

Broomhill Centre: Assessment of Pedestrian Comfort

Question

Pedestrian numbers are high in Broomhill Centre, particularly in university term time, and footway widths are below design standards in many places, but are conditions such as to constitute levels of discomfort that could dissuade people from using the centre?

Assessment method

Transport for London (TfL)¹ has developed criteria that can help answer this question. Based on two-way pedestrian counts and measurement of clear footway width, research conducted on behalf of TfL has established a link between comfort/discomfort levels (expressed as the percentage of pedestrians whose movements are restricted because of crowding) and pedestrian densities (calculated as persons per minute per metre of clear footway width - or ppmpm).

For a retail centre, 11 ppmpm or less is defined as “comfortable” and should be the aim in any design process. 12-14 ppmpm is “acceptable” but represents restriction for about 40% of people, and this may put some off visiting the centre. 15-17 ppmpm is regarded as “at risk” of unacceptability, with more than half of people suffering restricted movement. These three levels of comfort/discomfort are colour-coded *green*, *yellow* and *orange* in the tables of results in the supplement to this report.

Selection of sites

Six locations in different parts of the centre were chosen for survey and assessment. These are shown and labelled in the accompanying photographs. Three are on Fulwood Road - one on the north side and two on the south, one on Glossop Road (south side), and two on either side of Whitham Road.

Fulwood Road north - Sainsbury's



Fulwood Road south - Rod's Dogs



¹ Transport for London & Atkins, *Pedestrian Comfort Level Guidance*, 2010

Fulwood Road south - Record Collector



Glossop Road south - Hype



Whitham Road north - Thai Thai Ka



Whitham Road south -
Broomhill Friery



Survey

The pedestrian counts were carried out by BBEST volunteers Jenny Carpenter, Liz Buckton, Kath O'Donovan and Roger Donnison.

Tuesdays and Thursdays in university term time were chosen as survey days. Counts were undertaken over three time periods - morning (07.30 - 10.30), midday (11.30 - 14.00) and afternoon (15.00 - 18.30). Each site was sampled for 10 minutes in every 30 minutes. Two-way counts were recorded across the footway at the chosen, measured location.

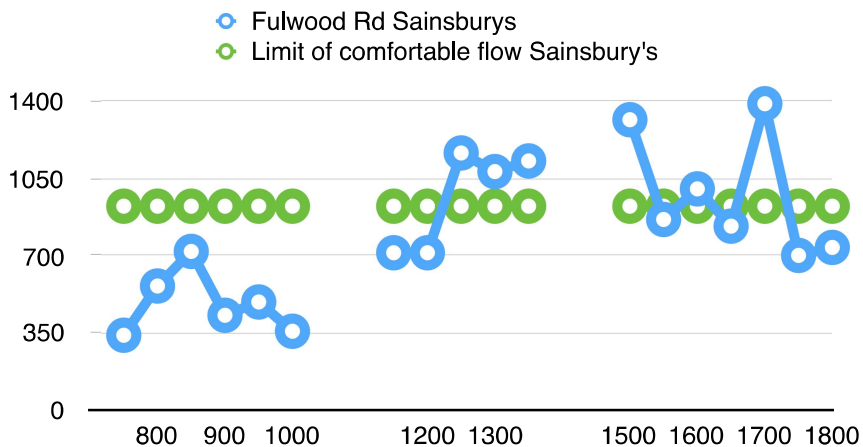
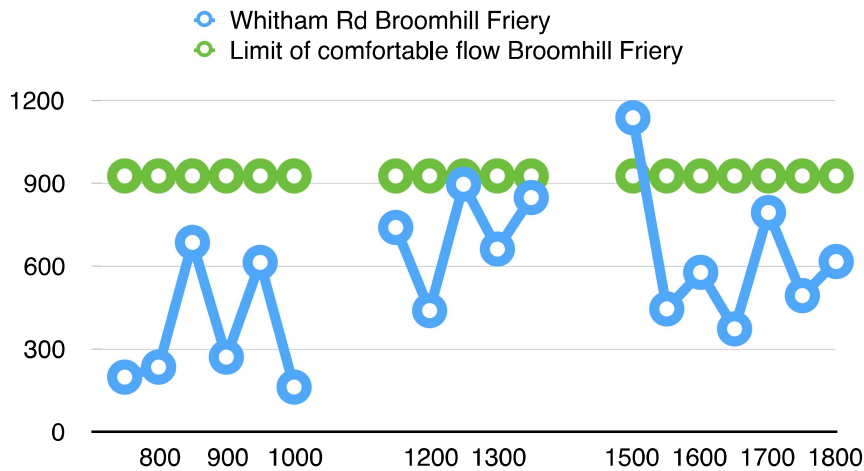
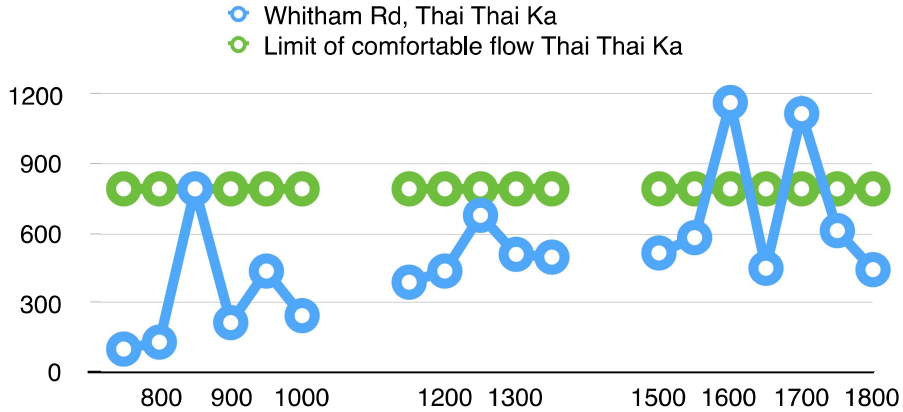
Some of the survey work took place in February and March 2016, but the bulk was undertaken in September and October, and a small amount in November 2016.

Out of a total of 27 hours surveying, 6 hours were in rain, but this was not so heavy as to warrant abandoning the count on the grounds that it had cleared the streets. Some rain is a fact of life here.

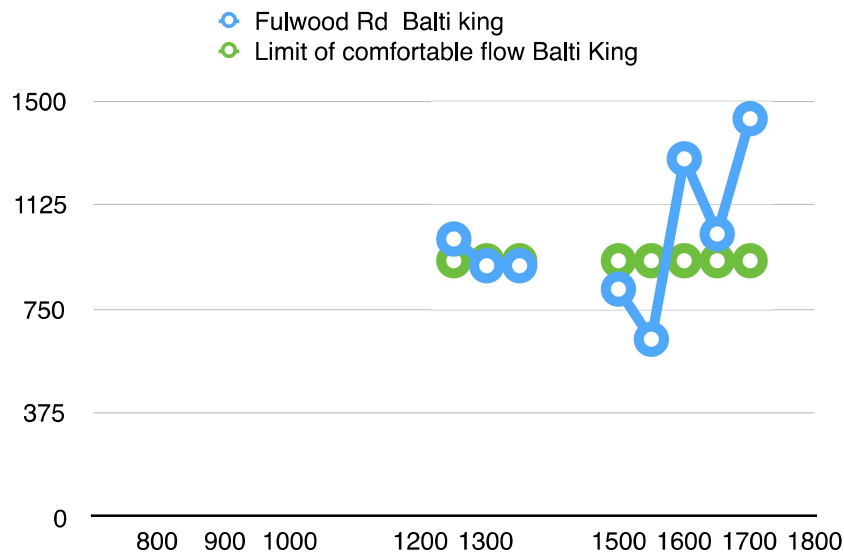
Results

The tabulation of the assessment can be found in the supplement to this report. Three of the six sites - on Fulwood Road south (2) and Glossop Road - were assessed as “comfortable” at all times of the day. There, the general width of the footway is not a constraint, although there are some points where street furniture (a bus shelter, post boxes, litter bins), A frames and shop displays present obstacles.

Results for the three other sites are illustrated in the graphs below. The horizontal *green* line represents the upper limit of “comfortable” conditions for each location.



Following this analysis, it was decided to conduct some supplementary counts at peak times at the other end of the Fulwood Road shopping parade, opposite the Balti King, in order to check whether conditions are similar throughout the length of footway alongside the echelon parking. These 10 minute sample counts were conducted on a Thursday and Friday in late November/early December during the periods 12.30 to 14.00 and 15.00 to 17.30. The results, which are shown below, show a similar picture for the mid-day period, albeit at a slightly lower level of activity. For the evening period, there are some differences in the *timing* of peak activity, probably simply reflecting sampling variations, but the incidence of pedestrian flows exceeding comfortable limits is similar, with 3 out of 5 of the half hour periods above this limit.



Conclusions

Whitham Road north is a problematic location. Where the building line changes direction slightly, the footway narrows considerably because carriageway space is also extremely tight, and the recent Crookes Junction scheme has worsened the situation because many right-turning buses are now required to wait at this point until the traffic lights change, severely restricting the space for other buses and HGVs to pass through in the opposite direction. Buses emerging from Crookes Road can be seen to mount the curb at the narrowest point of the footway, with consequent kerb damage as well as danger to pedestrians. Mitigating action might include:

- Reviewing whether part of the opposite footway can be reduced to allow the whole carriageway to be shifted southwards - see below
- Changes to junction operation - e.g transponders to allow right turning buses to call up a green light on arrival at the junction
- Changes to bus routes - e.g routing 52s via Glossop Road and augmenting the 51 service if necessary.

The opposite footway at **Whitham Road south** is an unusual construction, being in two distinct strips, one of which, nearest the traffic, is cambered in such a way that it is virtually unusable by pedestrians, and our assessment has treated it as such. Pedestrian comfort levels on the clear and usable footway width are generally satisfactory, except for school-out times at Broomhill Infant School.

It is also worth noting that, according to other data collected at this point by the City Council in 2010 in preparation for the design of the recent junction scheme, total passenger car movements and total pedestrian flows along the main A57 corridor over a 12 hour day, are of a similar order of

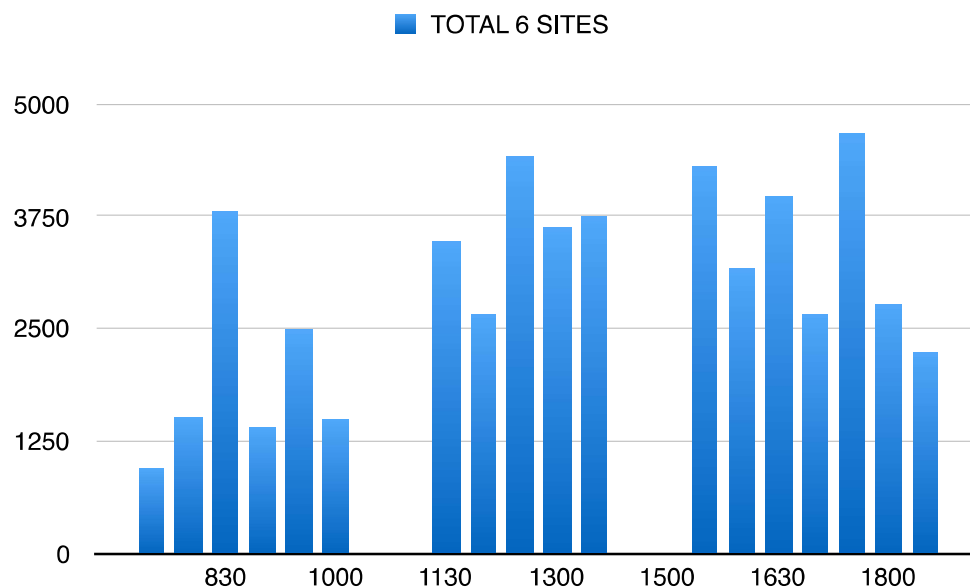
magnitude - about 9,000. Giving some more space to people on foot would therefore not be unreasonable, even on a route classified as “Key Strategic” by the City Council.

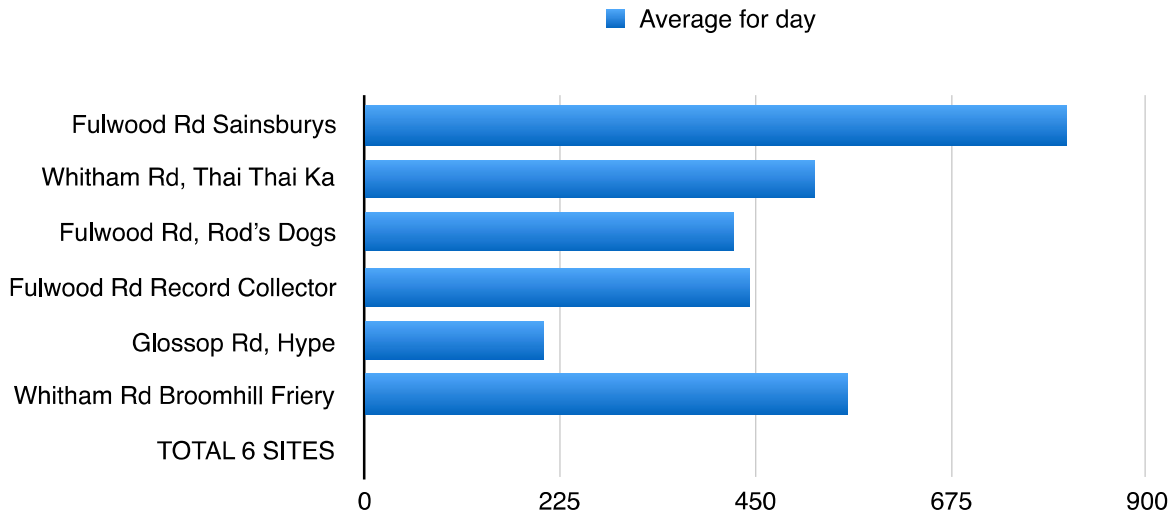
At the **Fulwood Road north** sites, between Morrisons and Boots, comfort levels are compromised during the midday period and, most particularly, in the afternoon. Widening the footway at the points where parking bay kerbs impinge on pedestrian space would overcome this deficiency.

Postscript

The purpose of the pedestrian survey was to investigate pedestrian comfort levels. However, the survey also provides some additional information about the functioning of the centre. The graphs below show (1) two-way pedestrian flows per hour for the six sites *combined* showing how total activity varies over the day, and (2) the variation in average daily pedestrian flows *between* each of the six locations. Points to note are:

- total footfall generally increases throughout the day up to 18.00
- within this daily trend, there are significant peaks and troughs associated with clock time - e.g in the morning, peaks are in the *build-up* to the clock-face hour, and in the afternoon, peaks *follow* the clock-face hour
- the north side of Fulwood Road is busier than the south
- the south side of the A57 has more footfall on Whitham Road than on Fulwood Road
- Footfall in Glossop Road is less than half that on the A57 axis.





BBEST/RD
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