UTC Project Information

Project Title	MPC 434- A Bicycle Network Analysis Tool for Planning Applications in Small Communities
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Agency ID or Contract Number	DTRT12-G-UTC08, Modification No. 1
Project Cost	$100,000
Start and End Dates	January 1, 2013- December 31, 2013
Project Duration	1 Year
Brief Description of Research Project	Non-motorized modes such as bicycles constitute an important part of a small community's transportation system, and they are also vital to the success of transit-oriented-developments (TODs). They were, however, often ignored in transportation planning and travel demand modeling, or at best treated as a byproduct. In addition, many cities have begun to invest and promote cycling as a healthy, environmentally friendly, and economical alternative mode of travel to the motorized vehicles (especially private motorized vehicles). As noted above, the current practice in bicycle planning is inadequate, particularly for small communities with limited resources. Only a few research efforts focus on network analysis for bicycle trips (e.g., Klobucar and Fricker, 2006; Broach et al., 2011; Mekuria et al., 2012). Most assume a bicycle origin-destination (O-D) matrix is available or can be obtained from the four-step travel demand forecasting procedure which requires a large amount of data, travel surveys, and technical staff for operation and maintenance. For large communities, the collection of data and availability of experts are not a big hindrance. For small (and even medium-sized) communities where resources are scarce, the development and maintenance of a traditional four-step travel demand model (i.e., trip generation, trip distribution, modal split, and traffic assignment) is a challenge. To our best knowledge, none of the research efforts address the difficulties faced by small communities in developing bicycle planning tools. Small communities usually do not have sufficient resources to conduct travel surveys or embark on model development and maintenance for carrying out various planning functions. Hence, there is a need to

	develop network analysis tools that make use of the publicly available data from different sources (e.g., state Department of Transportation (DOT), metropolitan planning organization (MPO), etc.) to estimate bicycle demand (i.e., bicycle O-D trip table) and bicycle volumes on a transportation network (i.e., bicycle traffic assignment). **Research Objectives:** The overall goal of this research is to develop network analysis tools for estimating bicycle trips in small communities with limited resources. Specifically, the objectives include the followings: 1. Collect bicycle data (facility data and field data) from different sources to construct a bicycle network in a geographical information system (GIS) framework. 2. Develop a multi-criteria bicycle traffic assignment model for estimating bicycle volumes on a transportation network. 3. Develop a bicycle origin-destination matrix estimation for estimating bicycle demand in a small community. 4. Conduct a case study using a community in Utah.
Describe Implementation of Research Outcomes (or why not implemented) Place Any Photos Here	

Impacts/Benefits of Implementation (actual, not anticipated)	

Web Links
   • Reports
   • Project Website	