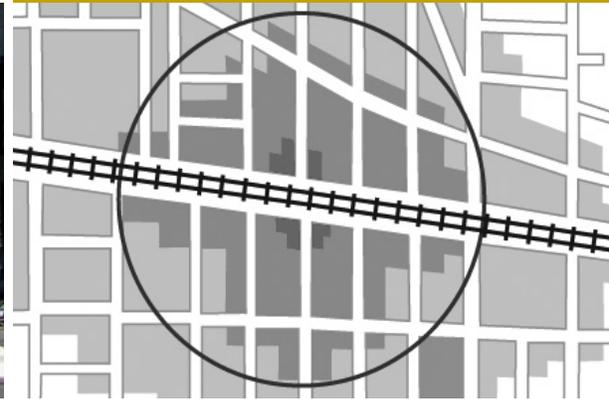


Walkability Catchment



Credit | Creative Commons | eluiscabrera



Credit | Congress for the New Urbanism



TOOL DESCRIPTION

A walkable catchment, also called a pedestrian-shed or “ped-shed”, is an area mapped within a five- to ten-minute walk from a pedestrian destination. Most people are comfortable walking 400 metres (about 5 minutes) regularly and, depending on the circumstance or the walking environment, may walk further to get to certain kinds of destinations. Identifying the walkable catchment provides a visual indicator of how easy it is to move through an area and get to and from a destination.

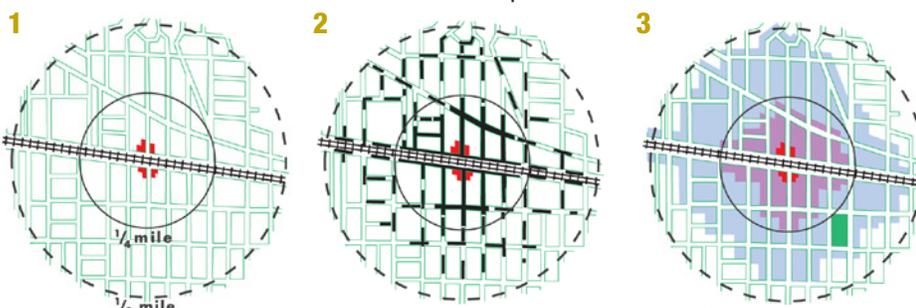
72

Mapping process

The first step in mapping the walkable catchment is to identify and map the network providing mobility to the pedestrian. Identification should take into consideration the ability of pedestrians, to get to or from a destination, which means that streets, footpaths, bridges and other pedestrian access infrastructure that can be used for walking should be included in the analysis. The street network should be examined to determine if there are sidewalks for pedestrians.

Once the network is identified, the second step is to map the walkable catchment on the network.

- › First, draw a circle around the destination with a 400 metre radius. This circle represents the maximum possible walking distance “as the crow flies.”
- › Second, measure the walkable distance (e.g., 400 metres) from a destination along the pedestrian routes. This mapping process identifies the actual walking distance. Note that the 400 metres distance from the destination will likely fall short of the circle mapped in the previous step – this is due to the 400 metre distance being mapped “as the crow walks.”
- › Third, identify the lots, buildings, parks, and other destinations that can be reached within that distance. The area around these features represents the walkable catchment.



Credit | Congress for the New Urbanism

Tool Intent

A walkable catchment is a map of the area within a five- to ten-minute walk of a neighbourhood destination that provides daily needs.

USERS

- ✓ Municipal Officials
- ✓ Municipal Planning Staff
- ✓ Planning + Design Professionals
- Engineers
- Land Developers
- Landowners
- Community Members

Walkability Catchment

This mapping process can be completed by hand on paper maps using a scale ruler and grid. It can also be automated using typical geographic information system (GIS) software. GIS can perform a cost-distance calculation along a road and path dataset (see sidebar example). Automated mapping is recommended, since it more reliability and faster than drawing by hand.

Scoring method

Once the walkable catchment is mapped, it can be scored. The score is calculated as the area within a five-minute walking distance (i.e, 400 m), expressed as a percentage of the maximum area that could be within a five-minute walk under ideal circumstances (i.e., the area within the circle with a radius of 400 m). Higher walkability is associated with a higher proportion of the maximum area; a good target is to have 60% of an area within a five-minute walk, or a ten-minute walk to a transit station.

Destinations

A walkable catchment can be mapped from any location. In using this tool to understand the completeness of a neighbourhood, consider destinations that offer goods and services that provide daily needs. This includes:

- › Bank
- › Child Care Facility
- › Community/civic centre
- › Convenience store
- › Grocery store
- › Hair care
- › Hardware store
- › Indoor recreation facility
- › Library
- › Live/work housing
- › Medical/dental office
- › Park
- › Pharmacy
- › Place of worship
- › Police/fire station
- › Post office
- › Laundry/dry cleaner
- › Restaurant
- › School
- › Senior car facility
- › Car share location
- › Transit stop

Some of these destinations might attract pedestrians from a farther distance than others. Different walkability radii can be applied to distinct destinations or land uses in urban areas based on their typical draw and appeal.

Destination	Distance the average person is willing to walk to get to this destination
Village square/Pocket park	400 m
Neighbourhood park	800 m
Grocery store	800 m
Elementary school	1,500 m
High school	3,000 m

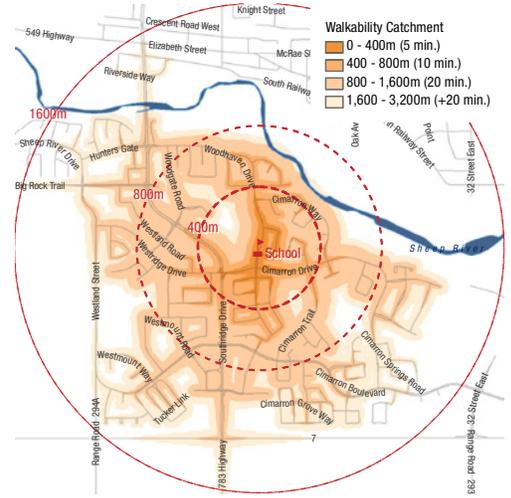
Ideally, several destinations that provide daily needs within overlapping catchments will exist in a single neighbourhood. The kinds of destinations listed here typically serve small, local markets, which allow more than one of any type to operate within a walkable catchment. By mapping the walkable catchments of these kinds of destinations, the location of walkable clusters of destinations can be determined. Clusters allow multiple errands to be undertaken in a single trip, and can make walking a more worthwhile option.

WHEN IN THE PROCESS IT IS USED?

The walkable catchment tool can be is a used in several ways. It could be used during the site planning and design process, applied to assess different iterations of a site plan and inform revision of the overall community design. During public consultation, where several design proposals might be presented for discussion, the walkable catchment can be shown for multiple destinations on each proposal as a way to illustrate the relative degree of pedestrian “friendliness” of each. By using it to illustrate the accessibility of amenities, it could also be used as a way to market the new development to potential residents and tenants.

LOCAL APPLICATIONS

Foothills Composite High School Walkability Catchment, Okotoks, AB



Credit | O2 Planning + Design Inc.

This example illustrates the walkable catchment of Foothills Composite High School in Okotoks, AB, generated using a geographic information system (GIS). This example illustrates well the significant difference between mapping linear distance (“as the crow flies”, as shown by the red circles) and mapping based on actual routes (“as the crow walks”, as shown by the colored gradients). The latter technique provides a far more accurate picture of how accessible a neighbourhood really is. By using a GIS to produce a digital version of the analysis, the results can be easily shared in a number of formats – the image below shows the results of the analysis brought into Google Earth, for example.



Credit | O2 Planning + Design Inc. | 2011 Google Earth™

POLICY SUPPORT

Calgary Municipal Development Plan

Transit-supportive density and uses policies

b. Increase development densities in proximity of the Primary Transit Network by targeting residential and employment intensities within 400 metres of transit stops, in areas deemed appropriate through the Local Area Planning process and in accordance with the Typology thresholds identified in Part 3.

Land use policies

d. New communities should be organized to include the following:

i. A number of distinct neighbourhoods that are defined by a 400-metre or five-minute walking distance from a NAC or Neighbourhood Corridor;

Core Indicators for Land Use and Mobility

Core Indicators	Metric	Baseline	60-year Target
Accessibility to Primary Transit Network	Per cent of population within 400 m of Primary Transit Network	LRT is the only transit service approaching Primary Transit levels of service in Calgary today.	45%
	Per cent of jobs within 400 m of Primary Transit Network	LRT is the only transit service approaching Primary Transit levels of service in Calgary today.	67%

Okotoks Municipal Development Plan

72 Neighborhood Design Targets

In an effort to reduce demand on transportation infrastructure, decrease pollution, maintain air quality, reduce crime, and improve quality of life by placing work, recreation, and shopping opportunities closer to home, a mix of non-residential land uses and forms of residential dwellings in new neighbourhoods result in the following design targets

- › maximum distance between any given home and the nearest commercial shopping cell – 20 minute walk. Maximum distance between any given home and the nearest off-street pathway system - 300 metres
- › maximum distance between any given home and neighbourhood recreation or facility opportunity in new cells - 15 minute walk
- › maximum distance between any given home and available industrial or other commercial employment cell - 20 minute walk

ADDITIONAL RESOURCES

Ped Shed Transportation Tech Sheet – Congress for the New Urbanism
 Process for Calculating Walkable Catchments (http://www.cnu.org/sites/www.cnu.org/files/CNU_Ped_Sheds.pdf)

Walking and Cycling – PedShed analysis (<http://www.activehealthycommunities.com.au/content/walking-and-cycling-pedshed-analysis>)

Walkscore – online mapping tool that rates neighbourhood walkability (<http://www.walkscore.com/>)

CASE STUDIES | BEST PRACTICES

Walkscore.org

Walkscore automates the mapping and scoring process in a simple online tool. Given an address, the tool maps the extents of a five minute walk along street and pedestrian networks. The tool identifies the number and variety of daily-needs destinations within those extents. From this, it calculates an overall score on a scale of 0 to 100 for the address, with 0 indicative of a “Car-Dependent” neighbourhood and 100 indicating a “Walker’s Paradise”.



Source | <http://www.walkscore.com/>

RELATED TOOLS

- Walkability Audit
- Bikeability Audit
- Connectivity Index
- Residential Street Patterns
- The Neighbourhood Unit
- Block and Lot Standards