



SOUTH AUSTRALIA POLICE
KEEPING SA SAFE

FIXED SAFETY CAMERA OPERATING PRACTICES



**Government
of South Australia**

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Introduction

The South Australia Police (SAPOL) fixed safety camera program is based on well-documented evidence of the relationship between speeding, intersection behaviour and road trauma. The purpose of the program is to reduce the risk of road trauma by slowing traffic and increasing compliance with traffic signals through changed driver behaviour.

Evidence shows that speed is a contributing factor in over 30% of road crashes. Controlling speed across the road network and red light compliance at intersections is critical as almost half of all serious casualty crashes in metropolitan areas and 21% of serious crashes in rural areas in South Australia occur at intersections. In addition, up to 30% of all crashes occur at signalised intersections are as a consequence of disobeying red lights.



Almost 50% of serious casualty crashes in metropolitan Adelaide occur at intersections

This document has been developed to provide information to the public about the operating policies and practices of the SAPOL fixed safety camera program.

SAPOL is committed to transparency in the operation of fixed safety cameras.

General operating practices

Fixed safety cameras are installed strategically across the State to locations of known traffic hazard. The influence upon driver behaviour is evidenced by higher compliance with the posted speed limits, lower mean travel speeds, and the reduced incidence and severity of vehicle crashes.

Enforcement activity is designed to be consistent, fair, impartial and objectively administered in the community interest.

It is a requirement that SAPOL strictly complies with fixed safety camera legislation, manufacturer's recommendations, SAPOL General Orders and standard operating procedures for fixed safety cameras.

Site selection practices

Site selection

Fixed safety cameras are used at selected sites that meet technical and legal requirements and have passed through a site selection process.

Sites are selected after an assessment by the Department of Transport, Planning and Infrastructure (DPTI). Fixed safety camera sites are initially determined by assessment of:

- crash statistics on a priority basis
- site geometry
- road alignment and the presence of obstructions
- operational safety compatibility, as assessed by the SAPOL Traffic Camera Unit.

Site establishment

Fixed safety cameras are installed by the DPTI in accordance with manufacturer's requirements.

Once established, the technical integrity of the site is confirmed and the DPTI then continue to maintain the infrastructure.

The site undergoes extensive testing and the safety camera is transferred to the South Australia Police once it is proven to be accurate. From that point the camera is maintained by SAPOL.

Due to the physical nature of individual sites not all sites are exactly the same. Every site is tested for accuracy at the time of commissioning and at regular intervals during its operational life.



Gradients

Fixed safety cameras may be established on a slope, hill or gradient.

Speed limit variation

Fixed safety cameras are generally placed on a section of road with a constant speed limit. With the exception of average speed safety cameras, fixed mid-block safety cameras can operate in variable speed limit environments.

Fixed safety cameras do not operate in road works zones.

Mobile safety camera operation

Mobile safety cameras are not operated within one kilometre of a SAPOL fixed speed or red light camera site for the direction of detection.

Detection zone

Fixed safety cameras generally enforce for a single direction of approach to the camera location.

Offences enforced

Fixed safety cameras are used to enforce offences of:

- disobey red light
- disobey speed limits
- registration and third party insurance.

Signposting

Fixed safety cameras are generally identified by Safety Camera Ahead signage on the approach to the fixed safety camera site. A speed limit sign may also be placed proximate to a fixed safety camera site.

Signage is not required by legislation.



The absence of a sign will not invalidate the alleged offence.

Fixed safety camera systems

There are three fixed safety camera systems used in South Australia. They are:

- **Robot Smart Cam**
SAPOL Robot Smart Cams use induction loops combined with high resolution 2 megapixel digital cameras to detect and photograph red light and/or speed offences. Additional information such as lane identification can be captured.
- **REDFLEXred-speed systems**
SAPOL REDFLEXred-speed uses induction loops and, in some sites piezos technology combined with high resolution 2 megapixel or 11 megapixel digital cameras to detect and photograph red light and/or speed offences. Additional information such as vehicle length, class and lane identification can be captured.
- **Safe-T-Cam**
Safe-T-Cam is a system operated by the DPTI. This black and white camera system is used for heavy vehicle enforcement by the DPTI. SAPOL enforces registration and third party insurance matters from these systems. Technical inquiries about Safe-T-Cam should be directed to the DPTI.

Fixed safety camera types

There are five fixed safety camera types used in South Australia. They include:

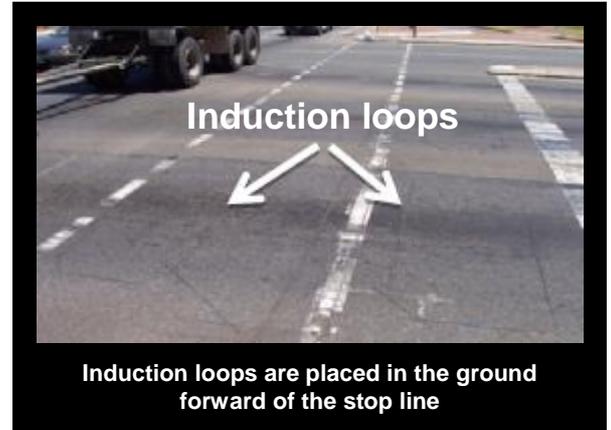
- intersection cameras
- school pedestrian crossing cameras
- rail crossing cameras
- mid-block speed only cameras
- average speed enforcement cameras.

Intersection cameras

Most fixed safety cameras are located at intersections to enforce speed limits and red light signals.

Fixed safety cameras are connected to sensors – induction loops that are:

- embedded under the road surface
- present in each monitored lane
- located on the intersection side of the painted stop line.



The fixed safety camera will be triggered when a vehicle:

- exceeds the speed limit at the time of crossing the sensors on any lane monitored for speed limit enforcement – the light can be green, yellow or red
- has entered the intersection on a red light – the system will activate half a second after the light turns red, and will not activate on a green or yellow light.

School and pedestrian crossings cameras

School pedestrian crossing fixed safety cameras reduce the risk to children by enforcing speed limits and red light signals at urban school pedestrian crossings on arterial roads, particularly on roads with a high volume of heavy vehicle traffic. Currently, all school pedestrian crossing fixed safety cameras are located at pedestrian activated traffic lights.

School and pedestrian crossing fixed safety cameras are connected to sensors – induction loops that are:

- placed under the road surface
- in each monitored lane
- located on the crossing side of the painted stop line.

The fixed safety camera will be activated for red light enforcement half a second after the traffic light turns red.

The fixed safety camera will be triggered when a vehicle:

- is exceeding the speed limit at the time of crossing the sensors on any lane monitored for speed limit enforcement – the traffic light can be green, yellow or red
- has entered the intersection on a red light, regardless of speed – the system will not activate on a green or yellow light.

Mid-block fixed speed cameras

Mid-block fixed safety cameras are located between intersections and enforce the posted speed limit for all passing vehicles.

Mid-block fixed safety cameras are connected to sensors – induction loops:

- placed under the road surface
- in each lane monitored for speed limit enforcement.

The camera is always programmed for the posted speed limit.

The camera will be triggered when a vehicle is exceeding the speed limit at the time of crossing the sensors.

Mid-block safety cameras can enforce variable speed limits. Fixed safety cameras in variable speed limit environments are connected to the variable speed limit sign and will:

- recognise a change of the posted speed limit at any point in time
- automatically vary the speed at which the fixed safety camera triggers in accordance with the limit displayed on the sign at any point in time
- record the variation of posted speed limit
- suspend enforcement for a programmed time where the speed limit changes
- display the time the variable speed limit has been active on the photograph.

Some mid-block safety cameras can use vehicle identification technologies to enforce different speed limits for different types of vehicles on a single section of road. A variety of methods are used to identify vehicle types.



Rail level crossing cameras

Rail level crossing safety cameras are used to enforce traffic signals and flashing warning lights in addition to the posted speed limit at rail level crossings.

Rail level crossing safety cameras are connected to sensors – induction loops that are:

- placed under the road surface
- in each monitored lane
- located on the railway side of the painted stop line.

The rail level crossing safety camera will be activated for red light enforcement 4.5 seconds after the flashing warning lights and bells activate.

The rail level crossing safety camera will be triggered when a vehicle:

- exceeds the speed limit at the time of crossing the sensors for each lane programmed for speed limit enforcement – whether the lights are operating or not
- has entered the intersection on a red light – the system will not activate on a green or yellow traffic light or when the red railway warning lights are not operating.

Average speed safety cameras

Average speed safety cameras are a form of point-to-point speed detection. The time taken by a vehicle to travel between two fixed safety camera sites is recorded and then the average speed between those two camera sites is established.

Where the average speed between the two fixed safety camera sites exceeds the posted speed limit, an expiation notice is issued.

Average speed fixed safety cameras are connected to sensors – induction loops that are:

- placed under the road surface
- in each monitored lane.

An image of every vehicle is captured by the first safety camera which includes:

- a record of the time when the image is taken
- the speed of the vehicle at the time it crossed the induction loops.

The second safety camera repeats that process. The average speed of the vehicle is calculated by dividing the distance between the safety cameras by the time taken for the vehicle to travel between the sites.

Average speed safety cameras will enforce the speed limit between the two fixed safety camera sites and at each site.

The safety camera locations at each end of the average speed zone can also detect at point excessive speed over the induction loops at that safety camera site.



Publicising locations

Fixed safety camera locations are generally available on the SAPOL website.

SAPOL accepts no liability for whether specific camera locations are publicised in any part of the media.

If a site is not published in the media, or on the SAPOL website, it does not invalidate any expiation notice.

Fixed safety camera accuracy checks

Records are kept of fixed safety camera accuracy checks. The checks are:

- operational testing once in every 28 days, which includes:
 - § observing that the data block information is correct
 - § observing that the system is recording vehicles passing over the induction loops
 - § driving a vehicle with a known accurate speedometer over the induction loops at a known speed and observing the system records the speed correctly
- calibrating the camera once in every 12 months.

Fixed safety camera data transfer

Each fixed safety camera operates automatically.

Fixed safety cameras take two photographs of any incident. Generally, one photograph is taken when the vehicle is on the induction loops (or a programmed time thereafter) and a second photograph is taken a programmed time later.

Automatic operation includes recording incidents where the camera is triggered and automatically downloading incidents to the Expiation Notice Branch over a secure isolated network.

Information is transferred so that bit-for-bit copies of images and text files are made within the network, which ensures that no distortion of data occurs and all images meet evidentiary requirements.



Fixed safety camera adjudication practices

When an image is adjudicated a trained adjudicator will:

- ensure the required accuracy checks have been undertaken
- ensure the data block information is complete
- ensure that the offending vehicle is clearly visible in both photographs
- confirm the registered number of the offending vehicle
- confirm the registration status of the offending vehicle
- complete all required documentation for the process of adjudication
- report any defect of any fixed safety camera that is identified during any adjudication as having a fault.

The image

There are a number of basic requirements when viewing an image. They are listed below.

Data block

An embedded data block must feature in every image produced by a fixed safety camera. All safety cameras present the same basic information, however data block information may be shown slightly differently with different camera types. Some camera types or enforcement contexts provide additional information.

Number of photographs

SAPOL is required to provide two images of any offence detected by a fixed safety camera. Generally, two images and a photograph of the number plate of the offending vehicle are provided for each fixed camera incident. They are labelled A shot and B shot. The A shot is taken as the vehicle is travelling over or slightly beyond the induction loop. The B shot is taken after a programmed delay to show the progress of the vehicle.

Plate photograph

The number plate photograph is either extracted from either the A or B shot or taken separately and will vary with the type of camera system being used. In either case the data block is embedded in the photograph to link it to the alleged offence.

Additional photographs

For some camera systems additional photographs are provided.

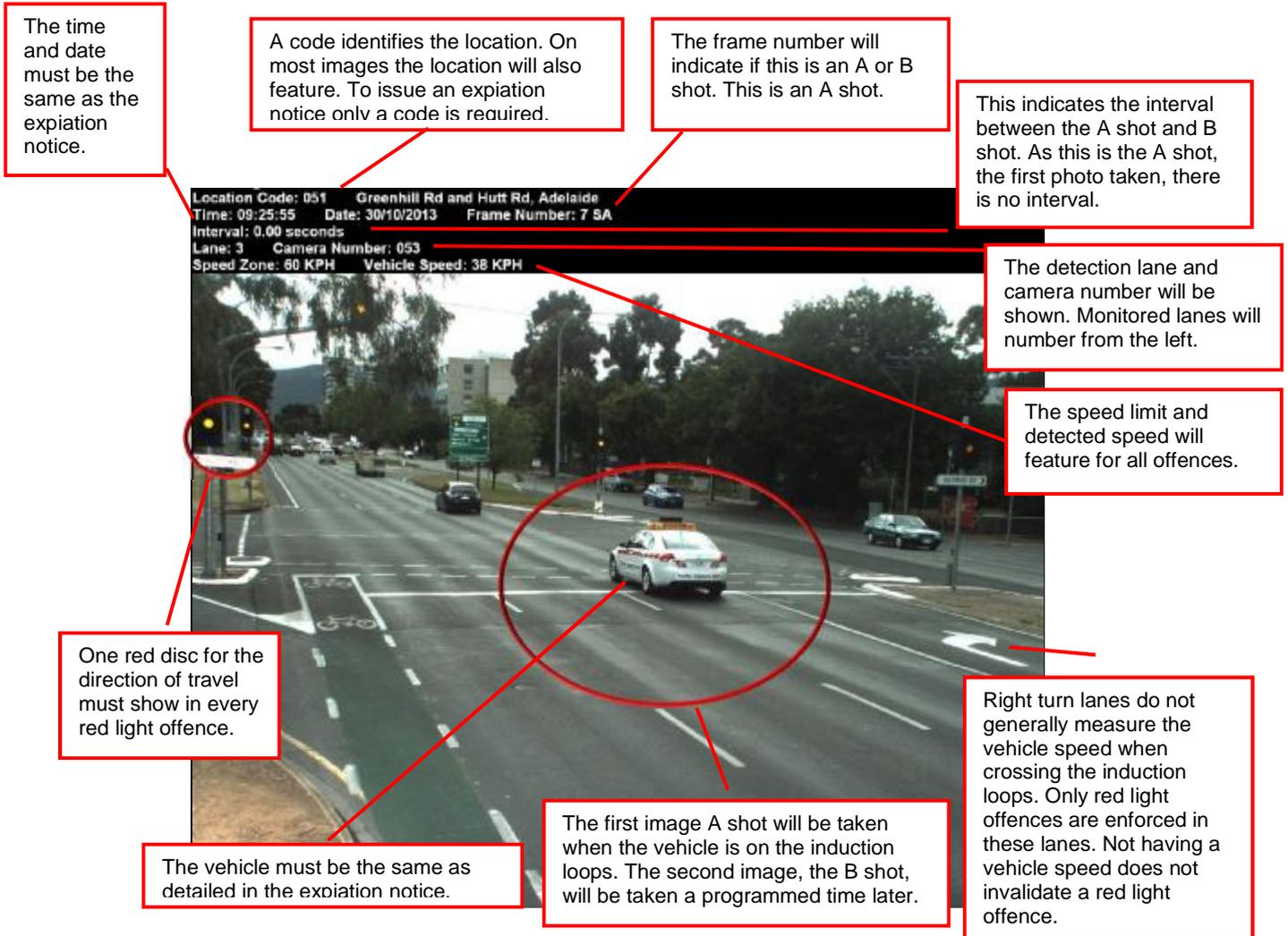
Where variable speed limits are enforced a photograph of the variable speed sign at the time of the offence is provided.

Point-to-point (average speed) systems take forward and rear facing images to ensure all types of vehicles are enforced. These photographs can be provided to a notice holder.

Photograph examples

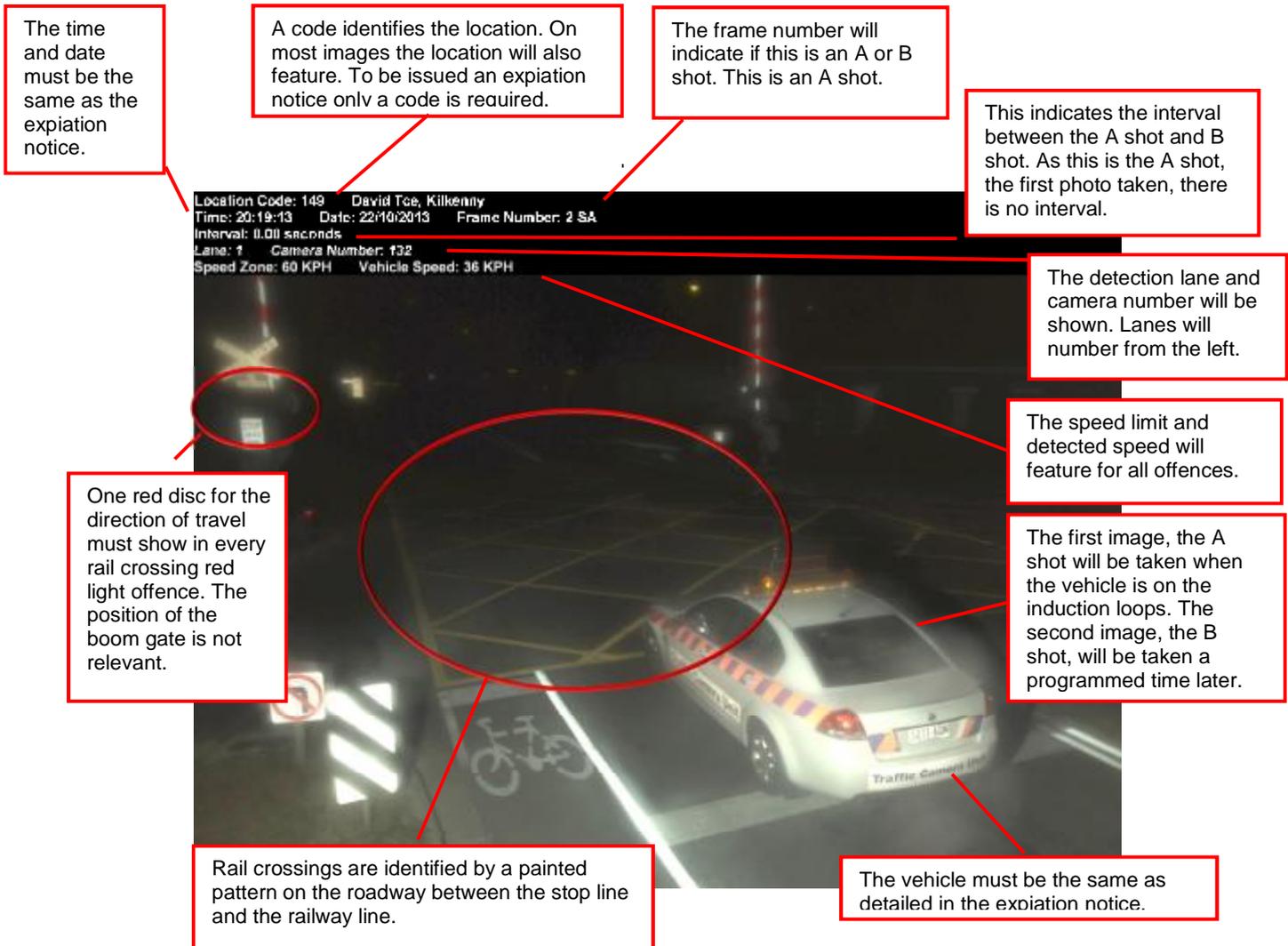
Typical photographs and the required features are shown in the following examples. The examples are provided from a range of SAPOL test shots which have lowered speed limit for test purposes.

Fixed intersection safety camera



The features of this image are also applied for school and pedestrian crossing fixed safety cameras.

Fixed railway crossing safety camera



Mid-block safety camera

The time and date must be the same as the expiation notice.

A code identifies the location. On most images the location will also feature. To be issued an expiation notice only a code is required.

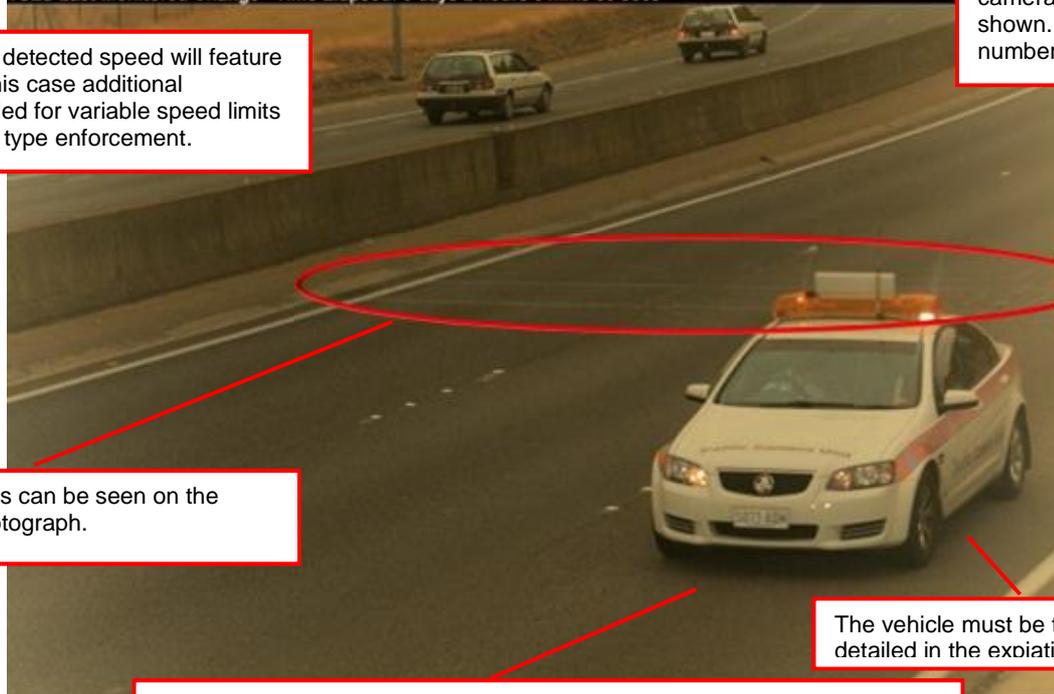
The frame number will indicate if this is an A or B shot. This is an A shot.

The interval indicates for how long since the last vehicle crossed the loops.

Location Code: 155 Princess Hwy (also known as South Eastern Freeway), Crafers West
Time: 10:38:27 Date: 21/10/2013 Frame Number: 0010 SA
Interval 1.04 seconds
Lane: 1 Camera Number: 138
Variable Speed Zone: 100 km/h Trucks 5 Axles or More Speed Zone: 60 km/h Vehicle Speed: 58 km/h
VLS Last Monitored Change - Time Elapsed: 0 days 2 hours 0 mins 55 secs

The detection lane and camera number will be shown. Lanes will number from the left.

The speed limit and detected speed will feature for all offences. In this case additional information is provided for variable speed limits and multiple vehicle type enforcement.



Generally, the loops can be seen on the roadway in the photograph.

The vehicle must be the same as detailed in the expiation notice.

The first image, the A shot, will be taken when the vehicle is on the induction loops or a programmed time after the vehicle has passed over the loops. The second image, the B shot, will be taken a programmed time later. If the A shot is forward of the induction loops there must be no other vehicle on the loops for the lane detected when the A shot is taken.

Quality assurance

Images are adjudicated and expiation notices are issued where there is evidence of an offence disclosed in the photographic evidence.

One in four images are then re-adjudicated to ensure quality of processes. Where incidents that have been adjudicated for the issue of an expiation notice are identified during the quality assurance process as being deficient, expiation notices are not issued.

On every occasion a submission for review is received the notice image will be reviewed.

Public access to information

Access to information

More information is available on the SAPOL website: www.police.sa.gov.au. Follow the links to cameras.

Information can also be sought from the Expiation Notice Branch Call Centre.

Access to images

Images can be accessed by:

- visiting the SAPOL website and viewing the image online at www.police.sa.gov.au
- requesting a hard copy photograph by following the instructions on the expiation notice
- viewing of the photograph with a police officer at Police Headquarters. To request a viewing follow the instructions on the photograph.

Access to operating manuals

SAPOL is committed to transparency of process. Operating manuals and manufacturer's instructions contain information that is subject to copyright and is the intellectual property of suppliers and other organisations. SAPOL is not in a position to release this information, and therefore, this document is provided as a summary of operating practices.

Conclusion

There is a relationship between road trauma, speeding and disobeying traffic lights. The purpose of the SAPOL fixed safety camera the program is to reduce the risk of road trauma by slowing traffic, improving traffic light compliance and changing driver behaviour.

SAPOL recognises that the operation of safety cameras can be contentious and are committed to transparency in the operation of mobile safety cameras.

This document provides public information about the operating practices of the SAPOL fixed safety camera program. For further information visit the SAPOL website at www.police.sa.gov.au.

