12. RESULTS FROM RED LIGHT ENFORCEMENT CAMERA TRIAL

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INTRODUCTION

The purpose of this report is to outline the history of red light camera enforcement in the city and report on the trial of new technology undertaken during the last 12 months. The trial results suggests that combined red light/speed on green enforcement cameras could be the most effective means of achieving safety outcomes at a number of intersections within the city centre.

The report recommends that the existing **Gatso** red light camera continue to operate at Colombo Street/Bealey Avenue and Lichfield/Barbadoes Street intersections. It is also suggested that Council work with the Police towards the installation of red light and speed on green enforcement cameras at the Montreal Street/Gloucester Street, Montreal Street/Moorhouse Ave, Madras St/Salisbury Street, Tuam St/Riccarton/Hagley Ave, and Fitzgerald Ave/Hereford St intersection.

BACKGROUND

In September 1989 the Council, in conjunction with the NZ Police, commenced operation of a Gatso red light enforcement camera at four sites within the City. In June 1993 a further site at the Brougham Street/Colombo Street site became operational. SAFE STREETS the Christchurch Road Safety Strategy identified intersection crashes as a major concern in the city. Around 60% of urban injury crashes in Christchurch are at intersections compared with 50% in the other main centres. Of our intersection crashes 35% occur at traffic signals and most involve red light running.

Given the high crash rates for signalised intersections. The Council has in recent years embarked on a red light running advertising campaign, with the focus *on "The light is red for a reason, so stop or be stopped"*. During a recent combined education and enforcement campaign the Police also undertook 800 man-hours of red light running enforcement. During a 1 ½ hour period 10 infringement notices were issued at the Moorhouse Ave/Durham Street intersection. One of the offences was exceeding 100 km/h through a red light. The evaluation of the campaign has shown that the public perceive enforcement at intersection as very limited. Only 4% of people in the latest survey have seen an officer issue a ticket for red lighting running. More than 80% of the people surveyed support more enforcement of red light violations.

EQUIPMENT TRIAL RESULTS

In recognition of the age of the existing red light camera and the availability of newer technology (such as relocatable video cameras) the Council agreed to undertake a trial of three new technology cameras within the city. This trial has now been completed. The significant commitment made to the trial by the participants and the Police are acknowledged. Steve Burgerhout of NZ Police has been involved in the evaluation.

The results of the three equipment trials are; **Open Door Limited** produced a significantly different surveillance system to the other two trialled. This system targets late amber and early red light runners only; a significant number of offences are therefore missed. A quality image of reasonable standard was obtained but some regulation plates were hard to distinguish. This system did not monitor the intersection during the hours of darkness.

The unit costs were much lower than the Gatso or the Precisiontech equipment and each site could be monitored and prepared at minimal expense. Unfortunately ongoing labour costs to collect the film each day and run it through a monitor until an offence is found outweighs this initial lower input cost. This equipment has questionable deterrent effect, as the enclosure is inconspicuous and small in comparison with the other systems. Deployment safety issues are of significant concern, as operators have to climb a ladder daily to access the video film.

The **Gatso** red light camera faired well in all operational aspects, it has a good reputation and no difficulties were experienced. Evidence produced was of a high quality with very few vehicles unable to be identified. The company is experienced with loop-based detection unfortunately the camera unit itself is expensive. Significant expenditure is required in making each site operational and induction loops need to be installed in the road surface. A dummy flash was also used to cover nighttime shots.

Once in place minimal man-hours were required for system operation, which was easy and safe for operators on the site. The motor driven camera mounting case enabled access without a ladder. The camera in additional to red light monitoring had a speed enforcement capability. A good deterrent factor was achieved with the poles and camera case being of a reasonable size.

The **Precisiontech/American Traffic System** red light camera was trialled at a later date than the other cameras due to the need to develop the computer software. This operation involved modification of the software used in a fixed Police speed enforcement camera to capture red traffic signal violations. Once the software was operational no difficulties were experienced. Evidence produced was of a high quality with very few vehicles unable to be identified. The company currently provides and maintains the Police equipment so is experienced with loop-based detection.

Although the camera unit itself is expensive the equipment can potentially be shared with the Police. Expenditure was required in making each site operational and induction loops needed to be installed in the road surface. Once in place minimal man-hours were required for system operation. The motor driven camera mounting case enabled access without a ladder. The camera in additional to red light monitoring had the normal speed enforcement capability. A high deterrent factor is achieved with the camera being of a reasonable size and having an identical appearance to the fixed Police speed cameras.

SAFETY RESULTS

A study of safety benefits achieved during the 12 years of operating the red light enforcement camera has been undertaken. The report concluded that based on the small sample size a 33% crash reduction has been achieved. This is qualified by the need to choose intersections that have appropriate crash patterns for reductions by red light cameras. The red light camera is an enforcement measure designed to altering driver behaviour. Since the Police will continue to enforce red light violations, the red light camera could be considered for its efficiency of operation and not necessary crash reduction. This of course is an area is of interest to NZ Police

The crash history associated with the camera operation at the Manchester/St Asaph Street intersection is of note. This intersection is unusual in that the red light camera was installed for three years and subsequently removed. The intersection had an average crash rate for the period 1980 – 88 inclusive of 2.3 crashes per annum. During the three years when the red light camera was operating the crash rate was 0.7 injury crashes per annum. In the years 1994 – 98 when the camera was removed the annual crash rate had climbed to 2.6 injury crashes per annum. A 75% crash reduction was associated with the period of the camera operation. The introduction of the red light cameras coincide with the installation of backing boards on all aspects of the intersection, there is likely to have been some benefit from both interventions.

The existing **Gatso** red light camera and towers are old and getting near the end of their functional efficiency. The weekly film replacement process and the relocation of the camera requires two people and has health and safety issues due to the need for ladder access. Replacement of the camera and poles will involve significant expenditure. The replacement of poles and camera cases would cost around $25,000 each for motor driven camera cases. A new camera will cost around $200,000. It is possible and normal to operate one camera and a number of pole sites.

Only two of the existing non-trial sites are appropriate locations to continue to operate a red light camera. The existing camera will continue to operate at these sites until a decision on the future of the camera operation is made. At the other sites crash reduction studies have identified more efficient engineering means of managing red light violations.

CAMERA SITE CRASH STUDIES

A crash reduction study was undertaken at all the red light camera sites in March this year. The intersections that were studied are; Bealey/Colombo, Barbadoes/Lichfield, Manchester/St Asaph, Montreal/Gloucester, Montreal/Oxford, Montreal/Moorhouse, Madras/Salisbury, Tuam/Riccarton/ Hagley and Fitzgerald/Hereford. All the intersections have a history of red light running resulting in crashes. The study was to determine if there are alternative engineering solutions to their safety problems that would make red light cameras unnecessary. The crash reduction study identified that at two of the intersections engineering solutions could be implemented to address the red light running problem. At the other seven sites the problem was such that the installation of red light and speed enforcement cameras is needed to address the safety issues.

The Fitzgerald/Hereford intersection has the highest number of red light running crashes (27 crashes in five years). For this reason it was included in the crash reduction study. Unlike the existing sites a variety of approach directions involving the red light running problem suggested that it would be an inappropriate site for a camera. The crash reduction study however concluded that an engineering solution to the problem could not be identified and suggested that a red light/speed enforcement camera for northbound Fitzgerald Ave approach traffic be installed.

FUTURE OPERATION

The trial has been operating for just under a year. Feedback on the trial and the associated education campaign has shown a continuing improvement in peoples views and reported behaviour. Media coverage of the issue has also been particularly positive. Two of the cameras used in the trial included a speed enforcement capability. There are currently legal constraints on camera speed enforcement. A procedure to identify and sign post sites needs to be followed before action can be taken to utilise the photographic evidence produced. During the trial letters were sent to the owners of vehicles photographed exceeding 65 km/h. The letters detailed the day and time of the offence and the vehicle speed along with a road safety message. An overseas study has suggested that red light enforcement cameras may lead to drivers speeding up to get through the intersection before the signals turn green. The use of a combined red light and speed enforcement camera would address this issue.

CONCLUSION

The trial of three types of Red light enforcement cameras identified a number of benefits from upgrading the existing Red light enforcement programme operated by the Council in conjunction with the Police. Enforcement cameras can be expected to reduce red light running crashes at suitable intersections by 33%. In addition to the road safety benefits Health and safety concerns with the current operation can be overcome installing a motor driven camera mounting used by the **Gatso** and **Precisiontech** cameras. These mounting and towers can be progressively installed utilising funding from the Unspecified Capital Works budget.

Two existing camera sites can be subjected to engineering improvements, which will remove the need for a camera operation. This will be undertaken utilising funding from the Unspecified Capital Works budget. The remaining seven camera sites will require ongoing enforcement to manage their red light running problem. As an interim measure this can be done utilising the existing 12-year-old **Gatso** camera. This camera is very near the end of its useful life. To minimise the need for ladder access to the camera a motor driven case will need to be installed.

The continued support of the police is necessary to process the infringements recorded by the camera. It also appears desirable to link speed enforcement with red light enforcement to discourage drivers from speeding up to 'beat' the red traffic signal. Subject to Police operational requirements it may be possible to utilise their **Precisiontech** camera when it is not being operated at their fixed speed camera sites.

Recommendation:

1. That the providers of the three red light enforcement cameras and the Police be thanked for the commitment they made to the trial.

2. That the existing red light enforcement camera poles and housings be replaced with motor driven cases at the identified sites as funding becomes available.

3. That the Council continue to operate the existing Gatso red light enforcement camera and investigate with the Police the joint use and possible purchase of a Precisiontech red light and speed on green enforcement camera.

Chairman's Recommendation: That the above recommendation be adopted.