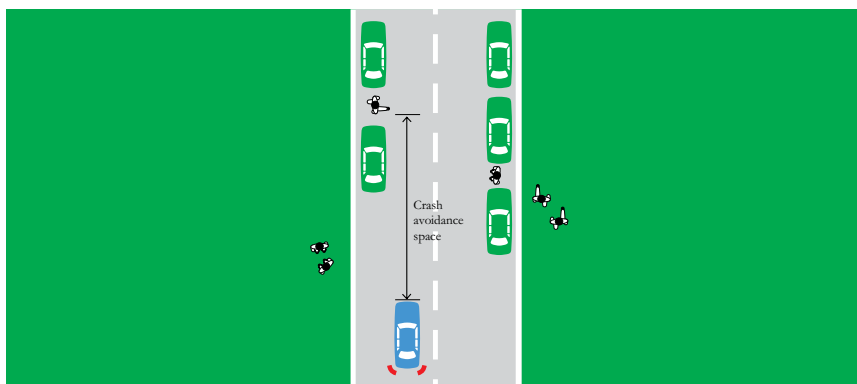
Pedestrians, cyclists and motorcyclists are vulnerable road users. They have no protection in the event of a collision with a vehicle. A crash that leaves only a small dent in your car could kill or injure an unprotected road user.

Unprotected road users are harder to see than cars or trucks. So scan carefully for them. After all, you'd want drivers to look out for you when you are walking, cycling or motorcycling.

■ PEDESTRIANS

While pedestrians can be found in many places, scan for them particularly around shopping centres, schools, bus stops and intersections. You need to scan the road and the footpath. Look between parked cars where your view of pedestrians, particularly children, can be hidden.

Pedestrians can be unpredictable and may not cross where it is safe or legal. They are also harder to see than vehicles. You may expect to see pedestrians at crossings and intersections, but may not expect them to emerge from behind parked cars mid-block.



Respond before reaching the hazard.

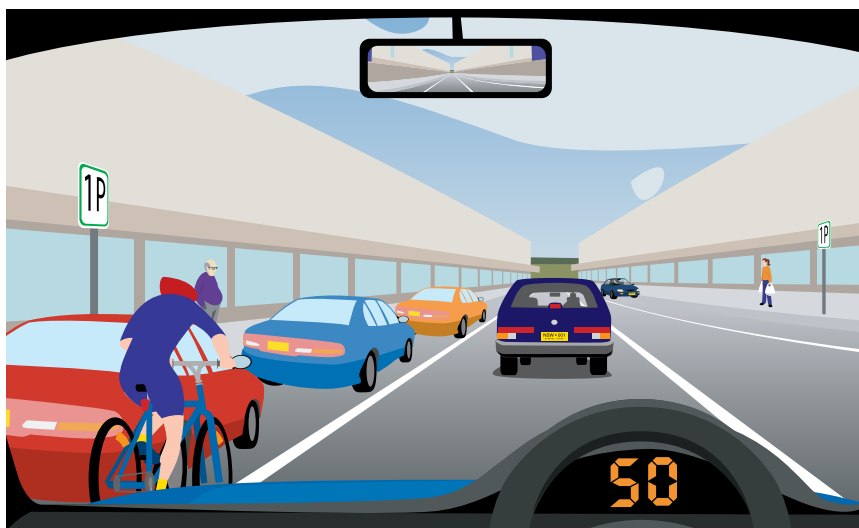
To give yourself time and space to detect and deal with pedestrian hazards, slow down on the approach to areas where you are likely to encounter pedestrians (eg schools and shopping centres). You need to be particularly careful of children and older people. Children can dart out on to the road very quickly and do not have the road sense of adults. Older people are experienced road users, but they may not be as agile or alert as younger people. This means that they may not look for traffic as carefully and may take longer than expected to cross a road.

Give all pedestrians plenty of room when approaching or passing them (eg when making a left or right turn). Try to make eye contact with them to ensure that they have seen you. Sound your car horn if you think that they haven't noticed you. Stop if you need to.

Remember that pedestrians will be harder to see at night or when it is dull, overcast or raining.

■ CYCLISTS

Cyclists use the roads, footpaths and bike paths that may cross roads or run beside roads. Many cyclists, including adults, will move readily from the road to the footpath and back again and may cross roads from footpath to footpath. This can make them harder to see at times. Remember that children aged 12 years and under can legally ride on the footpath. But don't assume that they will always ride there and that adults will always ride on the road. You need to scan the road and the footpath for cyclists.



Give all cyclists plenty of room when approaching or passing them (eg when making a left or right turn). Try to make eye contact with cyclists to ensure that they have seen you. Sound your car horn if you think that they haven't noticed you. Stop if you need to.

Cyclists can generally move faster than pedestrians, but will be a lot slower at negotiating intersections and making turns than motor vehicles.

Unfortunately, not all cyclists know or obey the road rules. You may even find cyclists riding against the traffic, riding through red traffic lights and riding without lights at night. This means that your scanning needs to be constant and careful when driving in daylight or darkness.

■ MOTORCYCLISTS

Like other unprotected road users, motorcyclists can be hard to see in traffic because they are much smaller than cars.

Motorcycles are usually more agile than other vehicles. Most can accelerate faster than cars and fit through small gaps in traffic. Some motorcyclists take advantage of these characteristics and will share lanes with other vehicles and weave from lane to lane even in heavy traffic. This can make them unpredictable.

Motorcycles can also be hidden by other, larger vehicles. For example, it may be hard for you to see a motorcyclist that is riding behind a truck. This can make them hard to spot in traffic. For example, the motorcyclist in the picture was hidden by the truck only a second before this photograph was taken.



A motorcycle can also fit into the blind spots to the left and right of your car. You may not be able to see them at all without doing a head check. So check your mirrors and blind spots carefully before changing lanes or diverging.

In too many crashes involving motorcycles, the other driver claims not to have seen the motorcyclist. This may be true, but is of no comfort to the motorcycle rider.

Common crash types involving motorcycles are:

- Where another vehicle turns across the path of an oncoming motorcycle.
- Where a turning motorcycle is struck by a vehicle going straight through.

This means that you need to scan carefully for motorcycles when you are selecting a safe gap to turn, cross an intersection, pass or overtake.

Trucks and buses

Heavy vehicles such as trucks and buses are usually easier to see than other vehicles due to their size. While this will help you see them, it also means that they can hide other vehicles or pedestrians behind them or beside them. This means it is very important to scan around these vehicles.

When following a bus or truck you may need to give yourself more following distance so that you can see around it. The following pictures show how much more you can see at a five second following distance than at a three second following distance at 60 km/h.

You have probably noticed that trucks and buses take up more road space and need more room to make turns. Don't try to compete with them for the same piece of road. Give them plenty of room, particularly when they are making a turn or braking.



3 sec gap.



5 sec gap.

Truck and bus drivers rely on their outside mirrors to see vehicles behind and beside them. If you can't see the mirrors of a truck or bus ahead of you, then the driver can't see you and may not know that you are there. So don't drive in their blind spots. Some trucks have signs on the back warning you not to do this.

If you are passing or overtaking a truck or bus (particularly a semitrailer, B-double or road train) remember that it may be many times longer than a car and will therefore take longer to overtake or pass.

As trucks and buses need more time to slow down than cars, keep a bigger gap between your car and a following truck or bus. This will give the truck or bus driver more time and space to pull up and avoid running into the back of your car. Remember, you are likely to come off second best if there is a collision because the truck or bus may be up to 40 times heavier than your car.

■ ROADWORKS

Roadworks are often annoying because they slow your journey from A to B. They can also be dangerous places, both for you and the road workers. There is often slow moving heavy machinery, trucks, rough surfaces, no lane markings and workers on or near the road.

Unfortunately, many drivers ignore the temporary warning signs for roadworks, including the roadwork speed limit sign shown in the following picture. This gives them little time or space to detect and react to hazards. This leads to the death and injury of vehicle occupants and road workers each year in NSW.



40 km/h speed limit for road works.

Scan ahead for roadwork signs. They are usually placed well in advance of the work site to give drivers a chance to slow down and get into the correct lane. Obey the roadworks signs and speed limits, even if other drivers seem to be ignoring them. Scan for hazards on the way through the work site and give workers and machinery a wide berth.



Workers ahead

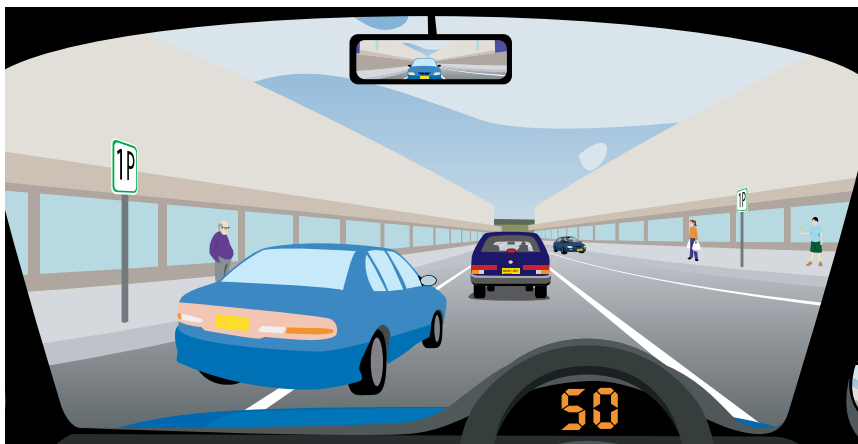


Approaching roadworks slow down and be prepared to stop.

Crashes and breakdowns

Traffic slows or stops around places where vehicles are broken down or where crashes have occurred. This can be an annoying and frustrating experience because you may be slowed or stopped by vehicles blocking a lane or even the whole road.

Effective scanning will help you detect a crashed or broken down vehicle ahead. This will allow you time to slow down and position your car best to get around the obstacle safely.



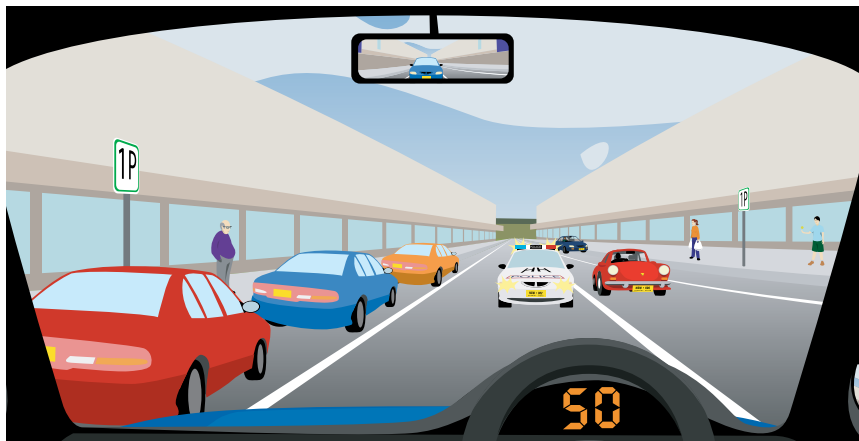
If you need or want to help people who are involved in a crash, make sure that you stop somewhere safely first. You don't want to be involved in a crash yourself.

Emergency vehicles

You should already know that you need to give way to emergency vehicles that have sirens and/or flashing lights on. But you have to see or hear them first. You won't come across them every day and therefore may not expect to see or hear one.

Scanning is important in detecting emergency vehicles because they can appear from unexpected places. They may even be approaching you on the wrong side of the road at high speed. This is why it is important to be aware of what is going on 360 degrees around your car (see Scanning for hazards, p 60).

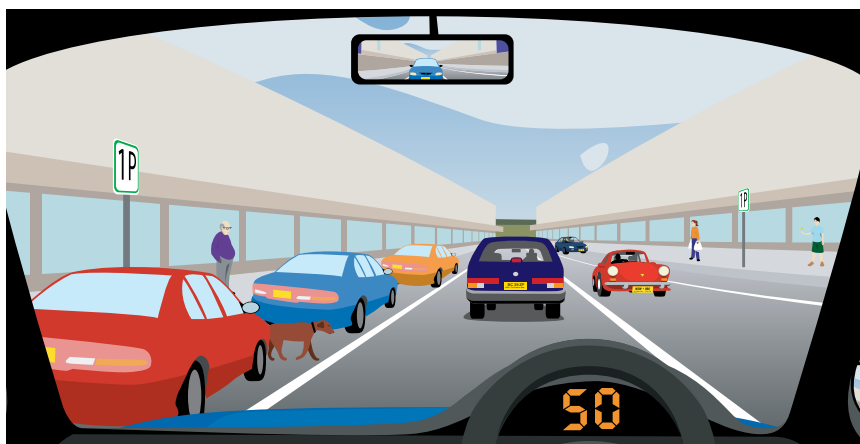
If you think you can hear a siren, turn off the radio/stereo and wind down the window to listen. This can help you work out where the emergency vehicle is.



Animals on the road

You might have seen numerous dead animals on or beside roads in the city and the country. Animals can be even more unpredictable than humans when they encounter a road. They can also be very hard to see, particularly at night and on dark country roads.

Again, scanning is the first hazard perception skill that you can apply to avoid a collision with an animal. This means that you need to scan the road and the sides of the road (Refer to Scanning for Hazards pages 58 to 60).



Where you know you are likely to encounter animals, it is a good idea to slow down. This gives you a better chance of spotting animals moving on to the road and braking or swerving to avoid them. Look out for signs such as these.

Things are more difficult in built-up areas where you are less likely to come across wild animals or stock (eg sheep or cattle), but may encounter cats and dogs. Even with good scanning skills you may not spot an animal in time to be able to avoid it. Remember that your safety and that of other humans takes priority. So stop if you can do so safely, or steer round the animal. Your first instinct is probably to try to avoid hitting it. But if avoiding it would mean colliding with other vehicles or pedestrians, or perhaps injuring yourself, it may be necessary to hit the animal.

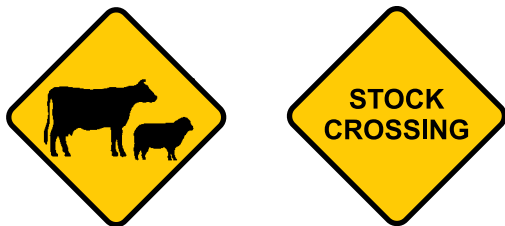
Roads and Maritime's *Road Users' Handbook* and our website provide information on what to do if you hit and kill or injure an animal.

■ KEY POINTS SUMMARY: SITUATIONS WHERE HAZARD PERCEPTION IS PARTICULARLY IMPORTANT

- Hazard perception is particularly important around unprotected road users, large vehicles, road works, emergency vehicles and animals.
- Use the scanning routine to cope with these hazards and keep a safe distance from other road users.
- Give yourself plenty of time and space.

■ PRACTICE EXERCISES

There are no specific practice exercises for the topics covered in this chapter. The hazard perception skills required are the same as in previous chapters. However, you may wish to re-visit the practice exercises at the end of the chapter on scanning as this is perhaps the most important skill for managing these situations.



Expecting the unexpected

Road users do not always do what you expect them to do. You need to expect the unexpected.

■ THE ROLE OF EXPECTANCIES

When you drive you rely on expectancies. For example, you expect that other drivers will stop at red lights, that other drivers will give way when facing a Give Way sign and that pedestrians will not suddenly dash on to the road. Over time, drivers build up a range of expectancies based on their experiences with traffic. This helps experienced drivers become good at predicting how a hazard might develop.



Think about the roads that you drive on a lot (eg going to work, school or university). You get to know what lane you should be in, where there are often parked cars and where pedestrians cross the road.

Expectancies are useful and help you manage the driving task. Expectancies are OK most of the time, but the unexpected does happen. This can lead to crashes when you rely on expectancies rather than hazard perception skills.

■ THE UNEXPECTED

By now you will have realised that the road system is not perfect and that not all road users obey the road rules all of the time. Some road users do not do what you expect them to do.

Imagine the woman in the following picture did not look before crossing the road and so risked being struck by a car.



Perhaps she expected that no cars would be coming on a quiet suburban street. Drivers need to be on the look out for this sort of behaviour. A driver with good hazard perception skills would have noticed the woman, taken action, and prevented a crash.

■ EXPECTING THE UNEXPECTED

Suggesting that you expect the unexpected when driving is easy to say, but harder to do. Unfortunately, there are no magic formulas or techniques for predicting when unexpected hazards will pop up when driving.

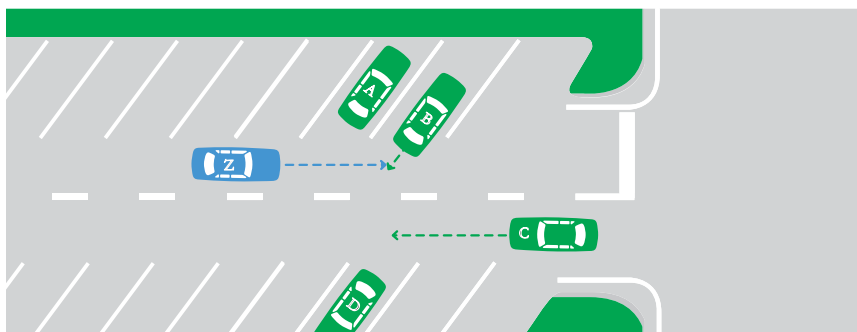
The best way to deal with the unexpected is to apply the hazard perception skills covered in this handbook. The following are the key skills:

- Scan well ahead of your car – keep your eyes moving.
- Look for indicators on other vehicles.
- Observe the head and eye movements of other drivers (eg are they looking at you or at something else).

- Check for pedestrians, cyclists and motorcyclists that may be hidden by other vehicles.
- Give yourself plenty of time to detect and cope with hazards and space to take some action to avoid a crash.
- Slowing down is a good precaution as it gives you both time and space to cope with a hazard.
- Get lots of driving experience in a variety of traffic conditions so that fewer situations are new to you.
- If there is something that you feel you don't cope well with (eg heavy traffic), get a more experienced driver to help you learn how to deal with it (eg drive as a passenger with them, watch what they do and ask them questions).
- Be cautious and wary in situations that are new or different (eg roadworks, crash scenes).
- Make your car easier to see – if it is dull, overcast or raining turn your headlights on, even during the day.

■ IDENTIFYING THE MAIN HAZARD

Hazards rarely come one at a time when you're driving. Often you will have to deal with a few at once. This means that you have to identify the main hazard and deal with this first. For example, in the following picture the car marked as B is the main hazard where you are the driver of the blue car marked Z. Car B has already started to back out of the parking space and may come out in front of you. Its brake and reversing lights are on. There are other hazards such as the vehicles marked A, C and D, but B is the one that poses the main and most immediate hazard to you.



While car B should wait until you pass, the driver may not have seen you or expects that you will let them out. On the other hand, you expect that the car will not move out until you have passed. Given that you need to expect the unexpected, it would be best to assume that the driver has not seen you until you have made eye contact and are sure that they will not come out in front of you. This means that you may slow down, move to the right of the lane to give yourself more space and set up the brake as precautions.

■ KEY POINTS SUMMARY: EXPECTING THE UNEXPECTED

- Drivers rely on expectancies when they drive.
- The road system is not perfect – other drivers and road users sometimes do the unexpected.
- To cope with the unexpected, use the scanning routine and keep a safe distance from other road users.
- Hazards rarely come one at a time so deal with the main hazard first.
- Give yourself time and space to cope.

■ PRACTICE EXERCISES

Think about how well you dealt with any unexpected things that happened when you were driving in the past week. Did you have to brake or swerve to avoid a collision? Consider if you could have coped better and how this could have been done (eg spotting hazards earlier, scanning further ahead, giving yourself more space between you and other vehicles). Talk to other drivers that you trust about how they would have dealt with the situation. Could they have predicted that these situations would have played out the way that they did?

Reviewing your performance, and that of others, should help build your experience bank of hazards that can and do arise unexpectedly.

A few final words about hazard perception

■ EXPERIENCE AND PRACTICE THE MAIN TEACHERS

As a new driver you will take time to develop hazard perception skills through gaining driving experience over time and across lots of different driving situations. Experience and practice will be the main teachers.

Remember that the aim of this handbook is to help you develop hazard perception skills that will make you a safer driver and prepare you to undertake the Hazard Perception Test (HPT). This will also help make the road safer for other road users. Read the handbook often, try the practice exercises and visit the website.

You should be developing your hazard perception skills from the day that you get your P1 licence. This handbook will help guide you, but can never be a substitute for experience gained on real roads and in real traffic.

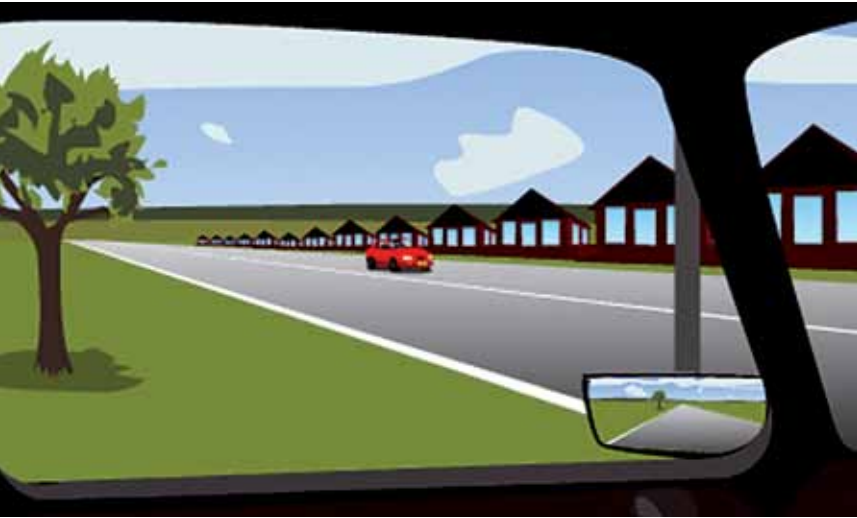
■ SUMMARY OF KEY HAZARD PERCEPTION SKILLS

The basic hazard perception skills are:

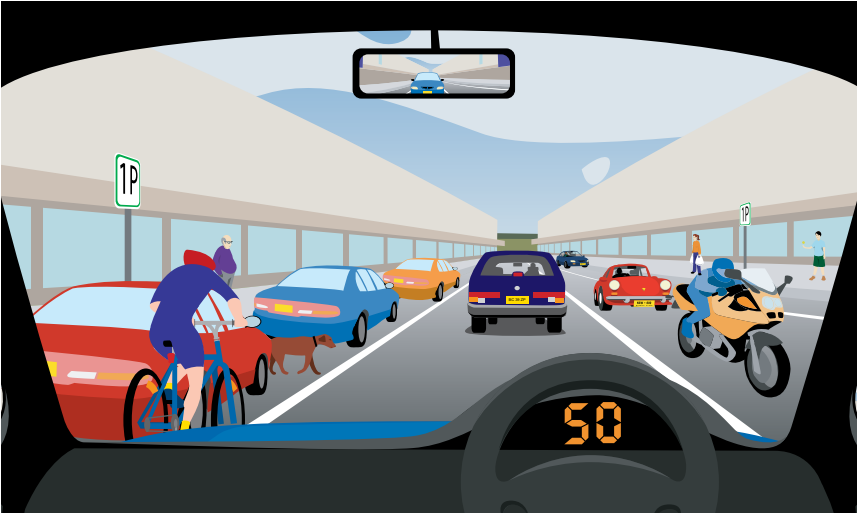
- Keeping a safe distance from other vehicles.



- Selecting safe gaps when turning, crossing traffic or changing lanes.



- Scanning for hazards ahead, behind and to the side.



Apply these skills effectively and they will help you deal with the unexpected situations that can arise when driving.

■ PRACTICE, PRACTICE AND MORE PRACTICE

You can't learn any skill properly from a book or a website. You need to get out there and practise to develop and improve your skills. Ask older, more experienced drivers to help you – it will make the roads safe for them, too.

Glossary

- Adjacent direction** – coming from the left or right across your path.
- Arterial road** – a main road that carries a lot of traffic between suburbs or within cities or towns.
- Blind spot** – area where your vision to the front, side or rear is blocked when driving.
- Buffering** – positioning your vehicle to create maximum space around you, away from hazards.
- Commentary driving** – a training and development technique of talking when you are driving to indicate where you are looking, what hazards you are seeing and what action you might take.
- Crash avoidance space** – the space a driver needs to manage, in order to prevent a potential crash.
- Driver Qualification Test (DQT)** – a combination of an advanced hazard perception test, a further test of the road rules and safe driving practice. This test must be passed to progress from P2 stage to full licence status.
- Following distance** – the distance between your vehicle and the vehicle travelling ahead of you in the same direction.
- Full Licence** – licence issued to P2 drivers who have held that licence for at least 24 months, have passed the Driver Qualification Test (DQT).
- Hazard** – any possible danger that might lead to an accident.
- Hazard perception** – ability to recognise and respond to potentially dangerous situations and react appropriately.
- Hazard Perception Test (HPT)** – a touch-screen computer test which measures your ability to recognise and respond to potentially dangerous situations and react appropriately when driving. Provisional drivers must pass this test to progress from the P1 to P2 licence stage.
- Head check** – looking over your shoulder to the left or right to make sure that there's nothing in your blind spot. Also known as shoulder check.
- P1 Licence** – provisional licence - Stage 1. This is the first provisional licence issued to new solo drivers in NSW after 1 July 2000. It must be held for a minimum of 12 months before one becomes eligible to progress to Stage 2. P1 drivers must display a red P sign (red P on a white background).

P2 Licence – provisional licence - Stage 2. This is the second licence issued to new solo drivers in NSW after 1 July 2000. It is issued for 30 months to drivers who have held a P1 licence for at least 12 months and have passed the Hazard Perception test (HPT). A P2 licence must be held for a minimum of 24 months. P2 drivers must display a green P sign (green P on a white background). A P2 licence has fewer restrictions than a P1 licence.

Safe gap – a gap in traffic that enables you to turn, overtake or cross an intersection without being involved in a collision or endangering other road users. This means that no other road users should need to take evasive action to avoid your vehicle.

Scanning – constantly moving your eyes and/or your head when driving so that you can detect hazards that may arise ahead, to the sides and behind your vehicle. Scanning means taking in the whole scene 360 degrees around your car.

Setting up the brake – where your right foot is off the accelerator and lightly activating the brake.

Warning signs – yellow diamond shaped signs that warn you of hazards ahead (eg animals or an intersection).

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rms.nsw.gov.au
13 22 13

Roads and Maritime

The information in this handbook is intended as a guide only and is subject to change at any time without notice. It does not replace the legislation.

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