7. CREYKE ROAD/ILAM ROAD/MAIDSTONE ROAD INTERSECTION PROPOSED TRAFFIC SIGNALS RR 8708

Officer responsible City Streets Manager	**Author** Dave Armstrong, Traffic Systems Engineer
Corporate Plan Output: 9.5.54 Infrastructural Asset Improvements	

The purpose of this report is to obtain approval to remove the existing roundabout control and to install traffic signals at the Creyke Road/Ilam Road/Maidstone Road intersection.

BACKGROUND

It is proposed to install traffic signals at the intersection of Creyke Road, Ilam Road and Maidstone Road to reduce the high delays and long queues presently occurring there during am and pm peak periods. A plan showing the proposed layout of the traffic signals is attached.

The traffic signals publicity pamphlet was circulated in October 1998. Eleven replies were received with 8 for the signals and 3 against. Some comments from the replies accepting the proposed signals were:

> Motorists travel too quickly through the existing roundabout.
>
> There are more pedestrians now using the intersection. The signals will make it safer and easier for them to cross.

A report on the traffic signal proposal was presented to the Riccarton/Wigram and Fendalton/Waimairi Community Boards at their meetings on 17 and 18 November 1998.

TRAFFIC NETWORK

Creyke Road and Maidstone Road are two lane minor arterial roads currently carrying approximately 12,000 vehicles per day. It is a link road from the west of the city and the Canterbury University to the city centre.

Ilam Road is classified as a collector and carries approximately 7,500 vehicles per day. This road links the north west of the city to Riccarton Road and is a major route to the University.

This intersection is presently controlled by a roundabout.

CRASHES

(a) **Existing**

In the five year period from 1993 to 1997 there have been six reported minor injury and 14 reported non-injury crashes. This equates to an injury rate of 1.2 crashes per year. Two crashes involved cyclists (1 minor and 1 non injury).

The predominant type of collision involves vehicles using the roundabout failing to give way to vehicle and cycles on their right. There has been six minor and 13 non-injury of this type of crash.

During the five year analysis period there were no reported crashes involving pedestrians.

(b) **Proposed Traffic Signals**

The crash rate with traffic signals at this intersection is predicted to be 1.0 injury and 2.2 non injury crashes per year. This rate is based on an average from five similar (volumes and environment) signalised intersections in Christchurch.

DELAYS AND QUEUE LENGTHS

Average delays in seconds per vehicle for the existing roundabout and for the traffic signal option are shown in Table 1. These delays are from computer modelling as actual delays measured on site are difficult to obtain.

Existing queue lengths in metres are also shown bracketed in Table 1. These lengths were undertaken after the University closed for the year.

Table 1
Delays and Queue Lengths

Peak	***Approach Delays (seconds/vehicle)***			
	Maidstone	*Ilam-south*	*Creyke*	*Ilam - north*
Existing Roundabout				
am	14.5	13.4	24.5	45.4 (150m)
off	6.3	11.8	7.9	12.9
pm	19.5	111.8	34.8	17.8
Traffic Signals				
am	10.8	12.5	8.3	18.3
off	7.9	11.5	8.1	10.1
pm	10.1	19.4	14	11.9

The delays from the computer model are using existing traffic volumes.

(a) **Existing Roundabout**

As shown in Table 1 vehicle delays are reasonable during off-peak times. Delays during the morning peak on the Ilam Road (north) approach are averaging 45 seconds per vehicle. The queue length on this approach is about 150 metres.

Evening peak delays on Ilam Road (south) approach are high, averaging 112 seconds per vehicle.

(b) **Proposed Traffic Signals**

With traffic signals, delays to vehicles during the morning and evening peak periods will decrease compared with existing delays. This decrease will be significant on Ilam Road (south approach) during the evening peak as the delay will be 19 seconds per vehicle. Queue lengths during these periods will also reduce.

The delays during the off peak periods will be similar to the existing delays.

B/C ANALYSIS

The calculated Benefit/Cost ratio which includes the linking with the signals at the Clyde Road/Creyke Road/Kotare Street intersection is 5.6. The work has a cost estimate of $190,000 and has been accepted by Transfund New Zealand for subsidy and is currently in the 1998/99 Roading Programme. Construction is scheduled to start in January 1999.

CONCLUSION

The injury crash rate with the installation of traffic signals is predicted to decrease from 1.2 to 1.0 crashes per year.

The crashes are predominantly between vehicles failing to give way, at the roundabout, to vehicles and cycles on their right.

Traffic signals will reduce the delays and queue lengths to vehicles during the morning and evening peak periods. The delays during the off peak periods will be similar to the existing delays.

The estimated cost of this project is $190,000. A Benefit/Cost ratio of 5.6 has been achieved resulting in financial assistance from Transfund New Zealand. Construction is scheduled to start in January 1999.

A report on the traffic signal proposal was presented to the Riccarton/Wigram and Fendalton/Waimairi Community Boards at their meetings on 17 and 18 November 1998.

In response to the invitation to comment the Fendalton/Waimairi Community Board resolved that the proposed traffic signals at the Creyke/Ilam/Maidstone intersection including a provision for cyclists and pedestrians be supported, but that other design elements which will provide benefits for all road users, such as slip lanes and right turn green arrows, also be investigated.

The proposal was unanimously endorsed by the Riccarton/Wigram Community Board.

Recommendation: *Intersection Control*

1. That the "Give Way" controls at the intersection of Creyke Road, Ilam Road and Maidstone Road be rescinded.

2. That “Traffic Signals” be used to control traffic at the Creyke Road, Ilam Road and Maidstone Road intersection.

No Stopping Restrictions

3. That the stopping of vehicles be prohibited at all times at the following locations

Ilam Road

3.1 The north west side of Ilam Road commencing at the Maidstone Road intersection and extending 64 metres in a southerly direction.

3.2 The south east side of Ilam Road commencing at the Creyke Road intersection and extending 45 metres in a southerly direction.

3.3 The north west side of Ilam Road commencing at the Maidstone Road intersection and extending 50 metres in a northerly direction.

3.4 The south east side of Ilam Road commencing at the Creyke Road intersection and extending 60 metres in a northerly direction.

Creyke Road

3.5 The north side of Creyke Road commencing at the Ilam Road intersection and extending 36 metres in a easterly direction.

3.6 The south side of Creyke Road commencing at the Ilam Road intersection and extending 36 metres in a easterly direction.

Maidstone Road

3.7 The north side of Maidstone Road commencing at the Ilam Road intersection and extending 50 metres in a westerly direction.

3.8 The south side of Maidstone Road commencing at the Ilam Road intersection and extending 25 metres in a westerly direction

4. That all previous underlying no stopping restrictions in conflict with 3.1 through 3.8 above be rescinded.