

Policy for the Provision of a Traffic Signal Junction

1. Introduction

This policy explains how proposals for new traffic signal junctions will be considered.

The demand for new traffic signal junctions far exceeds the County Council's ability to provide funding. For this reason we will compare the need for traffic signal control at requested sites so that decisions can be made in a consistent way and best value can be obtained from the available resources.

2. Safety

We will consider safety first, so we will only assess the need for traffic signal junctions at locations where the appropriate design standards for safety can be met.

3. Objective of traffic signal control

The primary objective in providing traffic signal control at a junction is to reduce the conflict between opposing traffic streams, as these conflicts can result in traffic delay and accidents. Traffic signal installations are designed to minimise the occurrence of both of these.

4. Design standards and capacity

Any traffic signals scheme which is to be installed on the highway needs to meet all of the current relevant design standards. In exceptional cases where these cannot be met, the Head of Transport for Warwickshire may agree to a departure from standard if a case can be made to demonstrate that safety would not be compromised.

In order for traffic signals to operate safely and efficiently, it is essential that they can cope with the demands presented to them such as the volume of traffic, the requirements of pedestrians and the physical constraints of the junction layout.

It is therefore necessary to carry out a technical assessment of the proposed layout and to take into account any changes in demand that may occur as a result of installing the traffic signals junction. The proposed scheme will also need to ensure that the installation can operate with a practical reserve capacity to allow for a reasonable degree of future traffic growth.

5. Criteria and strategies for the justification of traffic signals

There are four main factors to take into account when assessing the need for the justification of traffic signal control :- traffic delays, accident record, traffic management and the provision of a pedestrian/cycling crossing facility.

However, all these depend upon having the necessary resources initially to implement the scheme and then to maintain the installation.

5.1 Traffic delays

It is inevitable that, on arterial roads, delays will occur on the side roads at priority junctions during peak hours. However at the majority of these locations, queues will quickly disperse after the peak period.

The assessment will consider the traffic conditions over the four busiest hours of the day. If the delay experienced by drivers is more than eight minutes at the junction during each of the four busiest hours, then consideration will be given to installing traffic signal control at the junction.

5.2 Accident record

The average accident rate at existing traffic signal junctions in Warwickshire is 0.56 injury accidents per year. This implies that at any set of traffic signals installed this level of accidents could be expected.

As a responsible authority, WCC would not want to introduce any facility onto the highway that would increase the risk of accidents at a particular location. Therefore if the existing accident record at a location being considered for traffic signal control is less than 0.59 injury accidents per year, there is a potential risk of making the accident record worse.

The provision of traffic signals mainly for casualty reduction purposes will only be considered if the accident rate at a particular junction is six or more injury accidents (average) per year for three years, to ensure a reduction in accidents to the average rate of 0.59 per year or less.

It must also be realised that the provision of traffic signals at a junction which has an established accident record may not be the most appropriate remedial measure and other measures may be required.

5.3 Traffic management

A junction may be signalised to provide better traffic management control within a certain region of the road network. This may allow the junction to be linked and co-ordinated with other adjacent traffic signalised junctions to influence the pattern and speed of traffic progression.

5.4 Pedestrian and/or cycling facility

If a controlled pedestrian crossing is justified within close proximity to a junction, it may not be feasible to implement due to relevant design standards. In this case, consideration should be given to signalising the junction to provide the pedestrian and/or cycling facility.

5.5 Developer funded schemes

A junction may be signalised to mitigate anticipated traffic impact of a development and/or anticipated increases in pedestrian flows.

5.6 Safer Routes to School

A junction may be signalised where the aim is to encourage more children to walk and/or cycle to school with less dependence on the use of the car.

6. Advantages and disadvantages of traffic signals

The following will be taken into account when appraising the proposal for new traffic signal junction.

6.1 Advantages

- (a) Pedestrians can cross at traffic signal junctions by taking advantage of breaks in traffic caused by the intergreen periods (one approach losing right of way and the other approach gaining right of way). Where pedestrian movements are high or there are few gaps within the traffic flow, a separate full or partial pedestrian facility could be incorporated into the installation.
- (b) They are usually more economical in their use of road space, particularly at constrained sites where physical restrictions could make other types of control more costly and difficult to provide.
- (c) Their flexibility to assist specifically one particular approach (e.g. signalling right-turners separately) or category of road user, and their ability to respond to different traffic conditions.
- (d) Their ability to link and co-ordinate with other adjacent signalled junctions to influence the pattern and speed of traffic progression.

6.2 Disadvantages

- (a) They can produce increased delay during off peak times.
- (b) They may increase the risk of certain types of traffic accident.
- (c) They incur regular maintenance costs which are essential to the safe and efficient control of the junction together with the additional requirement to regularly monitor their operation.
- (d) They do not cater for "U"-turning movements.
- (e) To ensure the safe and efficient operation of the junction, no waiting "at any time" restrictions may have to be introduced. This may lead to loss of on street parking for residents and/or traders.
- (f) They are not recommended on high speed roads (where the 85th percentile approach speed exceeds 65 mph).

6.3 Capital and revenue expenditure

The typical installation cost to provide traffic signal control at a simple T Junction is approximately £90,000 (2010 prices). In addition, the annual cost associated with their operation and maintenance requirements is approximately £2,850. Also, traffic signal

equipment has a limited life cycle, ranging between approximately 6 to 15 years, therefore additional funds are required to upgrade this equipment after this period.

7. Removal of traffic signal junctions

It is possible that in the future traffic volumes may reduce or other factors may change which may require a junction not to be signalised. In this case, a risk assessment and public consultation will be carried out to inform the action to be taken. However, when the junction is due for an upgrade the evaluation for its need will always be carried out.