

**Minutes of the
Emerging Methods and Developments in Urban Activity
and Travel Analysis (A1C02(1)) Subcommittee Meeting**

Subcommittee of the Passenger Travel Demand Forecasting (A1C02) Committee

January 15, 2002, 1:30 p.m.

81st Annual Meeting of the Transportation Research Board
Hilton Washington Hotel and Towers, Edison Room
Washington, D.C.

1. Copies of the meeting agenda were distributed to the attendees. A copy of the agenda is attached.
2. Introductions: All of the attendees introduced themselves. A total of 22 individuals were in attendance with 10 from academia, 8 from consulting agencies, and 4 from local, regional, state, and federal transportation agencies.
3. Activities at 2002 Annual Meeting: Subcommittee Chair, Chandra Bhat, reported that the subcommittee placed two calls for papers for the 2002 TRB Annual Meeting on the following topics: 1) applications of mixed logit models in activity-travel demand analysis 2) spatial analysis methods in urban activity and travel demand modeling. The subcommittee received 8 papers in response to the first call, of which four were accepted for presentation. None of the three papers received in response to the second call were accepted for presentation. The subcommittee sponsored one session based on the papers accepted under the first call: Session 164: Flexible Discrete Choice Models: Specification, Estimation, and Application, on Monday, Jan. 14, 2002, between 10:15-12:00 a.m. This session was well attended with about 60 attendees.
4. Subcommittee Focus and Leadership: As noted in the minutes of 2001 meeting of the subcommittee, the chair recognized that with increasing submissions to activity and time-use sessions, activity models are becoming more mainstream and there is a need for the emerging applications and insights to be transferred under the domain of the parent committee of passenger travel demand forecasting. The chair noted that this shift in focus will enable the A1C02(1) subcommittee to focus on stimulating emerging methodological developments in activity and travel demand analysis. Eric Miller indicated the possible overlap between the research focus of this committee and the activity and time use subcommittee A1C04(1), and noted that there was a need for suitable coordination. There was a general consensus that it would be beneficial for this subcommittee to specifically focus and foster innovations on emerging methods and methodological issues in activity and travel analysis. Accordingly, following a brief discussion initiated by John Bowman, a name change of the subcommittee to “Emerging Methods” was approved unanimously. Chandra Bhat will follow up with Kim for this name change.

Subcommittee chair, Chandra Bhat, announced his intention to step down from the subcommittee chairmanship. He reported that, after deliberations with several committee and subcommittee members, he had invited Joan Walker from Caliper Corporation and Karthik Srinivasan from Vanderbilt University to serve as co-chairs of the subcommittee. He indicated that Joan Walker has conducted research on specification and estimation of mixed logit models, and Karthik Srinivasan's research has focused on dynamic models of user decisions under real-time information. The chair will inform Kim Fisher about this change in subcommittee leadership.

5. Discussions of Emerging Topics: Frank Koppelman initiated discussion on the issue of open-form and closed form discrete choice models and their development as parallel and separate streams. Chandra Bhat discussed the potential to investigate models such as mixed generalized nested logit models. With increasing availability of flexible model structures, Frank Koppelman mentioned the need to recognize the limits of unobserved identification and to investigate forecasting errors in the context of generalized error and model structures. Specifically, it was felt that research towards developing guidelines and procedures for identifying various open and closed-form models for various demand forecasting applications would be useful. Mark Bradley pointed out the need to investigate sampling and sub-sampling issues in the context of mixed logit models. Eric Miller observed the need for further research into methodologies and models for choice from very large choice sets, (in addition to the choice set generation models currently in use), particularly in the context of activity related models.

With regard to activity data issues, Keith Lawton mentioned that there is a widespread reluctance among MPO's in collecting in-home activity data. Mark Bradley mentioned the need to investigate transferability of activity-based models to reduce sample size requirements for activity-based models. Bruce Spear observed that certain dimensions of travel behavior have received very limited attention, including timing of trips and peaking characteristics/peak spreading.

In addition, several discussants mentioned the need for developments in alternative (to the utility-based and choice based paradigm) modeling approaches such as rule-based approaches, fuzzy logic, neural networks, duration models, machine learning methods etc.

Eric Miller identified the need to integrate dynamic models of activity/travel with panel data, microsimulation and traffic assignment frameworks to support planning applications. The limitations of time-dependent O-D data currently available for this purpose were noted by Frank Koppelman. Paul Waddell suggested expanding the context of analysis from static choice modeling to a dynamic choice set generation and evolution process. Specifically, he proposed research into choice set formation processes and interrelationships for housing search, job search, and route search and their evolution. With regard to disaggregation errors in activity models, Mark Bradley indicated that there was a need to examine and dispel mis-perception among practitioners that input errors at a disaggregate level ('somehow') translate into more inaccurate models at the level of planning forecasts.

This discussion on emerging topics formed the basis for discussion on call for papers for 2003, noted below.

6. Plans for 2002: Plans for the upcoming year include re-emphasizing the focus of the subcommittee on emerging methodological developments. Three specific topics were discussed: a) collaboration with other subcommittees b) workshops and calls for papers for TRB 2003, and c) summer workshop on activity-based demand analysis and forecasting.

The subcommittee discussed the need for collaboration with other committees and subcommittees. The subcommittee chair of A5011, Mohammed Qureshi, indicated that a significant number of emerging models were being applied in safety applications, with a potential for joint call for papers for the next year. Peter Stopher suggested that the emerging methodological developments should be coordinated with advances in survey methods, including GPS survey data. Several attendees noted that with increasing focus on dynamics and use of microsimulation techniques, it would also be desirable for the subcommittee to collaborate with the networks committee (A1C05) particularly in the context of dynamic activity-based traffic assignment.

Based on the discussion of emerging topics, calls for papers in the following areas will be considered for TRB 2003:

- 1) Investigation of identification issues, applicability (domain application), inter-relationship, and differences between closed-form and open-form discrete choice models
- 2) Models of dynamic choices and processes
- 3) Emerging methods and their applications in transportation safety analysis
- 4) Methods for analysis of GPS-based activity diary data
- 5) Applications and methods for microsimulation-based forecasting and modeling (including issues of disaggregation and reaggregation)

The incoming co-chairs will coordinate in drafting calls for papers for TRB 2003 based on these areas. Specifically, Paul Waddell has volunteered to draft a statement on dynamic choices and processes. The new committee co-chairs will work with Peter Stopher to draft a statement on use of GPS-based data (Peter Stopher will coordinate with the Survey Methods Committee for a joint call). The committee co-chairs will also coordinate with other members for calls on other topics. Chandra Bhat emphasized the need to keep the calls reasonably focused and suggested that the subcommittee place about 2 calls per year.

It was felt by several committee members that since the papers were due in August, it would be desirable to issue the call for papers in the March-April timeframe, rather than during May. As a result, the call for papers this year will be earlier than in previous years.

A possible workshop on activity-based demand analysis and applications to be conducted jointly by A1C02 (passenger travel demand forecasting) and A1C04 (traveler behavior

and values) was also discussed. Tom Rossi noted that the workshop must clearly highlight the benefits of activity-based modeling and methodological advances. Specifically, that there is a need to convince practitioners that the advanced methods are not only doable but are also worth doing. Frank Koppelman indicated that convergence in terms of accepted conventions and terminology, and further experience, is needed prior to fully translating the activity-based methods fully into practice. Therefore, there was a perceived need for a separate workshop/meeting of the research community to proceed in this direction independently of the practitioner's workshop.

The chair, Chandra Bhat, summarized the consensus of this discussion as follows: The main purpose of the conference is to inform MPO's about emerging methods in activity-travel analysis. It is important to carefully articulate what the conference is about, and it should be reflected in the conference title/session name. It is essential to showcase planning applications and highlight the advantages of these methods explicitly. This subcommittee will coordinate with the planning applications committee and the travel behavior and values committee to possibly co-sponsor this workshop session at the planning methods and applications conference in 2003.

7. Conference Reports/News: Peter Stopher gave a brief report on a conference on Survey Methods Innovation and Quality conducted in Kreuger Park, South Africa in August 2001. He reported that the conference was well attended and consisted of fourteen parallel workshops. The proceedings of the conference are expected to be published by Elsevier press by the end of 2002. Upcoming conferences of interest include the Survey Methods conference in 2004, whose location is as yet undetermined.
8. Eric Pas Dissertation Prize: Chandra Bhat announced that the deadline for nominating dissertations for the Eric Pas dissertation Prize (for year 2001) was March 1st 2002, and invited the faculty to submit their students dissertation. He also noted that the 2000 Eric Pas Prize was awarded to Karthik Srinivasan from The University of Texas at Austin. Jonas Eliasson, who completed his Ph.D. from Kungl Tekniska Högskolan (Royal Institute of Technology), received an honorable mention.
9. There were no other discussions, so the meeting was adjourned.

Minutes prepared by: Karthik Srinivasan

AGENDA

2002 TRB Annual Meeting

Emerging Methods and Developments in Urban Activity and Travel Analysis
Subcommittee of the Passenger Travel Demand Forecasting (A1C02) Committee
January 15th, Tuesday, 1:30 p.m.- 3:15 p.m. at the Hilton, Edison Room

1. Introductions
2. 2002 TRB Meeting Activities (Calls for Papers, Sessions)
3. Subcommittee Focus and Leadership
4. Discussion of Emerging Methodological Developments (Open Discussion)
5. 2002 Plans (Based on Above Discussion)
 - Collaboration with Other TRB Committees/Subcommittees
 - Summer Workshops/Sessions?
 - Workshops/Calls for Papers for TRB 2003
6. Conference Reports/News
7. Other Business
8. Adjournment

A1C02(1) Business Meeting
January 15, 2002
81st Annual TRB Meeting, Washington, D.C.

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