

CAMBOURNE PARISH COUNCIL

District of South Cambridgeshire

Annual Council Meeting 16th May 2017

Pedestrian Crossings

Further to the commissioning of counts at 8 sites around Cambourne (a map attached). This has now been carried out by PCC and the results put into a spreadsheet to calculate the PV^2 formula for Crossing Assessment. (Copy attached of Assessment Criteria and Findings).

The ADPV² results are as follows

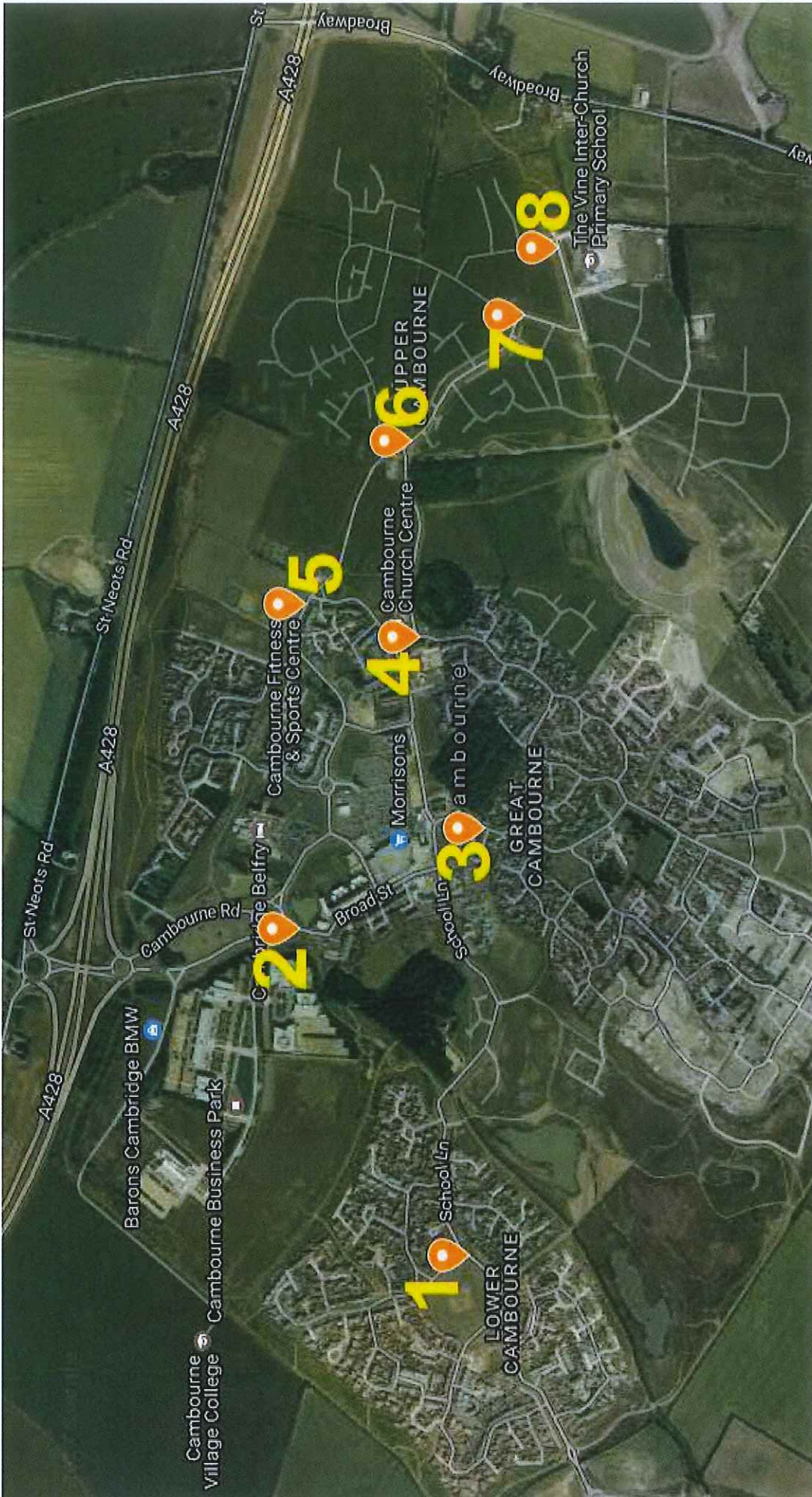
Site 1 0.477
Site 2 0.036
Site 3 0.192
Site 4 0.012
Site 5 0.036
Site 6 0.370
Site 7 0.066
Site 8 0.006

Using Section A8 of Appendix Z it means that:

Sites that have ADPV² of 1 or higher would justify a crossing, between 1.0 and 0.7 would go on a secondary list for review and monitoring as part of a forward programme.

If the ADPV² is between 0.2 & 0.7 (sites 1 & 6) a controlled crossing facility would not be recommended and alternatives such as pedestrian refuge or zebra crossing should be considered.

Where ADPV² are below 0.2 (sites 2, 3, 4, 5, 7 & 8) then a crossing facility would not normally be justified.



The Modified PV2 Formula for Crossing Assessment

Introduction

It has long been accepted national practice to assess the justification for a pedestrian crossing using a calculation involving both pedestrian and vehicle flows. This is known as 'PV2' and effectively evaluates the potential for conflict between vehicles and pedestrians.

The following paragraphs explain in more detail the way in which the formula has previously been revised to enable other factors influencing pedestrians crossing a road to be taken into account.

Assessment of Revised Criteria

- A.1 The main factor which determines the risk of crossing the road is the number and length of gaps in the traffic which may be perceived by the pedestrian as being safe to use (this is referred to as gap acceptance). The average gap regarded as acceptable varies according to the age and ability of the pedestrian, and is also affected by the width of the road, the number of traffic streams (one way, two way, single or multi lane), speed and composition of traffic, and visibility. In practice, in the case of a standard 7.3m width urban two-way road, the average acceptable gap is around 7 seconds for an able person, up to 12 seconds for an elderly person and twice as much again for a mobile but disabled person. Although children (under 16) are generally able to accept relatively short gaps in the traffic from a physical point of view, they are in terms of vulnerability often more equivalent to the category of elderly person than able bodied adults. It follows that the average gap acceptable to pedestrians should allow for the numbers of under 16's, over 65's and disabled being weighted to reflect their degree of vulnerability. These weightings have been increased also to reflect

public concerns about crossing the road and the revised values are as follows:

- under 16's count as 4 (previously 1.7)
- over 65's count as 4 (previously 1.7)
- disabled count as 6 (previously 3.4)
- remainder (including cyclists etc. crossing) count as 1

- A.2 The level of difficulty experienced in crossing the road is influenced by the width of the road, the speed of traffic, and the number of lanes being crossed. The difficulty factor (D) can be calculated as follows to represent a comparison with the standard 7.3m urban 30mph two way roads as defined in paragraph A.1 above.

Higher speed roads are additionally weighted to reflect the greater difficulty of assessing acceptable gaps (but see paragraph A.7.)

ROAD TYPE	DIFFICULTY FACTOR (D)
Two way roads up to 30mph speed limit	Actual width / 7.3
Two way roads over 30 mph speed limit	1.2 x actual width / 7.3
One way single lane roads up to 30mph speed	0.8 x actual width / 7.3

limit
One way single lane roads over 30mph speed
limit

Actual width / 7.3

- A.3 In order to take account of the potential accident benefits when assessing relative justification of particular sites, the accident record is used to further weight and balance the numerical criteria. This weighting, known as the accident factor A, is calculated from the following formula:
 $A = (1 + \frac{N}{10})$ where N = number of pedestrian injury accidents during last 3 years.
- A.4 Whilst the concept of the PV² measurement represents a relative degree of risk based on conflict assessment, the following definitions of the values of P and V are considered more appropriate for today's needs:
 The pedestrian volume is weighted to reflect the proportions of young, elderly, and disabled persons recorded (see paragraph A.1 above) to arrive at the revised total for P. Where crossings are supporting Safer Routes to School or are contained within a developer funded proposal, estimates of pedestrian usage can be applied.
 The vehicle volume is weighted to reflect the proportion of heavy goods vehicles and buses. This is achieved by multiplying the combined total of heavy goods vehicles and buses by a factor of 2.5 and adding the result to the remaining vehicles recorded to arrive at the revised total for V.
- A.5 The revised formula for assessing the justification of a controlled crossing facility can be expressed as follows:
 $ADPV^2$, where
- A = accident weighting factor
 - D = difficulty factor for road traffic conditions
 - P = weighted sum of pedestrian movements
 - V = weighted volume of traffic
- The revised numerical criteria will be 100% met when the value of $ADPV^2$, based on the average of the four highest hours for the PV² element, equals or exceeds 1×10^8 (100 million) for a single carriageway, or 2×10^8 for a dual carriageway (see paragraph A.6).
- A.6 Previous guidelines have recommended that for dual carriageways sites, the level of justification for pelican crossings should be double that for single carriageway (because the pedestrians are provided with two separate crossings, each dealing with one direction of flow). It is considered that this practice should be retained within the revised policy.
- A.7 Current advice from the DfT is that surface crossings should not be installed at sites where the 85th percentile speed exceeds 50mph. As the 85th percentile traffic speeds within 40mph limits typically range up to 47mph, this effectively means that such crossings should not normally be installed unless there is a local speed limit of 40mph or less, unless there are consistent records that actual traffic speeds (85th percentile) do not exceed 50 mph. Where speeds exceed these values, it may be possible to install measures to reduce vehicle speeds to the required level so that a crossing can be provided.

- A.8 Where the revised value of $ADPV^2$ equals or exceeds 1×10^8 , then a crossing is considered to be justified, and subject to physical constraints on site, be added to a primary list for consideration as part of the works programme. Where this value is between 0.7 and 1.0×10^8 , then the crossing would be added to a secondary list for review and monitoring as part of a forward programme. As under previous policy application, dual carriageway sites will require double the level of justification, i.e. $ADPV^2$ to equal or exceed 2×10^8 for consideration on the primary list, and 1.4×10^8 for adding to the secondary list. Where the value of $ADPV^2$ is between 0.2 and 0.7×10^8 , then a controlled crossing would not be recommended, and alternatives such as a pedestrian refuge or zebra crossing should be considered. Where the value of $ADPV^2$ is below 0.2 , then a crossing facility would not normally be justified, but the site may be reviewed on its merits with regard to local and/or special needs and may be considered subject to funding.

A.9 Pedestrian Refuges

Where a pedestrian refuge is to be assessed for inclusion in a programme of works, the following factors are considered to determine the suitability of the site:

- Road carriageway width
- Driver and pedestrian visibility
- Vertical road alignment (crests of hills or troughs).
- Nearby junctions
- Location of School Crossing Patrol
- Location of access crossovers and gateways off the highway
- Existing parking restrictions (or required)
- Availability of power for illumination of bollards

A.10 Zebra Crossings

Consideration will be given for the installation of a zebra crossing taking account of the following factors:

- Not suitable where gaps in traffic are few and waiting times are long.
- Not safe where there is no 30mph limit or where 85%ile speeds are greater than 35mph
- There must be an obvious pedestrian desire line to be linked or the road creates a significant community severance.
- Must not be within built-up areas where traffic signals and signal-controlled crossings exist or are planned.
- Will only be considered at sites with low assessment values. Therefore as such they will not be considered as candidates for upgrade to signal controlled crossings.
- Zebras should not be installed where there are significant numbers of known users with severe visual impairment.
- Zebras will only be installed where a system of street lighting of approved standard exists. Supplementary lighting is prone to vandalism and generates light pollution and therefore should not be relied upon.
- Warning signs for drivers must be used as prescribed in TSRGD on both approaches.