APPENDIX 5

ENVIRONMENT STRATEGIC PANEL
3 FEBRUARY 2005

REVIEW OF GUIDANCE FOR PEDESTRIAN CROSSINGS (2005)

Details of the proposed Way Forward

1 The current guidance uses a numerical measure to assess the degree of conflict between vehicles and pedestrians, with a reduced numerical measure for special circumstances. The degree of conflict is determined by multiplying the number of vehicles per hour (V) squared by the number of pedestrians crossing per hour (P) over a 100m section. The average of the four highest hours is taken to represent what is called PV^2. With the introduction of the current national guidance in Local Transport Note 1/95 in 1995, there was a move away, nationally, from the explicit use of PV^2 to a framework approach. However, in Cheshire there was still considered to be a need for some simple, easily understood measure to act as an initial starting point to see if a particular location justifies further investigation and justification for the provision of a controlled crossing. Since PV^2 is a well known and understood measure it is considered appropriate to use the principal of PV^2 but change the starting point to reflect more fully the current national policy guidance, the objectives of the Cheshire Local Transport Plan and the practices in other local authorities.

2 When assessing a request for a crossing then, if the value of PV^2 is less than 0.2×10^8, no formal crossing facilities are required. If the value of PV^2 is above 0.2×10^8 then there should be a more in-depth framework assessment carried out, in line with the advice in Local Transport Note 1/95. This criterion is equally applicable to pedestrian facilities as combined pedestrian and cycle facilities.

3 However to maintain a consistent approach the framework assessment should also be based upon a PV^2 approach. This can be achieved through adjusting the value of PV^2 to take account of the composition of the pedestrian flow, the width to be crossed, the speed limit and 85%ile speed of the road and the difficulty encountered crossing the road in terms of time spent waiting and crossing.

4 However, there are circumstances that the proposed guidance may not fully address the issues of concern such as:

a) close to a proposed new developments ;
b) along a proposed Safer Routes to School route; and
c) along a proposed national cycle network routes.

5 At all the above situations there may be little existing pedestrian or cycle movements. However, as a result of the proposals significant volumes would result. Yet the application of the modified PV^2 calculation would not imply the provision of a pedestrian facility because the number of new pedestrians and/or cyclists generated by the above three circumstances would not be known.

6 Therefore, in these circumstances, due consideration should be given to the provision of pedestrian/cycle crossing facilities if the traffic flow for the four busiest hours is above ***480*** vehicles per hour (two way) or the number of heavy goods vehicles is 300 vehicles per hour (two way) or above. After carrying out a preliminary survey of the proposed site a decision should be reached on whether a crossing is justified or not

based upon experience at previously installed sites, judgement and knowledge of local factors.

7 In addition, where an existing location has a high pedestrian accident rate then, if pedestrian facilities are judged to be most effective remedy, these sites would not be subject to PV2 criteria.

8 In adopting this approach the proposal not only gives an indication of the need for a crossing but also allows for the inclusion of costs to incorporate a ranking between different types of crossing and between two different sites if funding is not immediately available to undertake all requests for crossing facilities in a given year.

Further Details of the Suggested Method

9 In order to take account of the various different classifications of pedestrians it is suggested that a series of factors should be applied to the value of PV^2, which is still calculated as the average over the highest four hours as follows:

EP Percentage of Elderly pedestrians (EP). If the percentage of elderly pedestrians is less than 10%, a factor of 1 should be used. If more than 10%, then use the following formula

$$\frac{(100+EP)}{110}$$

(Elderly defined in terms of visual appearance and is a judgement of the enumeration staff generally taken as over 60)

UC Percentage of unaccompanied children. If there are not more than 10% of unaccompanied children, use 1. If there are more than 10%, use the following formula:

$$\frac{(100+UC)}{110}$$

PW Percentage of pedestrians with prams/pushchairs, wheelchairs or blind (white sticks or guide dogs). If not more than 5% use 1. If more than 5% then use the following formula:

$$\frac{(100+PW)}{105}$$

PB Percentage of bicycles crossing. If not more than 15%, use 1. If more than 15%, use following formula:

$$\frac{(100+PB)}{115}$$

RW Road width. If not more than 7.3m, use 1. If more than 7.3m, use the following formula:

$$\frac{W}{7.3}$$

CT Time to cross (seconds) this reflects the difficulty in crossing in terms of the volume of traffic and complexity of the location (eg presence of junctions or other features). If it takes on average less than26 seconds cross, use 1. If it takes between 26 and 40 seconds to cross, use 1.2; if it takes between 41 and 60 seconds to cross use 1.4; and

If it takes over 60 seconds to cross, use 1.6 (the above crossing times include both waiting time and crossing time).

VS Vehicle speeds; if 85th percentile speed is less than 30 use a factor of 1

If between 30 and 35 use 1.1
If between 36 and 40 use 1.2
If between 41 and 45 use 1.3
If between 46 and 50 use 1.4

NB **before considering the use of surface crossings on roads with 85th percentile speeds greater than 50 mph consider speed reduction measures**.

CS If proposal is located where a road divides a substantial community or is outside a school, clinic, community centre, home for the elderly or busy shopping centre adjust as follows:

Proposed location is on a road that causes community severance or outside a school or clinic, home for the elderly etc then apply 1.1.

If the proposed site is close to two of the above use a factor of 1.25.

If a proposed site is close to three or more of use a factor of 1.4.

Modified Formula for PV^2

PV^2 Adjustment factor (EPxUCxPWxPBxRWxCTxVSxCS)

If adjusted PV^2 is greater than 0.6×10^8 consider either a zebra crossing or a pelican crossing

Below 0.6 consideration of other measures should be given such as narrowing carriageway to aid crossing, central refuges, traffic calming.

Priority Number

10 A priority number can be obtained if the adjusted PV^2 value for a location is multiplied by a standard cost for the particular crossing facility divided by cost of providing a particular crossing facility for a site eg:

$$PV^2 \times \text{adjustment factor} \times \frac{\text{standard cost of crossing}}{\text{Estimated cost}}$$

Type of Crossing	Standard Cost (excluding resurfacing)
Narrowing of carriageway (road markings)	£1,000
Carriageway narrowing	£7,000
Table with associated measures	£6,000
Pedestrian Refuge	£6,000
Zebra crossing	£6,000
Pelican or Puffin	£30,000
Toucan crossing	£30,000

Crossing Options

Where PV^2 is less than 0.6×10^8

Pedestrian Refuges and Road Narrowing

11 Perhaps the simplest form of pedestrian crossing is the pedestrian refuge. This allows both pedestrians and cyclists to cross the road in two halves, reducing the size of gap between vehicles they may require. Although such facilities aid the pedestrian or cyclist crossing the road, they can cause potential problems for cyclist travelling along the road because of the reduced width available for motorised traffic to pass. Refuges are most appropriate where the road is around 10 metres wide.

12 An alternative to the refuge is to use build-outs or road narrowing to assist the pedestrian. Although this does not have the advantage of allowing the pedestrian or cyclist to cross the road in two halves it does reduce the distance the pedestrian would have to cross on the carriageway. It also would allow motorised vehicles the opportunity to pass cycles on the off side because there would not be a central restriction.

Where PV^2 is greater than 0.6×10^8

Zebra Crossings

13 TD 4/79 Pelican Crossings: Pelican Crossing Operations, advised that zebra crossings should be considered where pedestrian flows are 1100 people per hour or less (averaged over the four highest hours) and where vehicle flows are 500 vehicles per hour or less (averaged over the four highest hours). These are still considered reasonable limits in the absence of any other advice or guidance. In addition, LTN1/95 advises that Zebra crossings are usually used where pedestrian flows are relatively low and traffic flows are no more than moderate. The likely effect of a Zebra crossing can be tested by checking the availability of gaps in the traffic. Gaps of around five seconds are needed for an able person to cross a 7 metre carriageway. The school crossing patrol assessment advises that there should be at least four gaps of around 7 seconds in every 5 minute period for there not to be a need for a crossing patrol. This can be considered a reasonable proxy to assess the availability of gaps against for a Zebra crossing.

14 Zebra crossings should not be installed on roads with an 85th percentile speed of 35 mph or above. Zebra crossings should not be considered where there are significant numbers of vulnerable road users such as: unaccompanied children, elderly and people with disabilities. If considering a zebra crossing, it should not be in isolation. It should be in conjunction with additional measures ranging from additional signing/lining to traffic calming.

15 When considering the installation of a Zebra crossing and pedestrian flows are high during the morning peak and at the end of the school day (but relatively low at other times), because of significant numbers of school children, then the presence of a school crossing patrol should also be taken into account when making the choice between types of crossing. A School crossing patrol can assist to ensure there are reasonable gaps for both vehicles and pedestrians. A separate criterion has been adopted by Cheshire County Council for assessing whether a school crossing patrol may be provided. This criterion would also have to be met in the case of introducing a

new crossing patrol. (Further information may be obtained from the Sustainable School Travel Action Team.

16 Zebra crossings are also best avoided on busy town centre streets or outside railway stations since this is likely to result in a constant stream of pedestrians claiming priority. Other forms of crossing such as puffin crossings or pedestrianisation should be considered. In addition Zebra crossings should be avoided in unusual locations such as contra flow bus lanes.

17 The final type of crossing is the PUFFIN or TOUCAN which is a traffic signal controlled crossing for either pedestrians (PUFFIN) or both pedestrians and cyclists (TOUCAN).

Pedestrian Facilities at Signalised Junctions

18 National guidance for the provision of pedestrian facilities at traffic signals is moving towards the provision of pedestrian facilities where the need is justified. Such a need can be both in terms of numbers of pedestrians, number and type of accidents or through a plan to encourage walking such as “Safer Routes to School”.

19 Where new signalised crossing facilities are being introduced to the urban or suburban road network or existing signals are being modified (i.e. where one would expect pedestrian activity on a daily basis) it should be the norm that pedestrian facilities are provided on those arms where there is a clear pedestrian need.