

## 6. Speed Detection

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## 6.1 Introduction

This chapter relates to the methods of speed detection, involving the use of:

- (i) speed detection devices;
- (ii) a police motor vehicle to obtain a follow speed;
- (iii) estimation; and
- (iv) the speed formula.

The Service's policies in relation to the use of photographic detection devices are contained in Chapter 9: 'Photographic Detection Devices' of this Manual.

## 6.2 Speed detection and methods

### 6.2.1 Purpose of speed detection

Speed detection and enforcement are necessary components of traffic policing and are, amongst other things, designed to:

- (i) reduce the incidence of traffic incidents, traffic related injuries, deaths, road trauma and damage to property;
- (ii) encourage compliance with speed limits;
- (iii) achieve safe and effective regulation and control of traffic; and
- (iv) reduce, by enforcement, the number of road users exceeding speed limits.

### 6.2.2 Speed detection methods

Contravention of speed limits is an offence against s. 20: 'Obeying the speed limit' of the TO(RUM-RR)R. For a successful prosecution of an offence of exceeding the speed limit, in addition to other matters, officers are required to prove that the offender drove at a speed in excess of the speed limit applying to the driver for the length of road where the driver was driving. This may be achieved in a number of ways including the use of:

- (i) speed detection devices;
- (ii) follow speed;
- (iii) estimation;
- (iv) speed formula; and
- (v) photographic detection devices (see Chapter 9: 'Photographic detection devices' of this Manual).

## 6.3 Speed detection devices

### 6.3.1 Positioning of speed detection devices

Officers operating speed detection devices should be able to justify their reasons for operating such devices in areas where such use may be open to question.

Justification for use of a speed detection device may include:

- (i) a history of traffic incidents occurring in the locality;
- (ii) complaints of speeding vehicles being received from members of the public. The 'Traffic Complaint' functionality within QPRIME should be used to identify such complaints (see s. 13.2.2: 'Traffic complaints by members of the public' of this Manual);
- (iii) officers having observed speeding offences in the area. Consultation with local authorities or the DTMR should be considered to establish that there are no other means of overcoming the situation, such as increased speed limits or traffic engineering solutions; or
- (iv) locations where there is a real threat to the safety of road users (including road construction workers).

The use of a speed detection device at a site must be consistent with the perceived need for speed limit enforcement and the benefits likely to be gained for society due to the device being operated at that location.

### 6.3.2 Restrictions on speed detection device site locations (restricted site locations)

Speed detection devices should not generally be operated in the following restricted site locations:

- (i) on a road which could be described as the downgrade of a hill;

- (ii) on a road within 300 metres after a sign indicating any decrease in the prescribed speed limit;
- (iii) on a road within 100 metres before a sign indicating any increase in the prescribed limit; or
- (iv) where the length of the speed zone is less than one kilometre.

It is recognised that in some instances, it may be necessary to perform speed detection operations in restricted site locations. Such instances include:

- (i) 40 km/h school zones;
- (ii) local neighbourhood areas;
- (iii) on downhill grades where there is documented history of crashes; and
- (iv) areas where there are a number of public complaints relating to the speeding of vehicles. The 'Traffic Complaint' functionality within QPRIME should be used to identify such areas.

When operating a speed detection device in any restricted site location, the officer in command is to consider the aspect of fairness towards the motoring public. In every case, that officer is accountable for justification of the operation of the device at the restricted site location.

### 6.3.3 Site selection – speed detection devices

In the selection of a site where a speed detection device is to be used, the safety of the general public and officers is paramount. Careful consideration should be given to the physical characteristics of each location and the operating capability of the relevant speed detection device prior to the operation of any speed detection device.

Officers responsible for the selection of a site for the operation of a speed detection device should:

- (i) select an appropriate site consistent with the provisions of s. 3.2.1: 'Establishing a static interception site' of this Manual;
- (ii) ensure a clear and uninterrupted view exists between the point at which a valid speed measurement is taken and the point where the speeding vehicle is to be intercepted, so that the intercepting officer and the authorised operator can visually monitor the vehicle until the point of interception;
- (iii) comply with any manufacturer's specifications and/or guidelines relating to site selection applicable to the type of speed detection device being used;
- (iv) comply with the provisions of ss. 6.3.1: 'Positioning of speed detection devices' and 6.3.2: 'Restrictions on speed detection device site locations (restricted site locations)' of this chapter;
- (v) comply with instructions relating to the use of the particular speed detection device being operated as outlined in the Speed Management Training Manual for that particular speed detection device; and
- (vi) not operate a speed detection device at a site which has had the speed limit reduced for at least twenty-eight days after the new speed limit applies.

### 6.3.4 Responsibility of authorised operators

Speed detection device operators are to hold a current operator authorisation for the type of speed detection device being used. An officer who does not hold a current operator authorisation for a particular device, is not to operate a device of that kind unless that person is under the instruction of an officer who holds a current instructor authorisation for that device.

Authorised operators are to comply with the:

- (i) relevant legislation including the:
  - (a) TO(RUM)A; and
  - (b) *Work Health and Safety Act*.
- (ii) manufacturer's specifications and/or guidelines for operation and testing of the particular speed detection device;
- (iii) relevant policy, procedures and orders relating to interception by police when using a speed detection method or the operation of a speed detection device where there is an interception of vehicles which have been measured (see s. 3.2: 'Static interception' of this Manual and s. 15.4: 'Vehicle interceptions' of the OPM); and
- (iv) Speed Management Training Manual applicable for that speed detection device.

Authorised operators are to ensure the speed detection device:

- (i) is not subjected to adverse weather conditions;
- (ii) is stored in a dry, safe location for protection;
- (iii) is never intentionally pointed directly into any person's eyes at close proximity;

(iv) is not carried on a Service motorcycle or by the motor cyclist whilst the cycle is in motion except when the device is secured in the specific bracket or holster fitted to the motorcycle or stored in the motorcycle pannier; and

(v) is not placed or stored on the dashboard of a Service vehicle or carried externally of the vehicle whilst in motion except for a mobile radar device which is to be fitted in compliance with Service policy and manufacturer's instructions.

### 6.3.5 Record of speed detection device operation

Officers who operate speed detection devices should record the details of operation in one or more of the following methods:

- (i) an official police notebook;
- (ii) site safety plan; or
- (iii) similar document.

The recorded details should include:

- (i) date, time, location and applicable results of field testing of the particular device. Field testing should occur at the start and end of the shift;
- (ii) particulars of the device used; and
- (iii) where applicable, the particulars of the vehicle used to test the device.

### 6.3.6 Resources allocated to a speed detection device operation

Efficient and effective policing requires that resources are used to maximum advantage. The use of a speed detection device and the number of officers deployed at the site of a speed detection device operation should be considered. The officer in command should deploy a sufficient number of officers and vehicles to ensure effective and efficient policing at the selected site (see s. 3.2: 'Static interception' of this Manual).

### 6.3.7 Providing evidence of speed detected to intercepted drivers

A driver of a motor vehicle intercepted as a result of the use of a speed detection device, where the driver's speed has been detected in excess of the prescribed speed limit should, where practicable, be afforded the opportunity by the authorised operator to view the speed displayed on the speed detection device.

When deciding whether to allow the driver to view the speed detection device, officers are to consider the safety of all persons, including other road users. Certain operational circumstances relating to the deployment of the speed detection device at a particular time may prevent the authorised operator from allowing the driver to view the displayed speed on the speed detection device.

In circumstances where it is considered unsafe or not operationally practical to allow an intercepted driver to view a speed detection device that uses a Micro DigiCam, the OIC of the static intercept site may make alternative viewing arrangements. Micro DigiCam viewing software may only be available at limited police stations or establishments.

## 6.4 Training in operation of speed detection devices

This section outlines the policy for the officer training requirements for the operation of speed detection devices.

ORDER

Officers are not to operate speed detection devices unless they:

- (i) hold a current Service-issued authorisation to operate the device;
- (ii) are undergoing a Service-operated training or reassessment course in the device; or
- (iii) are operating the device in the presence and under the direct supervision of an instructor who holds a current authorisation to operate the relevant device.

The Service provides:

- (i) an Authorised Instructor's Course;
- (ii) an Authorised Operator's Course; and
- (iii) a re-authorisation course for officers whose authorisation as instructors or operators has lapsed,

in the operation of a:

- (i) laser (hand-held) speed detection device;
- (ii) direct (mobile) speed detection device; and

- (iii) radar-detector detection device.

#### ORDER

All authorised operators are to undertake a competency reassessment course every three years to retain authorisation in the use of each respective speed detection or photographic detection device.

Authorised instructors providing training to other officers in relation to the operation of speed detection devices are to ensure:

- (i) such training is given in accordance with the relevant:
  - (a) manufacturer's specifications and/or guidelines in the operation of the device; and
  - (b) legislation;
- (ii) training is given in accordance with Service-approved course material; and
- (iii) practical training in the operation of the relevant device is carried out at appropriate sites consistent with the provisions of this Manual and the Speed Management Training Manual for the particular device.

### **6.4.1 Conducting and attending speed detection device operator's authorisation courses**

Speed detection operator's authorisation courses are conducted throughout the state at the discretion of the relevant education and training coordinator.

#### ORDER

A speed detection device operator's authorisation course is to be conducted, for the:

- (i) theory component of the training, by an authorised instructor who has successfully completed the:
  - (a) Speed Detection Device Up-Skill Course (during 2014); or
  - (b) Speed Device Instructor Course (post 2014),

in the relevant device; and

- (ii) remainder of the training, by an authorised instructor in the relevant device,

in accordance with the QPS Speed Management Training Manual.

Minimum selection criteria to attend speed detection device operator's authorisation training courses

#### ORDER

Prior to attending a speed detection device operator's authorisation training course, officers are to satisfy the minimum selection criteria, namely:

- (i) completion of the First Year Constable Program;
- (ii) demonstrated an effective use of laws, policies and procedures that apply to traffic enforcement;
- (iii) demonstrated professionalism towards and a commitment to road policing; and
- (iv) successfully completed the Competency Acquisition Program training subject in QCW010: 'Work Health and Safety: Law and Policy' within a two year period prior to the commencement of the course; and
- (v) successfully completed the Competency Acquisition Program training subject in QCP002: 'Queensland Police Service Safe Driving Policy' within a two year period prior to the commencement of the course.

### **6.4.2 Authorisation, re-authorisation and competency reassessment of speed detection device operators**

The OIC of the district or region in which the officer is stationed is to ensure officers who successfully undertake courses in the operation of speed detection devices are issued with appropriate authorisation. The authorisation is to be signed by a commissioned officer.

The authorisation of authorised speed detection instructors and operators lapses if an authorised instructor or operator:

- (i) has not used the relevant speed detection device within a 12 month period; or
- (ii) has not successfully completed the relevant reassessment course in the operation of the relevant device in the preceding 36 months.

To achieve satisfactory competence, authorised instructors should use either a reassessment course or if necessary a full operator course in the relevant speed detection device to determine re-authorisation of an operator in the relevant device.

In the event an authorised instructor is not reasonably available an experienced and currently authorised operator together with a workplace assessor may undertake the practical component of the reassessment course.

### 6.4.3 Training records

Records of officers who are authorised instructors or operators are required to be kept and maintained by district education and training officers, for authorised officers within their district, and the Road Policing Group, RP&RSC for all authorised instructors. These records are to be maintained within the Ignite learning and performance management system.

Upon completion of a speed detection device training course, the course facilitator is to ensure that the relevant district education and training office are advised of the successful course participants.

### 6.4.4 Issue of speed detection device operator's authorisation

Upon completion of a training course authorising the use of a speed detection device the course facilitator is to ensure that successful course participants are issued with the appropriate authorisation to operate the specified device(s).

The authorisation is to be issued within a reasonable time of the training being completed.

Upon successful completion of a speed detection device course, appropriate authorisation is to be issued by either the OIC of the region or district in which the officer is stationed.

### 6.4.5 Issue of speed detection device instructor's authorisation

At the completion of each instructor's training course, the Officer in Charge, Specialist Programs, Road Policing Group, RP&RSC is to arrange for the authorisation of successful participants as instructors for the appropriate speed detection device(s).

RP&RSC is responsible for all training and authorising of instructors in the use of speed detection devices.

### 6.4.6 Revocation of authorisation to operate speed detection devices

Authorised instructors and operators are to carry out their responsibilities in a professional manner in accordance with Service policy and the:

- (i) relevant legislation;
- (ii) guidelines relating to the use and operation of a speed detection device set by the manufacturer of the equipment; and
- (iii) QPS Speed Management Training Manual for the particular speed detection device.

If it becomes evident that an officer who is either an authorised instructor or an authorised operator should not continue to be authorised, the authorisation held by that officer may be revoked. A revocation notice may be issued by the Commissioner or a commissioned officer attached to RP&RSC in cases of authorised instructors.

In cases involving authorised operators, the revocation notice may be issued by:

- (i) the OIC:
  - (a) of the district in which the officer is stationed; or
  - (b) of the region or command in which the officer is stationed;
- (ii) a commissioned officer attached to RP&RSC; or
- (iii) the Director, Road Safety Camera Office or delegate for camera detection devices.

Revocation notices are to be served on the authorised instructor or authorised operator concerned by a commissioned officer.

## 6.5 Follow speed

Speed detection whereby the speed of a subject vehicle is ascertained by comparing it to that of a following Service vehicle driven by an officer is commonly referred to as the 'follow speed' detection method.

An officer intending to check the speed of another vehicle by the follow speed method should consider the following:

- (i) the amount of tolerance appropriate in the circumstance (see s. 6.8: 'Amount of tolerance allowed in speed detection' of this chapter);
- (ii) whether the speedometer of the following vehicle is currently certified as accurate by having been tested within the previous six months (s. 123I: 'Certificate is evidence of another matter—stop watches, other watches and speedometers of the TO(RUM)A); and
- (iii) whether the distance between the police vehicle and the followed vehicle ensures the safety of the occupants of both vehicles and other road users having regard to the speed of the vehicles, road conditions and weather.

For a successful prosecution of a speeding offence, using the follow speed detection method, officers should be able to provide to a court, evidence of the:

- (i) accuracy of the speedometer of the motor vehicle used in obtaining the follow speed (the accuracy of a speedometer may be proved by the production of a certificate which complies with s. 123I: 'Certificate is evidence of another matter—stop watches, other watches and speedometers of the TO(RUM)A);
- (ii) distance between the following vehicle and the followed vehicle during the time the follow speed was ascertained and any variations to the distance between both vehicles (e.g. the distance may increase as the followed vehicle increases in speed); and
- (iii) distance over which the follow speed was ascertained. It is recommended that this distance be a minimum of 200 metres.

## 6.6 Estimation

The estimation method of speed detection relies on the experience of officers gained through their daily activities including their official duties as police officers. Experience gained by an officer often results in the officer developing an ability to estimate the speed of moving vehicles with greater accuracy than the average person. Although estimation evidence by its nature is not entirely accurate, it may be acceptable to a court for the purposes of showing the general speed of a vehicle in order to prove that the speed of a subject vehicle exceeded a prescribed speed limit at a particular time.

The estimation speed detection method should only be used where no other means of speed detection is available such as a speed detection device or vehicle speedometer.

An officer intending to use estimation as a means of speed detection should consider that:

- (i) a prosecution for an offence of exceeding a prescribed speed limit based solely on the evidence of the officer's observations and experience has a greater risk of failing compared to more conventional means of speed detection; and
- (ii) it is difficult to prove to a court speeds which are marginally over the prescribed speed limit making the method more suitable to circumstances where the alleged speed of a subject vehicle is substantially in excess of the prescribed speed limit.

Evidence supporting of an officer's estimation of the speed of a vehicle may include:

- (i) engine noise being emitted by the subject vehicle, such as excessive revving;
- (ii) other noise caused by the subject vehicles' apparent excessive speed such as the sound of wind being generated;
- (iii) the time (in seconds) that is taken for the vehicle to travel from one given point to another. In this regard officers should familiarise themselves with the following equation:

'SPEED = DISTANCE DIVIDED BY THE TIME TAKEN TO TRAVEL THAT DISTANCE'.

Once the time taken for the vehicle to travel a certain distance has been taken, the distance can later be measured and the calculation then made as to the speed of the vehicle at the set time;

- (iv) any movement of physical objects at the side of the roadway (such as leaves on trees or road signs) as the subject vehicle passes such objects indicating the creation of turbulence or tail winds;
- (v) comparisons of the speed of the subject vehicle with that of other vehicles which may be travelling on the particular road at the time; and
- (vi) observations of body movement of the vehicle upon the road, especially whilst cornering and under braking.

## 6.7 Speed formula

The speed formula method of speed detection relies upon the time that a vehicle travels over a known distance. This method can be used by an electronic time switching mechanism or the manual actuation of a timing device.

This method should only be considered when other speed measurements techniques are not practicable (e.g. Vessel speed monitoring).

The OIC of a speed detection site shall be responsible for selecting this method of operation and prior to deciding to use this method should be satisfied that:

- (i) the site is suitable for this method of speed measurement, taking into consideration the operator's ability to view the start and finish point of the distance over which the measurement is to be taken: and
- (ii) the timing mechanism operator is able to accurately activate the timing mechanism.

## ORDER

Officers utilising this method of speed detection are not to calculate the speed from their own mathematics but are to utilise the function inbuilt into the timing device.

The timing device used in this method of speed detection is to be a certified device with traceability to the *National Measurement Act*.

## 6.8 Amount of tolerance allowed in speed detection

The amount of tolerance allowed in speed detection should not be made public knowledge. This information, if published, may create a de-facto speed limit.

The officer responsible for determining the amount of tolerance to be allowed in any method of speed detection should be, in the case of:

- (i) a speed detection device operation, the OIC of the site;
- (ii) a follow speed method, the officer taking enforcement action; and
- (iii) the estimation or speed formula method, the officer making the estimation of the speed or determining the speed by using the speed formula.

The amount of tolerance may vary in different circumstances and an officer when determining the appropriate amount of tolerance applicable for a particular circumstance should consider the:

- (i) accuracy of the speedometers fitted to vehicles;
- (ii) accuracy of the speed detection method used;
- (iii) speed limit for that particular road;
- (iv) nature of the road (number of lanes, geographic features, etc.);
- (v) condition of the road;
- (vi) amount of traffic on the road at the time, the day of the week and the time of the day;
- (vii) prevailing weather conditions at the time; and
- (viii) safe and efficient use of resources at a speed detection device interception site.

## 6.9 Testing and accuracy calibration

The testing and accuracy calibration of speed detection devices and distance calibration bases is the responsibility of the OIC, QPS Calibration Laboratory.

### 6.9.1 Speed detection devices

The OIC, QPS Calibration Laboratory is to ensure the testing and accuracy calibration of speed detection devices is in compliance with the relevant manufacturer's specifications and/or guidelines.

The accuracy of the testing equipment is to be traceable to the *National Measurement Act*.

All speed detection devices should be tested and accuracy calibrated every twelve months in compliance with the manufacturers specifications.

Authorised operators should ensure prior to using a speed detection device, it is:

- (i) sealed in compliance with Service policy; and
- (ii) currently certified as tested and accuracy calibrated; and
- (iii) field tested in compliance with and meets the necessary requirements as outlined by the manufacturer and Service policy.

### 6.9.2 Distance calibration bases

Distance calibration bases are established for the accuracy testing of LIDAR speed detection devices. A distance calibration base may be either fixed or portable.

## ORDER

Fixed distance calibration bases are to be:

- (i) surveyed by a qualified surveyor;
- (ii) measured with measuring equipment traceable to the *National Measurement Act*;



(iii) tested for accuracy:

- (a) every two years by a qualified surveyor; and
- (b) whenever damage or movement to the base is detected; and

(iv) established in compliance with the calibration procedure set out by the Supervising Engineer, Surveyor, Land Survey, Queensland DTMR.

Portable distance calibration bases are to be established:

- (i) using tape measures that are certified accurate and traceable to the *National Measurement Act*;
- (ii) using tape measures that are in good condition and are used only whilst certification is current; and
- (iii) in compliance with 'Portable Distance Calibration Bases Guidelines' located on the RP&RSC webpage on the Service Intranet.

The tape measure comprising part of the portable distance calibration base is to be of a quality approved by a recognised verifying authority. The verifying authority is to be able to issue certificates of verification with reference to the *National Measurement Act* (e.g. Department of Tourism, Racing and Fair Trading, Office of Fair Trading, Measurement Standards Laboratory).

Distance calibration bases may be established at police stations and establishments at the discretion of the relevant district officer.

Portable distance calibration bases may be acquired and used at the discretion of the relevant district officer.

## 6.10 Warnings given to motorists about the location of speed detection operations – obstructing or hindering police

Warnings about the location of speed detection devices may be provided by the Service or by the DTMR as part of a road safety strategy.

Warnings may also be provided by individuals or organisations with the intent of hindering or obstructing police carrying out speed detection operations (see s. 790: 'Offence to assault or obstruct police officer' of the PPRA).

Additionally, s. 24A: 'Unlawful SMS messages etc.' of the *Summary Offences Act* provides that a person must not commercially provide a service to inform another person, by a 'relevant message', of the location of a traffic enforcement site, enabling the other person to avoid, or be prepared for, a check made at the site (see s. 24A(4) of the *Summary Offences Act* for the definition of relevant message). Officers are to note that s. 24A of the *Summary Offences Act* does not apply to commercial radio stations.

Members are not to be directly involved in, nor support actions by individuals or organisations other than the Service or other agencies acting with the approval of the relevant regional assistant commissioner or the Assistant Commissioner, RP&RSC aimed at warning motorists of speed detection operation locations.

In circumstances where an offence against:

- (i) s. 790: 'Offence to assault or obstruct police officer' of the PPRA which constitute obstruction or hindering of officers in the performance of their duties as a result of warning motorists of the location of speed detection operations; or
- (ii) s. 24A: 'Unlawful SMS messages etc.' of the *Summary Offences Act*.

is suspected, officers are to conduct a thorough investigation.

Upon finalising such an investigation, and prior to commencing a prosecution, the matter is to be referred through the relevant regional assistant commissioner to the Assistant Commissioner, RP&RSC.

The Assistant Commissioner, RP&RSC is to ensure that the legal aspects surrounding the particular matter are examined prior to recommending whether or not a prosecution should be commenced.