Oregon Greenhouse Gas Reduction Toolkit:

Strategy Report

OREGON SUSTAINABLE TRANSPORTATION INITIATIVE

Source: www.pedbikeimages.org / Dan Burden

Increased Connectivity & Shorter Block Lengths

This report describes how increasing street connectivity and reducing block lengths can promote pedestrian activity and support greenhouse gas reduction goals.

What is it?

Increasing connectivity and reducing block lengths are two strategies that can be used to provide a safe and convenient bicycle and pedestrian network, thereby promoting alternative transportation modes and helping to reduce vehicle emissions. Shorter block lengths (around 200 to 300 feet) reduce walking time between destinations, allow for safer street crossings at intersections, provide better access to interior lots, and help create a comfortable and inviting walking environment for pedestrians. In addition, more street corners provide more opportunities for highly visible commercial development and formal or informal public gathering space. Shorter block lengths may also serve to reduce vehicle speeds; a 2005 study done in California found that block lengths longer than 600 feet corresponded with more drivers exceeding the speed limit.[1] Connected networks of streets that parallel thoroughfares provide important routes and options for local trips.

Increased connectivity provides more route choices for people traveling by foot or bicycle; they can choose to meander through a commercial district on their way home, or choose the shortest and most direct route possible. Good connectivity also helps disperse vehicle traffic, thereby helping to reduce congestion on collector streets. Connectivity is typically measured by the number of street intersections per square mile. The U.S. Green Building Council recommends at least 90-140 intersections per square mile for good connectivity[2]. Connectivity can also be improved by:

- Filling in any gaps in the sidewalk system
- Prohibiting new cul-de-sacs and dead-end streets
- Providing a pedestrian path from dead-end streets that connects to a nearby sidewalk or pathway
- Reducing/improving difficult street crossings such as those across a freeway, river or railroad
- Providing safe mid-block crossings where longer block lengths (600 feet or more) exist

How well does it work?

The effectiveness of these strategies at reducing greenhouse gas emissions will greatly depend on the scale and aggressiveness of implementation, how quickly new development occurs, and the availability of funding to make improvements to the existing street network. The Moving Cooler[3] report provides an estimate of greenhouse gas reductions that are possible through implementing a bundle of pedestrian and bicycle improvements, including block length and connectivity. The report estimates a 0.2 to 0.5 percent cumulative

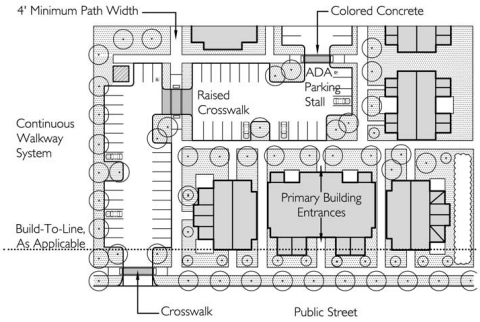
1 *Best Practices for Complete Streets. Sacramento Transportation & Air Quality Collaborative, October 2005. Website: http://www.smartgrowthamerica.org/documents/cs/resources/cs-bestpractices-sacramento.pdf*

2 *Cool Planning: A Handbook on Local Strategies to Slow Climate Change. Oregon Transportation and Growth Management Program. Website: http://www.oregon.gov/LCD/TGM/docs/coolplanninghandbook1312011.pdf*

3 *Moving Cooler: An analysis of transportation strategies for reducing Greenhouse Gas Emissions. July, 2009. Pg. 42.*

reduction by the year 2050 using this bundle of strategies.

How can it benefit my community?



In addition to supporting greenhouse gas reduction goals, these strategies can also provide a number of community benefits, including:

- Increased public health through more active travel (walking and biking)
- Increased safety for all modes of travel
- Reduced travel distances for pedestrians and better access to various destinations
- Increased opportunities for public gathering and economic development by creating visible street corner locations
- Safer and more convenient routes for students to bike or walk to school
- Reinforcing the special identity of mixed use centers and main streets

What does it cost?

Implementing block length and connectivity standards in a local development code can be done relatively quickly (one to three years for adoption of new code language). However, greenhouse gas reductions resulting from those standards may take longer to realize because effectiveness will depend on the rate and scale of development. Public connectivity projects such as new mid-block crossings, sidewalk improvements, multi-use pathways and pedestrian bridges will depend on available funding and relative priority on the list of capital improvement projects. In March 2013, the city of Hillsboro was awarded over $500,000 from the Oregon Department of Transportation (ODOT) to construct a signalized mid-block crossing on Cornell Road[4]. The crossing will facilitate safe access to the Rock Creek Trail, a multi-use trail that connects residential, commercial and industrial neighborhoods in Hillsboro. The ODOT grant covers more than 75 percent of the total project costs.

Where has it been used?

- Many jurisdictions in Oregon implement block length and connectivity strategies through specific standards in their development codes. This is partly due to mandates in the Oregon Transportation Planning Rule[5] that require local governments to implement their transportation system plans (TSPs) by adopting certain code standards, including standards for bicycle and pedestrian connections. Any city that has updated their TSP since the rule was written would have been required to comply with those connectivity standards. In addition, the Model Development Code (see Where Can I Learn More?) recommends connectivity standards that require a "safe, direct and convenient" walkway system within and between developments. The Model Code also recommends block lengths between 100-600 feet in residential districts and 100-400 feet in a downtown or main street district.

Where can I learn more?

- Pedestrian- and Transit-Friendly Design: A Primer for Smart Growth. Based on a manual prepared for the Florida Department of Transportation and published by the American Planning Association. Website: http://www.epa.gov/smartgrowth/pdf/ptfd_primer.pdf
- Model Development Code & User's Guide for Small Cities, 3rd Edition. Oregon Transportation and Growth Management Program, updated 2012. Website: http://www.oregon.gov/LCD/TGM/Pages/modelCode05.aspx
- Cool Planning: A Handbook on Local Strategies to Slow Climate Change. Oregon Transportation and Growth Management Program. Website: http://www.oregon.gov/LCD/TGM/docs/coolplanninghandbook1312011.pdf

The Toolkit is a component of the Oregon Sustainable Transportation Initiative (OSTI), which was formed to address the requirements of Senate Bill 1059 (2010).

For more information, please visit:

http://cms.oregon.gov/ODOT/TD/TP/pages/ ghgtoolkit.aspx

Oregon Department of Transportation

4 http://www.oregon.gov/ODOT/TD/AT/docs/TE_OPAC/award%20list%20for%20March%202013.pdf

5 Oregon Administrative Rule 660, Division 12 Transportation Planning. Website: http://arcweb.sos.state.or.us/pages/rules/oars_600/oar_660/660_012.html