

Walkability - Ways to assess connectivity of a walking network

TECHNIQUE	DESCRIPTION	INDICATOR
Average distance	<ul style="list-style-type: none"> Pair each potential origin with a common destination to identify the mean walking distance. 	<ul style="list-style-type: none"> Walkability reduces as distance increases.
Directness ratio	<ul style="list-style-type: none"> Compare the length of the direct route between the pairs of trip origins and their common destination ('as the crow flies') with the distance that the pedestrian will actually walk, taking into account development patterns. 	<ul style="list-style-type: none"> Walkability reduces as the difference between the direct and actual route increases.
Route density	<ul style="list-style-type: none"> For each trip origin and destination, calculate the number of route choices between them, for a grid network this can be calculated by: $\frac{(A+B)!}{A! \times B!}$ Where 'A' is the number of blocks in an east-west direction, 'B' is the number of blocks in a north-south direction and '!' is the factorial function, ie 4! = 4 x 3 x 2 x 1. 	<ul style="list-style-type: none"> Walkability reduces as the number of route choices diminishes.
Journey time analysis	<ul style="list-style-type: none"> For each trip origin and destination pair, calculate a journey time based upon the length of the route and average walking speed, but taking into account obstacles, gradient changes and severance that change walking speed or create delays. 	<ul style="list-style-type: none"> Walkability reduces as the difference between the calculated walking time and that expected if the pedestrian did not change their walk speed increases.
Walkable catchment or Pedshed analysis	<ul style="list-style-type: none"> Calculate the physical area within a five minute, 10 minute and 15 minute walking distance, if the pedestrian were to walk as the crow flies from a particular origin and at their ideal speed. Compare this with the area the pedestrian can actually cover taking into account development patterns and obstacles, gradient changes and severance that change walking speed and/or create delays. 	<ul style="list-style-type: none"> Walkability reduces as the difference between the theoretical and actual areas increases.
Difficulty impedance index	<ul style="list-style-type: none"> Assign a value to each type of severance a pedestrian encounters based upon a judgement of the difficulty that it causes the pedestrian, and calculate an 'index' for each trip origin and destination pair. 	<ul style="list-style-type: none"> Walkability reduces as the index increases.