Appendix C

Supporting Evidence

Traffic Volume Impacts

1. Traffic volume is one of the most important variables associated with whether people will wait for the green man to show at a signal-controlled crossing (Daff et al. 1991, Yagill, 2000). It is widely acknowledged that when vehicle flows are low, the delay in using a signal-controlled crossing is greater than the delay in not using the crossing. Accordingly, pedestrians are more likely to cross away from the crossing, or against the red man signal. Conversely, when traffic volumes are high, pedestrians are more likely to wait for the green man or to divert to a nearby crossing due to the perceived risk.

2. Equally, there is a balance to be struck. Unacceptably long delays can also result in poor compliance. The Royal Society for the Prevention of Accidents (RoSPA) published a Pedestrian Safety Policy Paper: Pedestrians Safety (2018) that stated that:

   "Although pedestrian crossings are often perceived as safe places to cross the road, this may not always be the case. Crossings give some protection to pedestrians, but some pedestrians disregard the crossing signals. The longer a pedestrian must wait for the 'green man' signal, the more likely they are to cross while the 'red man' is showing. Pedestrians are normally prepared to wait up to 30 seconds for the 'green man' to show, with those waiting over 40 seconds more tempted to cross on the 'red man'. Pedestrians will try to minimise the distance they have to walk and reduce their waiting times, often disregarding the Highway Code and taking risks. Being in a hurry and the desire to keep moving are often the reason that pedestrians disobey signals."

3. It is for the above reasons that the existing assessment methodology includes a measurement of the average delay to pedestrians when crossing at a location, derived by the engineer attempting to cross the road at 20 random times during the known peak traffic period, alongside surveys of vehicle and pedestrian flows.

Safety – Pedestrian Compliance

4. A literature review of Road Safety at Traffic Signals and Signalised Crossings by TRL (2009) identified likely causes of pedestrian collisions at signal-controlled crossings. This review cites that common causes of such collisions are:

   a) Lack of pedestrian compliance with the signal (driver compliance is generally good at signal-controlled crossings);
   b) Crossing close to the facility but not on it;
   c) Failure to look before / during crossing / running across the road;
   d) Crossing through stationary traffic;
   e) Vehicle manoeuvres.

5. A separate study, found that over 60% of serious and fatal pedestrian casualties at Pelican crossings were associated with lack of compliance by pedestrians. As noted above, the lack of compliance from pedestrians, as well as the lack of a clearly defined desire line and demand location leading to pedestrians crossing away from a facility, feature highly in the common causes.

6. The TRL (2009) report also found that in addition to failing to comply with signals, pedestrians often cross outside the studs bounding the crossing at signal-controlled crossings (e.g. Wall, 2000), particularly if compliance involved a deviation from their desire line.

7. The use of a PV2 modified assessment helps to ensure that not only is the correct type of crossing chosen, but also that the correct location is selected. Pedestrian surveys therefore consider all crossing movements 50m either side of a proposed survey location. Pedestrian crossings located away from pedestrian desire lines – routes that experience highest pedestrian flow – are likely to be ignored by pedestrians. Various studies have found that crossing within 50m of a facility, increases the risk of a collision four-fold.

Safety – Driver Compliance

8. Frequently, requests by members of the public for crossings are received based on perceived safety for pedestrians, often referencing vehicle speeds as a concern.

9. In 2006, TRL undertook a study of Traffic Signal Controlled Pedestrian Crossings on High-Speed Roads. The study recommended that, when considering a stand-alone pedestrian crossing on a road where 85th percentile speeds are 50mph on the approach, “serious consideration” of “speed reduction measures” is recommended prior to the installation of the crossing. At signal-controlled junctions, where crossings are considered, this rises to 85th percentile speeds of 65mph.

10. This research showed that:

    a) Approach speeds were lower when crossings were located at junctions;
    b) Drivers are more likely to stop when the signals changed from green on their approach to a junction, particularly when the change occurred close (40-80m) to the stopline;
    c) Drivers were more likely to cross the stopline in the last second of amber or to run the red at stand-alone crossings than at junctions; and
    d) Drivers used more controlled braking when the signals changed from green to amber at over 60m before the stopline on the approach to a junction than on the approach to a stand-alone crossing. When the signals changed at closer distances, they were willing to accept higher deceleration rates to stop at junction than at stand-alone crossings.

11. In addition, pedestrians were also found to be more likely to cross against the signals at stand-alone crossings when compared to signal-controlled junctions.

12. The current methodology includes a measure of vehicle speeds at the point of proposed crossings. As part of this review, consideration was given to whether enough weighting is given to each of the current factors that are included in the existing assessment. Based on the above, it is not felt appropriate to add greater weighting to vehicle.

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