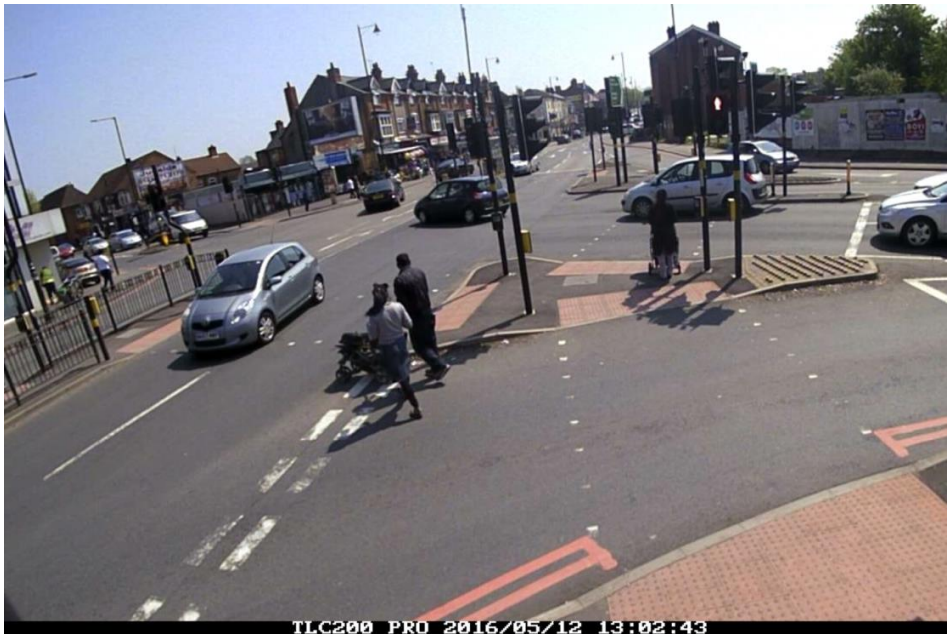
STREET MOBILITY PROJECT
Video Surveys



ISSUES IN COMPLEX SIGNALISED CROSSINGS

March 2017

STREET MOBILITY PROJECT TOOLKIT: MEASURING THE EFFECTS OF BUSY ROADS ON LOCAL PEOPLE

This document contains information about one of the tools that we have developed so that local government and local communities can assess community severance in their area.

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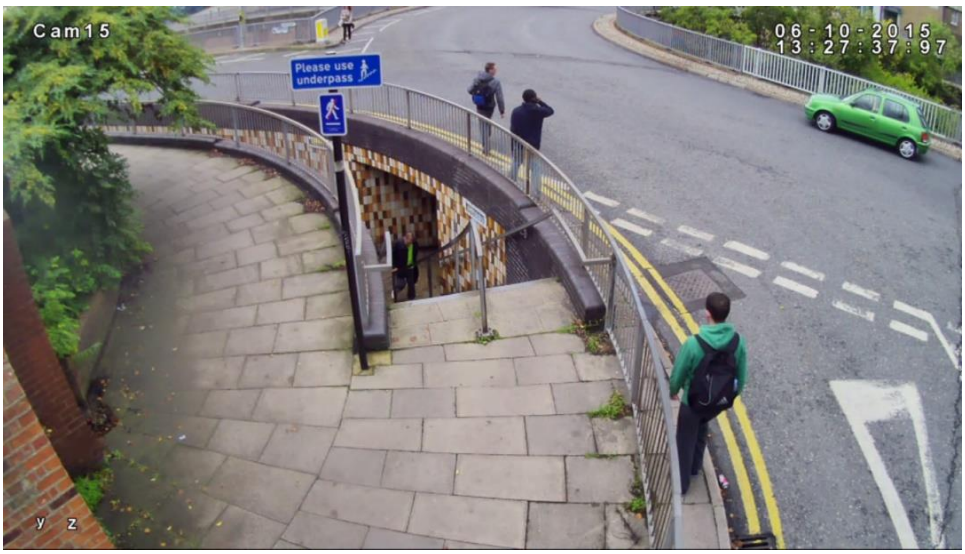
VIDEO SURVEYS



VIDEO SURVEYS CAN IDENTIFY CASES WHERE PEDESTRIANS DO NOT USE DESIGNATED CROSSING FACILITIES

IMAGE © UCL STREET MOBILITY PROJECT

What it is

This involves placing video cameras at particular points to film pedestrian and motor traffic. This is usually done for a 24 hour period or a 15-16 hour period (i.e. daytime).

Why it is useful

The information collected from video surveys helps to build a more detailed picture of who uses the road, when, and how. Taken together with results from a walkability model,[1] the comparison of the actual pedestrian flows along different roads with what might be expected from the walkability model can give an indication of places that pedestrians avoid. These may indicate where action is needed to improve the conditions for pedestrians and to facilitate more walking for travel in the area. The data collected can also be used to identify particular problems faced by pedestrians at different times of the day, which may be related to variations in the levels or types of motor traffic.

How to do it

Some local authorities will already have cameras in place. Otherwise, there are a number of companies that can place the cameras at agreed locations on an agreed date. Some of these companies will also analyse the data, for a fee.

Thought is required regarding where to site the cameras. This includes where each camera should be, and which way it should it face. The more cameras are used, the more information can be obtained. However, more cameras will increase both the cost and the amount of staff time required to view the video footage and analyse the data.

[1] See the section of this toolkit on Walkability models, also available at www.ucl.ac.uk/street-mobility/toolkit

The video footage can be used to record a number of items. Each of these will require a separate run-through for every camera:

- Vehicle flow (how many vehicles per hour or per day).
- Vehicle composition (the proportion of private cars; lorries; buses; coaches).
- Pedestrian walking flows (how many pedestrians per hour or per day).
- Pedestrian crossing flows: the number of pedestrians who cross at 'formal' crossings, (such as pedestrian signals, zebra crossings, footbridges, and underpasses) and at 'informal' crossings (which indicates where 'desire lines' are, where people want to cross the road, such as near a bus stop).
- Pedestrian crossing behaviour (where, when, and how people cross the road).
- Waiting times to cross the road.

Pedestrian data can be disaggregated by age-group, gender, and disability, if the quality of the video footage is good enough. However, this will increase the time required for the analysis.

A number of indicators can also be estimated from the raw data, for example, crossing ratios (the number of people crossing the road as a proportion of people walking along the road), or the number or proportion of people using the pavement who have an encumbrance, such as being in a wheelchair, using a mobility aid, pushing a buggy, or having luggage.

The cost of a video survey varies, depending on how much analysis is done in-house or by the company implementing the survey. There is a fixed cost of around £400 for setting up the cameras. Each camera then costs around £35 (for 15-16 hours). Basic analysis of the footage costs £25 per movement recorded (for example vehicles flowing in one direction, or pedestrians walking in one direction on one pavement). More detailed analysis (for example, of pedestrian crossing behaviours) costs more. These values exclude VAT and were valid in 2015.

Simplification

To make the analysis workload more manageable, the motor and pedestrian traffic counts can be done for parts of the day only, for example, for a 15 minute period during each hour (e.g. from 16 to 30 minutes past each hour), or without disaggregating the direction of the flow. The classification of motor vehicles and pedestrians can also be simplified (for example, vehicles can be counted simply as light or heavy). Vehicle and pedestrian flows can also be counted manually, without using video surveys. Data on the annual average daily vehicle flows in motorways and main roads can be downloaded from the Department for Transport's website.[2]

Further information

- Transport for London has produced a document, available online at: https://tfl.gov.uk/cdn/static/cms/documents/measuring-pedestrian-activity.pdf, describing methods for measuring pedestrian activity.

[2] https://www.dft.gov.uk/traffic-counts

CASE STUDY: USING VIDEO SURVEYS TO IDENTIFY BARRIERS TO WALKING IN WOODBERRY DOWN

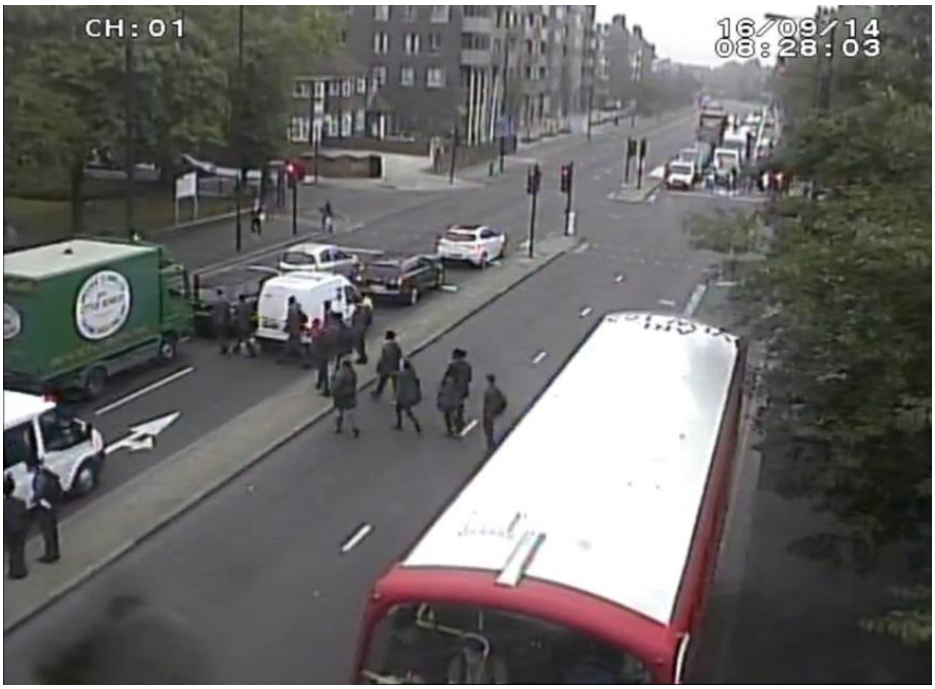
Woodberry Down, in Finsbury Park, North London, is a neighbourhood bisected by Seven Sisters Road, a busy 3-lane road. We conducted a video survey in this area to measure the number of vehicles using the road, and the number of pedestrians walking along the pavements and crossing the road (at formal and informal crossing points). We also analysed where and how pedestrians crossed the road.

The survey used 15 cameras, covering the whole section of Seven Sisters Road being studied, and some parts of nearby streets that provided alternative routes to walking along Seven Sisters Road. The survey was carried out between 8am and 10pm on a weekday (Tuesday 16 September 2014). The number of vehicles and pedestrians was counted between 16 and 30 minutes past the hour, and extrapolated to estimate daytime totals.

The survey found that the number of pedestrians walking along Seven Sisters Road was lower than expected, considering that the road has several shops and bus stops, and is well connected to other roads. In contrast, minor roads parallel to Seven Sisters Road had relatively high pedestrian flows. This suggests some pedestrians avoid walking along Seven Sisters Road.

The analysis of pedestrian crossing behaviour also found that many pedestrians crossed the road away from formal crossings. This was especially evident along the parts of the road near bus stops. This shows that the existing crossings do not match the places where pedestrians want to cross. The behaviour of pedestrians who crossed away from formal crossing points was analysed in more detail. We found that a large proportion of these pedestrians had irregular crossing behaviours, such as stopping in the middle of the carriageway, walking along the central reservation, and changing their speed or their direction while crossing.

In conclusion, the video survey confirmed that busy roads are barriers to the movement of pedestrians, as it provided evidence that pedestrians avoid busy roads when there is an alternative route. It also showed that the lack of crossing facilities where pedestrians want to cross increases the likelihood that people will cross the road in dangerous locations.



IRREGULAR CROSSING BEHAVIOUR NEAR BUS STOP