

UTC Spotlight

University Transportation Centers Program

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Photo by: OTREC

This monthly report from the University Transportation Centers Program highlights some of the recent accomplishments and products from one of the University Transportation Centers (UTCs) managed by the U.S. Department of Transportation's Research and Innovative Technology Administration.

The views presented in the *UTC Spotlight* are those of the authors and not necessarily the views of the Research and Innovative Technology Administration or the U.S. Department of Transportation.



Livability, a Transportation “Threefer”

Livable communities are places that achieve economic prosperity, environmental quality, and social equity—the “three Es” of sustainability. In terms of transportation, they are places where transportation modes other than driving are viable for activities such as walking or biking to school. The built environment of a livable community yields lower greenhouse gas emissions, reduced dependence on foreign oil, and improvements in public health (which are associated with lower health care costs).

Interest in livability has been accelerated recently by an increased focus on the relationship between urban form and transportation. The childhood obesity epidemic has fueled interest in events such as “bike and walk to school day” across the country. The Oregon Transportation Research and Education Consortium (OTREC, www.otrec.us), a national University Transportation Center whose focus is sustainable mobility, has several researchers who are currently involved in livability research.

Walking to School—Dr. Yizhao Yang, University of Oregon

From 1969 to 2001, the share of children going to school by car rose from 18% to 65%, representing as much as 30% of morning peak-hour traffic in some communities. Concerned about these phenomena, Dr. Yang and her team set out to examine whether and how getting to school influences where parents decide to live.

In the spring of 2008, the University of Oregon-based team mailed surveys to the 5,700 households with elementary school age children in a school district near campus. The district, which includes the City of Eugene, covers 155 square miles and includes 26 elementary schools with combined enrollments of approximately 6,000. The team also conducted three parent focus groups to collect additional information.

The research suggests there are two useful levers of influence:

1. Do parents want their children to walk or bike to school?
2. Are there adequate and satisfactory housing options close enough to the school?

The first question suggests that programs such as “Safe Route to School” should aim to educate and encourage parents at least as much as these initiatives focus on physical walkability issues. The second question acknowledges the complexity of land use planning, which is the subject of the featured project described next.

Sustainable Suburbs—Dr. Nico Larco, University of Oregon

It may be a surprise that, since 1970, suburban multifamily housing has been the largest growing housing market in the United States, with one in four suburban units being part of a multifamily unit. Today, there are about 9 million units in the United States, with another 5 million projected in the next 20 years.



Photo by: OTREC

The Peter DeFazio Pedestrian Bridge connects downtown Eugene, OR, with Alton Baker Park and the north bank of the Willamette River.

With 15 to 30 units per acre, suburban multifamily housing is often used to create a buffer between single family housing and nearby arterials and commercial areas. In the worst cases, this has been done in a way that limits connectivity and increases auto dependence. In the best cases, the adjacencies have enabled walking and biking and truly livable communities.

The National American Housing Survey tells us that residents of suburban multifamily housing are more than three times as likely to walk or bike to work than their single family home counterparts (3.5% vs. 1.1%). They are also four times as likely to use transit (6.6% vs. 1.5%) and twice as likely to carpool (15.2% vs. 7.3%).

Dr. Larco’s research has examined case studies in Oregon, Arizona, Massachusetts, and Florida. He has found that residents’ behavior differs distinctly—in favor of livability—from the expectations of the planners, architects, and developers responsible for creating these communities. He has also found that certain attributes, such as connectivity, significantly increase a community’s livability.

Participatory Mapping Tools—Dr. Marc Schlossberg, University of Oregon

As interest in the nexus between transportation and public health has increased, so has the desire to understand what makes a place walkable. Dr. Schlossberg is developing and implementing mobile mapping tools that communities can use for quick, accurate, and useful local area analysis. Think of them as dashboard navigation systems turned inside out: instead of being told which route is the best, users can define good and bad features of their own communities.

For any location—the sidewalk in front of a school, for example—a user can input data as objective as, “is the sidewalk at least 5 feet wide?” or as subjective as “would you agree that most users would feel safe along this segment?” The innovation is not in the technology or the data being collected but in the *application* of the technology’s advantages and the involvement of the community to evaluate a place’s livability. The potential for enhancing community plans, especially for bicycle and pedestrian infrastructure, could be significant.



Photo by: Bicycle Transportation Alliance

Bicycle Boulevards, like this one in Eugene, OR, can include traffic calming design features that make local streets more attractive for bicycle and pedestrian use.

In Summary

Focusing on livability represents a potential “three-for-one” return on transportation investments by addressing climate change, energy security, and public health. Moreover, successful livability investment appears to depend on effectively addressing such interdependent issues as planning for active transportation, better linking of transportation and land use decisions, a specific attention to community design, and a new degree of public involvement that can ensure long-term sustainability. OTREC is committed to provide cutting edge research on sustainable mobility and the application of our findings to policy, agency, and community change. Livability is not just about transportation, but how transportation facilitates, or impedes, the general quality of life of our communities. OTREC will continue to lead in this critical area. ♻️

About This Project

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