

10th International Conference on Transport Survey Methods

## Workshop synthesis: Built environment and contextual variables

Kelly Clifton <sup>a,\*</sup> and Pascal Perez <sup>b</sup>

<sup>a</sup>Portland State University, PO Box 751-CEE, Portland, Oregon, United States

<sup>b</sup>SMART Infrastructure Facility, University of Wollongong, Wollongong, NSW, Australia

---

### Abstract

This two-day workshop focused on the important issue of how to define, convey and understand the built environment context as it relates to transport decisions. The field has grown tremendously over the last few decades, fueled in part by the increasing availability of archived spatial data about the environment and geo-referencing activity and travel patterns. But there are persistent issues particularly with inconsistencies in data format or availability across locations that hamper efforts to advance our understanding across regions. Further, there are new challenges in how we communicate context to survey respondents, particularly in stated preference surveys. Much of the workshop was devoted to these issues and the new opportunities that exist with mixed methods and new innovative approaches for engaging respondents in our surveys.

© 2015 Published by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Peer-review under responsibility of International Steering Committee for Transport Survey Conferences ISCTSC

*Keywords:*

---

### 1. Introduction & Scope

With several decades of contributions, the study of the links between the built environment and various aspects of travel is now an established and mature area of research. While there are questions about the magnitude and specificity of effects, it is generally accepted that there exists an association between the built environment and travel choices. The literature is substantial and there are several comprehensive reviews (Badoe and Miller 2000; Ewing and Cervero 2010; Handy 2006). Despite the significant work in this area, the emergence of new research questions continually places demands for new data and information. Moreover, the growing attention of urban and transport planning to accessibility and walkability criteria encourages methodological cross-overs between transport, quality of life and residential mobility surveys. This workshop focused on how to represent various aspects of the built environment, either real or perceived, and other contextual variables that affect transport related choices (mode, route, location) in a variety of surveys. To support this discussion and provide some specific

research applications, the workshop relied upon four papers and two posters that addressed some aspect of our theme:

- Hurtubia and Donoso (paper): “Measuring perception of qualitative attributes in urban space,”
- Bonet, Greene and Dios Ortuzar (paper): “Valuation of heritage neighbourhood attributes from the perspective of their inhabitants,”
- Beck, Hess and Dumont (paper): “It’s a lovely day for a walk: pedestrian route choice with realism,”
- Erath, van Eggermond and Axhausen (paper): “Evaluating novel and traditional survey methods for the construction of a behavioural founded walkability index.”
- Simecek (poster): “Human path assignation at maps: discrete choice model of visual attributes of alternatives,” and
- Manz, Kagerbauer and Streit (poster): “Weather conditions influencing mode choice – on measuring loyalty and predicting alternatives.”

These research papers considered a range of ways to represent context within a number of different methodological approaches and transport outcomes considered. Building upon this background material, the workshop explored various theoretical and methodological aspects, the highlights of which are summarized in the following sections.

## **2. Background**

Although time constraints prevented workshop’s participants to exhaustively explore the state-of-practice of representing the built environment in studies of travel behaviour, we found it useful to first provide them with some background information. The development of geographic information systems (GIS) has transformed our ability to include various archived spatial information into our analyses of travel behaviour (Miller and Shaw 2001). There is also an increasing variety of built environment data at a fine-grained spatial scale available (Clifton et al. 2008; Bennenson et al. 2010). As access to these spatially archived data has increased, the methodologies for a consistent and comparable set of built environment measures across locations have been developed and refined (Forsyth 2010).

From these measures of the built environment, many of the most important attributes have been identified and operationalized in statistical or simulation models and used to establish associations with various travel outcomes, such as vehicle miles travelled, automobile trips, transit use and vehicle ownership (Cervero and Kockelman 1997, Transportation Research Board 2009). At the same time, travel surveys have improved their ability to capture non-motorized travel modes, providing the ability to extend the study of these relationships beyond the use of motorized modes (e.g. Forsyth and Krizek 2011; Rodriguez and Joo 2004). Global positioning systems (GPS), associated with mobile technologies, have permitted the incorporation of more detailed disaggregate location information about the traveller and his/her routes, destinations and durations (Shen and Stopher 2014; Abedi et al, 2014; Wolf 2006).

More recently, studies on travel behaviour have found overlapping interests with other disciplines, leading to interdisciplinary collaborations and the interjection of new theories, methods and data. Motivated by a concern over the obesity epidemic in the United States and elsewhere, the health fields were interested in the role of physical activity, including the use of active transportation modes, in contributing to positive health outcomes (Handy et al 2002). This research led to an increasing interest in how the built environment can support or detract from walking and cycling. This interdisciplinary agenda helped shape the types of transportation data collected and emphasized the built and natural environment (Badland et al. 2014, Brownson et al 2009; Ewing et al 2006; Ewing and Handy 2009). For example, travel diaries started including “loop trip” or recreational trips by walking or cycling where the trip itself is the activity. Travel surveys have paid more attention to access and egress modes in order to capture non-motorized activity (Clifton and Muhs 2012, Giles-Corti and Donovan 2002, Giles-Corti et al. 2005).

There is also an intersection with the psychology field, as the role of attitudes and perceptions in shaping behaviour and behavioural change have moved to the forefront (Garling and Golledge 1989). Here, surveys have been adapted to collect information on respondents’ subjective assessments of the environment and their attitudes. These constructs have been tested in statistical models along with and in lieu of and along with objective built

Download English Version:

<https://daneshyari.com/en/article/1106798>

Download Persian Version:

<https://daneshyari.com/article/1106798>

[Daneshyari.com](https://daneshyari.com)