

Technical notes on the presentation “Measuring Walking”

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There are many methods for measuring walking and walkability. Here are some that are simple and practical, as well as providing the comprehensive cover that is most desperately needed. These fall into 3 categories:

1. Pedestrian counts by area
2. Pedestrian flows
3. Walkability

Further analysis and modelling may be needed to integrate the data using different measures and gather an overall picture of pedestrian activity.

Drive-by pedestrian count (by area)

This method works best in typical residential areas where pedestrian volumes are low and scattered throughout the day.

Drive-by counts are probably the simplest and cheapest to collect, as well as giving the most accurate and useful results for footpaths over a wide area. Ideally done by driving through an area in a car with 3 people on board, (1) a driver, (2) a left hand side observer and (3) a right hand side observer. It can be done by driving every possible route, but in many places a random sample of routes within a geographic area may be all that is needed. What gets recorded is the total number of pedestrians per km of travel, which can then be converted to a measure of pedestrians per square km. With increasingly cheap and readily available technology, it is possible to record actual times and GPS locations of each sighting, as well as the total count.

Walk to school survey (walkability)

This is probably the best and most accurate way of identifying barriers to walking, and people's attitude to walking and safety. It could be done something like this:

All people are asked the basic question:

Would they allow their children or grandchildren to walk to school?

If the answer is no, then a series of follow up questions should be asked:

- ***Too far?***
- ***Too dangerous?***
- ***Other reasons?***

These responses could be taken further if people were willing:

If too far, what would be the maximum distance (or equivalent time)?

If too dangerous, is their concern about danger to do with:

Adult strangers?

Other children (bullying etc)?

Crossing major roads?

Lack of footpaths?

Other? (please state)

What is the minimum age a child should be able to walk to school unaccompanied?

The results of this survey give a useful picture of the barriers to walking in any given location. Framed in this way, people may be inclined to give a more considered and objective answer than if it directed at them and their personal habits or choices.

Note: An even more comprehensive set of questions is asked of school communities in the DPTI Way2Go program. However, these are done on a school-by-school basis, and some of the answers would be considered confidential. Also, the program is biased towards educating children and parents about road safety, rather than dealing with fundamental issues. While there are no doubt some engineering and policing solutions identified, these are not made public by DPTI.

Other Methods

There are several other methods that may work better in areas of high pedestrian volume, major traffic generators, or where there are strong tidal flows at certain times.

Snapshots (by area)

This is the technique that is often used to estimate the size of crowds at major events or gatherings. It works best for large areas where there are lots of pedestrians, as well as people sitting, talking, dining etc. A photograph of a section of the crowd can be taken in order to work out an average density (people per area). Another photo (or series of photos) is taken of the whole crowd to estimate the total area. Multiplying density by area gives the total size of the crowd.

Point counts (flows)

This works best where there are points of high traffic flow in one direction or another. It can also monitor peak traffic levels. Works well with mechanised or electronic counters. An example of this is in the city of Melbourne <http://www.pedestrian.melbourne.vic.gov.au> where an array of fixed electronic counters is deployed at strategic locations.

Parking related (by area)

This uses counts of occupied car parks to estimate the amount of pedestrian traffic generated.

Public transport patronage

This uses counts of public transport boardings and disembarkations to estimate the amount of pedestrian traffic generated.

Major event patronage

This uses ticket sales to estimate the amount of pedestrian traffic generated.

Modelling

Often several counts using different methods are necessary to get a good estimate of the total number of pedestrians. Integrating the data from each count can require a reasonably sophisticated calculation to prevent people being counted twice or being missed out altogether. Data collected is typically fed into a database which is then used to drive a mathematical model which calculates the total number of pedestrians. When walkability data is also available, these models can also be used to calculate the likely benefit of particular interventions, such as improved crossings, footpaths and social marketing programs.