1. **Introduction**

This policy explains how requests for new pedestrian crossings will be considered. This document must be read in conjunction with the Technical Procedure.

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

2. **Safety**

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

3. **How we will assess the need for a pedestrian crossing**

We will assess the level of need for a crossing by:-

3.1 Measuring the degree of conflict between pedestrians crossing the road and the two-way traffic flow and

3.2 We will also take into account the following factors

- the age and ability of pedestrians;
- any suppressed demand;
- the different types of vehicles in the flow of traffic;
- the length of time pedestrians have to wait to cross;
- the width of the road;
- the speed of traffic;
- the pedestrian injury accident record at the site.

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

4. **The survey**

If the safety requirements for a crossing can be satisfied then we will measure the degree conflict between the traffic and pedestrians by carrying out a 12-hour survey which will count:-

- the number of pedestrians crossing in an hour (P)
- the flow of vehicles in both directions in an hour (V)

Our assessment will be based on the average of the four busiest hours in the day (between 7am and 7pm). When the survey is carried out, the pedestrians will be classified by their age and ability. Vehicles will be classified by vehicle type so that we
can take into account the differences between cars, heavy goods vehicles, buses, motorcycles and pedal cycles.

We will consider the possibility that the present situation suppresses crossing demand because of the difficulty in crossing the road to access services. Where appropriate we will estimate suppressed pedestrian demand at the location and add these estimated figures to the actual measured pedestrian figures obtained by the survey.

We define “suppressed pedestrian demand” as the estimated additional number of pedestrian journeys likely to be generated as a consequence of a crossing being provided. We will estimate this through an appraisal of local circumstances and the potential increased access to services.

Where a new crossing would include cycling facilities (i.e. a Toucan crossing) we will consider estimating suppressed cycling demand on the same basis as suppressed pedestrian demand.

If the overall pedestrian and/or cycling count is increased to take the suppressed demand into account, the facts will be recorded and the assumptions noted.

5. **The appropriate type of crossing**

We will use the information gathered in the survey and the various factors listed in 3.2 to determine whether a crossing should be provided and which type of crossing (if any) is appropriate at the site.

There are three main types of crossing - refuges, Zebra crossings and signal-controlled crossings (Puffin, Toucan and Pegasus). The type of crossing to be provided will also be subject to engineering considerations (e.g. there must be sufficient road width to fit in a refuge).

To justify a signal-controlled crossing it will be necessary to demonstrate a much higher level of need than a refuge. We will consider a Zebra crossing at the intermediate level of need.

6. **Upgrading a Zebra crossing to a signal-controlled crossing**

Generally the pedestrian accident rates at Zebra and signal-controlled crossings are low. However, a Zebra crossing may be considered for conversion to a signal-controlled crossing at certain locations where it can be justified that a poor pedestrian injury record is likely to be improved.

We may also consider upgrading a Zebra crossing to a signal-controlled crossing as part of a wider traffic management scheme linked to the County Council’s Urban Traffic Control System in appropriate circumstances.

7. **Provision of pedestrian facility at traffic signal junction**

We will investigate the need for a pedestrian facility at an existing traffic signal junction in a similar way to a stand-alone pedestrian crossing. However, providing a pedestrian facility will have the effect of reducing the capacity of the traffic signal junction and at busy junction this can result in long queues of vehicles. For this reason each junction will be considered individually.
8. **The priority list**

We will include a justified crossing in a list, ranked by the level of need for future funding. The list will be used annually to inform the selection of schemes to be included in the County Council’s Integrated Transport capital programme.

9. **Other circumstances where crossings will be provided or upgraded**

This policy describes the way in which we will consider requests for new crossings based on surveys of existing pedestrian and vehicle flows. The following approaches to the provision of crossings in the County Council’s Local Transport Plan will coexist with the method of justifying schemes in this policy.

- **Safer Routes to School** – where the aim is to encourage more children to walk and/or cycle to school with less dependence on the use of the car.
- **Casualty Reduction Schemes** – where the rate of return from likely casualty savings is sufficient to justify the expenditure on a crossing.
- **Developer Funded Schemes** – where crossing facilities are required to mitigate anticipated traffic impact of developments and/or anticipated increases in pedestrian flows.
- **Facilities installed on Key Pedestrian or Cycle Corridors** – where crossing facilities may be considered as part of a package of measures on a strategic walking and/or cycling corridor.
- **Facilities funded by Area Committee Delegated Budget or other budget intended to address local priorities** – this is to address local priorities as opposed to strategic ones i.e. where a scheme does not satisfy the criteria for funding from the Integrated Transport capital programme, but notwithstanding this, there are very special local circumstances where it would be appropriate to provide a crossing. In this case the decision to fund a crossing must be informed by a consideration of the whole-life costs of the crossing including the likely annual revenue costs of maintenance and energy.

10. **Removal of pedestrian crossings**

It is possible that in the future traffic volumes and/or pedestrian flows may reduce or other factors may change which may require the removal of a crossing. In this case, a risk assessment and public consultation will be carried out to inform the action to be taken. However, when the crossing is due for an upgrade the evaluation for its need will always be carried out.
The Technical Procedure

A procedure covering the technical details of the operation of this policy is maintained by the County Council’s Head of Transport.

The content of this procedure may be reviewed and updated by the Head of Transport for Warwickshire, but it is to be expected that the same technical process will be used to assess all schemes during an annual funding cycle.

This procedure covers the technical details of operation of the Council’s Policy for the Provision of Pedestrian Crossings and Pedestrian Phases at Traffic Signals.

Survey

The survey for obtaining values of $P$ and $V$ as described in the Policy shall take place along the stretch of road approximately 50 metres either side of the requested location. Should the weather deteriorate during the survey period, than arrangements will be made to repeat the survey on another day.

When pedestrian surveys are carried out, the pedestrians will be classified by their age and an indication of their ability.

Determining the level of need for a pedestrian crossing

The level of need will be determined by calculating the degree of conflict between pedestrians crossing the road and the two-way traffic flow as described in the paragraphs below.

The degree of conflict used will be the adjusted $PV^2$ value calculated as follows.

\[
P_{\text{mod}} = \text{the number of pedestrians crossing in an hour (P) weighted by age and ability in accordance with the table below}
\]

<table>
<thead>
<tr>
<th>type of pedestrian</th>
<th>multiplying factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Child &lt;16</td>
<td>1.25</td>
</tr>
<tr>
<td>Adult</td>
<td>1</td>
</tr>
<tr>
<td>Elderly</td>
<td>2</td>
</tr>
<tr>
<td>Disabled</td>
<td>3</td>
</tr>
</tbody>
</table>

The multiplying factor for cyclist is 1 and for equestrian is 3.

\[
V_{\text{mod}} = \text{the flow of traffic in passenger car units (PCUs) in an hour calculated from the survey data using the weightings in the table below}
\]

<table>
<thead>
<tr>
<th>type of vehicle</th>
<th>multiplying factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cars</td>
<td>1</td>
</tr>
<tr>
<td>Light goods vehicles</td>
<td>2</td>
</tr>
<tr>
<td>Bus</td>
<td>2</td>
</tr>
<tr>
<td>Heavy goods vehicles</td>
<td>2.5</td>
</tr>
</tbody>
</table>
Since this impacts on pedestrians in the same way as cars, the PCUs are up-rated to reflect this.

For each hour between 7am and 7pm the weighted $P_{\text{mod}} V_{\text{mod}}^2$ value is calculated by multiplying the weighted number of pedestrians by the weighted number of vehicles squared, i.e. $P_{\text{mod}} \times V_{\text{mod}} \times V_{\text{mod}}^2$.

The $P_{\text{mod}} V_{\text{mod}}^2$ figures are ranked in order and the top four figures are divided by four to obtain the average $P_{\text{mod}} V_{\text{mod}}^2$ value (representing the four busiest hours of the day).

The adjusted $P V^2$ value is obtained by multiplying the average $P_{\text{mod}} V_{\text{mod}}^2$ value by the pedestrian waiting time factor ($T$), width of road factor ($W$), speed limit factor ($S$) and accident record factor ($A$). Hence the adjusted $P V^2$ value is calculated as follows:

$$\text{adjusted } P V^2 = \text{average } P_{\text{mod}} V_{\text{mod}}^2 \times T \times W \times S \times A$$

Waiting Time Factor ($T$)

The Average Waiting Time will be derived by the engineer attempting to cross the road at five random times during the known peak traffic period.

The waiting time factor ($T$) will then be taken from table xx below.

<table>
<thead>
<tr>
<th>Average Waiting Time</th>
<th>Waiting Time Factor ($W$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than or equal to 20 seconds</td>
<td>1</td>
</tr>
<tr>
<td>21 seconds to 30 seconds</td>
<td>1.2</td>
</tr>
<tr>
<td>31 seconds to 40 seconds</td>
<td>1.25</td>
</tr>
<tr>
<td>More than 40 seconds</td>
<td>1.3</td>
</tr>
</tbody>
</table>

Width of Road Factor ($W$)

This factor considers the standard road width to be 7.3 metres. The Road Width Factor is obtained by dividing the road width by 7.3m i.e. $\left(\frac{\text{road width}}{7.3}\right)$.

Speed Limit Factor ($S$)

The Speed Limit Factor ($S$) is based on the speed limit and will be taken from the table below.

<table>
<thead>
<tr>
<th>Speed limit of the road</th>
<th>Speed Limit Factor ($S$)</th>
</tr>
</thead>
<tbody>
<tr>
<td>20 mph speed limit</td>
<td>0.8</td>
</tr>
<tr>
<td>30 mph speed limit</td>
<td>1</td>
</tr>
<tr>
<td>40 mph speed limit</td>
<td>1.2</td>
</tr>
<tr>
<td>50 mph speed limit</td>
<td>1.3</td>
</tr>
</tbody>
</table>

Accident Record Factor ($A$)

The pedestrian injury accident record at a site is taken into account in the following formula:

$$A = 1 + \frac{N}{10}$$
where N is the number of pedestrian injury accidents in the previous three years.

**Estimating suppressed pedestrian demand**

Suppressed pedestrian demand will be estimated taking into account the potential for generating new pedestrian journeys of 20 minutes or less.

**Criteria for justifying pedestrian crossings**

To justify a **refuge**, the adjusted $PV^2$ value should be greater than $0.4 \times 10^8$, but the width of road needs to be at least 7.8m.

To justify a **zebra crossing**, the adjusted $PV^2$ value should be greater than $0.6 \times 10^8$, but a zebra crossing should not be installed on roads with an 85 percentile speed of 35 mph or above and the two-way traffic flow should be less than 500 vehicles/hour.

To justify a **signalled-controlled** crossing (Puffin, Toucan or Pegasus), the adjusted $PV^2$ value should be greater than $0.9 \times 10^8$. Current national guidelines indicate that it is not advisable to install a signalled controlled crossing where the 85th percentile speed is greater than 50 mph. At such locations serious consideration should be given to speed reduction measures before installing a signalled-controlled crossing.