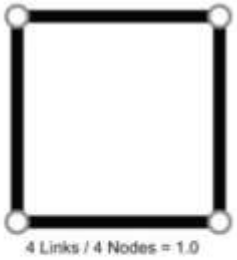
APPENDIX G

Network Connectivity Index

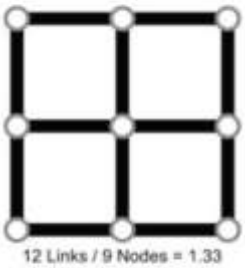
Network Connectivity Index

A connected, dense active transportation network can support shorter trips and varied travel options in developed communities. In order to better understand connectivity, many cities, including several in the Calgary region, have adopted tools such as connectivity indices to clearly measure street network connectivity.



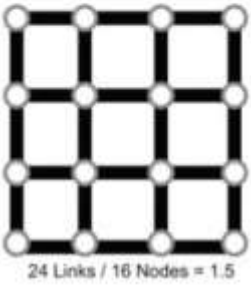
What are Connectivity Indices?

Connectivity indices quantify the connectivity of transportation network. Originally developed to measure the connectivity of a street network, connectivity indices are calculated as the ratio of links to nodes – the more links relative to nodes, the more connected[1]. Nodes are intersections and links are segments between intersections. For active mode connectivity indices, cul-de-sacs must have a pathway in order to be included in the calculation as a link. Pathways are included as separate links and nodes, unless they are immediately adjacent to the street and do not offer any more connection than the street. A connectivity index for active transportation facilities 1.6 is considered to be walkable.



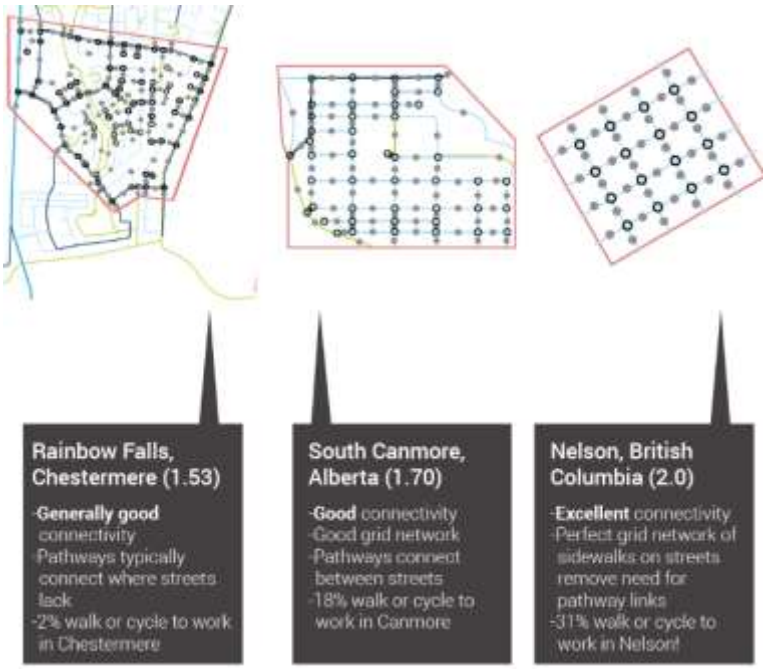
Connectivity Indices for Active Modes

Typically, connectivity indices for active modes are higher than connectivity indices for streets due to additional pathways that link to the street network. A dense, connected street network supports walking and cycling. The addition of pathways and other active transportation facilities further enhances the walking and cycling environment.



Connectivity Index (CI) Calculation

$$CI = Links/Nodes$$



Examples of active mode connectivity in Chestermere, Canmore and Nelson, BC are shown to the left. Rainbow Falls in Chestermere is somewhat well-connected (1.53). In comparison, the Canmore's downtown and Nelson, BC are examples demonstrate dense networks with excellent connectivity (1.70 and 2.0, respectively). While a number of other factors contribute to mode split, connectivity contributes 18% of people in Canmore and 31% of people in Nelson walking or biking to work.

[1] Ewing, R. Best Development Practices – Doing the Right Thing and Making Money at the Same Time. Urban Land Institute and Florida Department of Community Affairs, 1996.