



What is Street Connectivity?

Have you ever driven down a street only to find a dead end when you wished you could turn left? Or perhaps had to drive a half mile to meander your way to a neighbor's house that you can see from your backyard? Street connectivity in communities addresses these types of issues.

Connectivity implies a system of streets with multiple routes and connections serving the same origins and destinations; it relates not only to the number of intersections along a segment of street, but also to how an entire area is connected by the street system.

Unlike conventional suburban development patterns that use a hierarchy of streets from cul-de-sacs to major arterials and expressways (see sidebar on page 3), *highly connected* areas possess the following characteristics:

- A dense system of parallel routes and cross-connections within an

area—typically forming a grid-like pattern of arterial, collector, and local streets;

- Few closed-end streets (see sidebar);
- Many points of access;
- Narrow streets with sidewalks or off-street paths;
- Frequent intersections to create a pedestrian-scale block pattern;
- Traffic calming devices such as curb extensions, crosswalks, landscaping, etc. to slow traffic speeds; and
- Pedestrian and bicycle connections where street connections are not possible due to barriers. Physical barriers to connectivity may include: topography (steep slopes), freeways, railroads, pre-existing development, lease provisions, easements, covenants, or water features (lakes, streams, etc).

What is a closed-end street?

A closed-end street is a local road with only one main entrance/exit to any other existing or planned street. Examples include: cul-de-sacs, dead-end and looped streets.

Connected Street Pattern, Eugene, Oregon



Why is Connectivity Important?

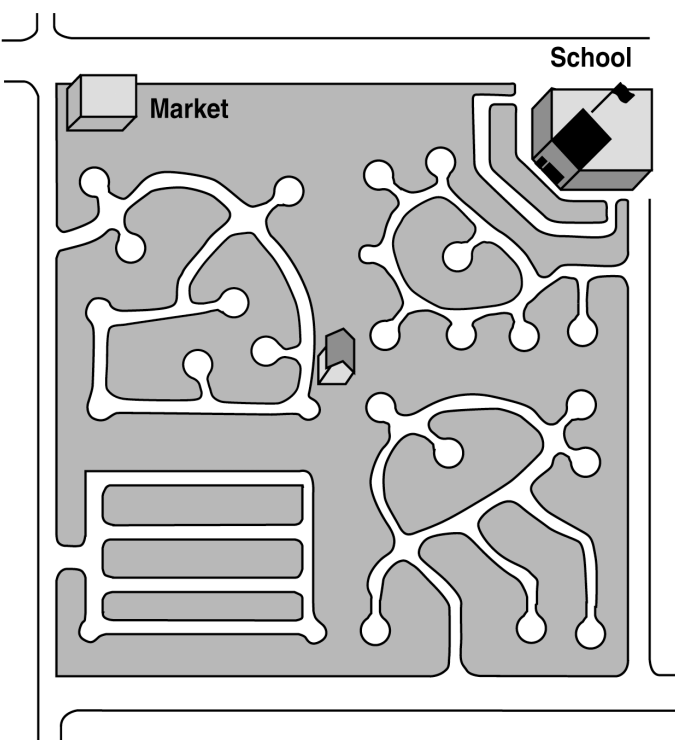
Connectivity offers a variety of benefits to communities. These include:

“Connectivity is important for many reasons: It reduces travel time by allowing people to avoid out-of-direction trips, it allows people the option of walking or bicycling because the routes to schools, parks, and businesses are shorter, it allows emergency vehicles like police and fire to respond faster and use alternate routes if one is blocked, it spreads traffic out and reduces vehicle speed, and it reduces overall vehicle fuel use by shortening trips.”

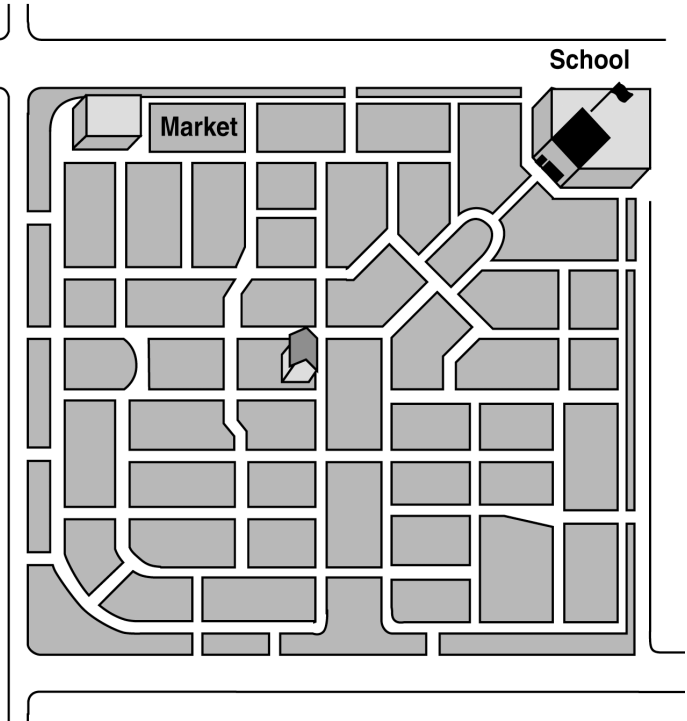
– Bill Adams,
TGM Program

- Providing drivers, walkers, and bikers with multiple direct routes for traveling short distances while preventing them from being forced onto an arterial road. This provides better opportunities for walking and bicycling to local destinations such as shops, schools, and friends’ houses.
- Travel is more direct with shorter travel distances—thus reducing travel time, increasing accessibility, and lowering the number of vehicle miles traveled.
- Local traffic stays local and is accommodated by a network of smaller roads. This means that traffic volumes on arterials are reduced and these roads can better accommodate long-distance travel.
- The short blocks (typically 200 to 400 feet in length) of interconnected street patterns better accommodate the development of town centers as opposed to typical strip developments found along arterial roads with longer blocks.
- Transit use is better accommodated because transit stops are more accessible from neighborhoods.
- Lower speeds on local streets result in reduced accident severity.
- Emergency vehicles have increased access and an improved ability to respond quickly.

Typical Cul-de-Sac Subdivision



Well-Connected Street Network



Source: TGM Guidebook, *Neighborhood Street Design Guidelines; An Oregon Guide for Reducing Street Widths.*

How do You Promote Connected Street Networks in Your Community?

Communities can promote connectivity of their streets in several ways. First, a community may implement street connectivity standards for vacant or redevelopable land. These standards should require new development to: (1) connect streets to existing or planned street intersections and street extensions; (2) provide direct and logical access to surrounding areas; and (3) limit the need for cul-de-sac and other “closed-end” street designs. Towns can also plan increased connectivity in redevelopment, commercial, and industrial areas. Finally, incorporating street connectivity requirements into Transportation System Plans (See “Oregon Transportation System

Planning” Fact Sheet for additional information), master plans, and specific plans helps promote a highly connected system.

Connectivity issues frequently stem from inter-jurisdictional issues. Counties typically cover development review for unincorporated areas within UGBs. Moreover, counties may have standards that are substantially different than city standards. This can result in connectivity issues as well as burdening cities with substandard transportation facilities when areas are annexed. Developing sound urban growth management agreements that require transportation facilities to be built to city standards is one potential solution.

Functional Road Classifications

Functional classification is the process by which public roadways are grouped into classes according to the service they provide. Generally, roadways fall into one of three categories: arterials, collectors, and local roads. Each type of road is important, as they all are part of an interconnected system.

Arterials

Arterials facilitate travel between major trip generators, such as between cities or shopping centers. Arterials include highways that emphasize a high level of mobility for the through movement of traffic and de-emphasize access off the roadway to nearby uses. Generally, travel speeds and distances are greater on these facilities compared to the other classes.

Collector

Collector roads combine traffic from local roads and distribute it to larger streets. Collectors provide both mobility and land access. Trip lengths, speeds, and volumes are moderate.

Local

Local roads provide access to private property or low volume public facilities such as neighborhood parks, corner markets, etc. The primary function of local roads is to provide land access. Travel speeds, distances, and volumes are generally low, and through traffic is usually discouraged.

Residential Street, Eugene, Oregon



For more information...

Transportation and Growth Management

- Neighborhood Street Design Guidelines; An Oregon Guide for Reducing Street Widths. www.lcd.state.or.us
- Street Connectivity Comparison. www.lcd.state.or.us/tgm/album/layout.htm

Metro

- Street Connectivity Standards Change. www.metro-region.org/library_docs/trans/streetconnect.pdf
- Creating Livable Streets: Street Design Guidelines for 2040
- Green Streets: Innovative Solutions for Stormwater and Stream Crossings. www.metro-region.org

Local Government Commission

- Designing Safe Streets and Neighborhoods.
- *Poor Planning Results in Dangerous Streets.*

www.lgc.org

Congress for New Urbanism

www.cnu.org

Contact TGM:

635 Capital Street N.E. Suite 150
Salem, OR 97301
Tel- (503) 373-0050
Fax- (503)378-2687

Sample Connectivity Standards

Metro promotes street connectivity through its Regional Transportation Plan. Their requirements for development Codes and Design Standards include:

- Street connections spaced no more than 530 feet apart except where prevented by barriers (i.e. topography, freeways, etc).
- When full street connections are not possible, provision of bike and pedestrian accessways on public easements or rights-of-way spaced no more than 330 feet apart.
- Limits the use of closed-end street systems to situations where barriers prevent connections to adjacent streets.

- No closed-end street longer than 200 feet or having more than 25 dwelling units.

It also encourages:

- Narrow street design alternatives;
- Short and direct public right-of-way routes;
- Consideration of opportunities to incrementally extend streets from nearby areas; and
- Consideration of traffic calming devices.

Roundabout, Eugene, Oregon



Community
Planning
Workshop

Developed by CPW, University of Oregon, June 2003

All photos courtesy of: The Community Service Center, University of Oregon