

Transportation Research Board

AHB45 - MINUTES

Committee on Traffic Flow Theory and Characteristics

Tuesday, January 12, 2010, 3:45pm – 5:30pm
Marriott Hotel, Washington B5
Washington, D.C.

1. Welcome and Call to Order

R.L. Bertini

Chair Robert Bertini called the committee to order at 3:45 p.m.

2. Introductions – Members & Friends

All Attendees

Committee members and friends introduced themselves. A total of 79 members and friends were in attendance.


3. Review and Approval of Minutes

R.L. Bertini

It was moved, seconded and passed unanimously to approve the minutes of the Committee Meeting of January 13, 2009. Minutes are available on the committee website (www.tft.pdx.edu)


Robert Bertini welcomed two new members to the Committee, Vincenzo Punzo of the Università di Napoli, and Jorge Laval of Georgia Institute of Technology. Total membership of 33 includes (25) + (5 International) + (2 Young) + (1 Emeritus).

Robert Bertini recognized former Chair, Nathan Gartner in his new TRB-emeritus status, which began January 1, 2010. He has been an active member for 34 years since 1975 and Chair for 9 years. His many contributions are greatly appreciated. Under Chair Gartner, there have been more than 450 papers processed, 300 presentations and 150 publications sponsored by our Committee. He has also authored 23 TRB publications.



Congratulations Nate!

- Nathan Gartner named first TFT Committee Emeritus Member effective January 1, 2010
- Member for 34 years
- Chair for 9 years
- Processed over 450 papers, for 300 presentations and 150 publications
- Authored 23 TRB publications




4. Chair's Report

R.L. Bertini

Chair Robert Bertini provided his report to the committee.

- Revised 2001 Monograph: 26 sold, 138 downloaded
- Newell monographs now online
- Paper review history is also now online. It goes back to 2001.
- Thank you to reviewers. Special thanks to 3 reviewers who reviewed 6 papers each and 2 reviewers who reviewed 34 papers each.
- Announcements
 - Website News Items (RSS) is a new feature available to all members and friends.
 - TRB is now on Twitter (TRBofNA) – Chair Bertini asked if this was something for TFT.
 - TFT is now on Facebook with 98 Fans, but there have been no posts. Chair Bertini requested the committee members to please post.
 - Google Group is also a possible social networking tool.
 - We need a member volunteer to be our Communication Liaison to TRB.
- The Greenshields Symposium Transportation Research Circular is now complete and coming soon.
- The TRB 2011 Annual Meeting theme will likely be Transportation, Livability and Economic Development in a Changing World.
- Discussion occurred about our Committee's interest in joint subcommittees with the Operations Group. Possible joint subcommittees include the following topics:
 - Positive Protection in Work Zones
 - Active Traffic Management
 - Managed Lanes
 - Intersections
- The Transportation Network Modeling Committee is joining the SimSub sponsorship.

**Chair Report**

- Revised 2001 Monograph: 26 sold, 138 downloaded
- Newell monographs now online
- Paper review history now online (back to 2001)
- *Thanks* to 3 reviewers who reviewed 6 papers for TFT
- *THANKS* to 2 TFT committee members who each reviewed 34 papers!
- Communications
 - Website News Items (RSS)
 - TRB on Twitter (TRBofNA) – something for TFT?
 - TFT Facebook Page: 98 fans, will we use it?
 - Google Group?
 - Communications Liaison to TRB (**volunteer?**)

**Chair Report**

- Greenshields Symposium Transportation Research Circular complete and coming soon!
- TRB 2011 Theme: Transportation, Livability and Economic Development in a Changing World
- Joint Subcommittees in Operations Group (AHB45 interest?):
 - Positive Protection in Work Zones
 - Active Traffic Management
 - Managed Lanes
 - Intersections
- Transportation Network Modeling joining SimSub sponsorship

5a. TRB Report

R. Cunard was absent – R.L. Bertini reported

This year, there were 3,694 (last year 3400) papers submitted to TRB and to cover this, there were 15,000 reviews completed, 3 to 5 reviews per paper. The review process was the smoothest ever, due to the pre-conversion to pdf and line number assignment process.

A total of 2190 papers or 59% of the papers submitted were accepted for presentation. Of those papers accepted, 43% were presented in lectern sessions, 56% were presented in poster sessions and 1% in meeting sessions. Lectern sessions were down from 53% in 2006 to 43%. There was a total of 382 lectern sessions, 134 poster sessions, 99 workshops, 444 committee meetings and more than 500

other meetings. There were 1750 invited presentations, 3100 total speakers and 1700 total agencies/organizations and more than 10,000 attendees. “Bold ideas to meet big challenges” were addressed in 65 of the sessions and workshops.

The TRB DVD has 95% of the papers presented. All PowerPoint presentations are also being collected and made available to State DOT employees and TRB year-round sponsors. In addition, more than 50 sessions were e-recorded (video, audio + PPT) and made available to State DOT employees and TRB year-round sponsors. Finally, the online interactive program had the ability to view papers in advance this year.

TRB has further focused on webinars this past year using GoToMeeting. TRB is also encouraging committee website development and internet communications. The TFT Committee is encouraged to have a Communications communication and to consider trying a webinar. Chair Bertini asked for feedback. Committee members nodded heads and agreed that webinars are a good idea. Further discussion followed.

ACTION: Mohammed Hadi and Michael Mahut volunteered to work on this initiative during the coming year. Several ideas were discussed including placing 3 to 4 presentations of the best TFT papers on a webinar or possibly placing an award winning paper on a webinar.

TRB has set up a task force to study the benefits of research. TRB is seeking a one page write-up. Visit the site <http://www.trb.org/trb/publications/rpo.asp>. “Transportation organizations recognize the importance of research, and public agencies are no exception; however, research is one of many competing activities in an agency's budget. To properly assess the value of research, decision makers must understand the potential for longer-term rewards; therefore, there is a need to demonstrate, continually, the benefits of research. Research Pays Off (RPO) articles appear in most issues of TRB's bimonthly magazine, TR News. RPO articles highlight research results that provide innovative, cost-effective solutions to important transportation-related problems. The range of these solutions is multimodal and broad. [Information on submitting a RPO article for consideration for publication](#) in a future issue of the TR News is available online.

This year, “New Attendees” have ribbons on their badges. Chair Bertini encouraged committee members to please welcome the new attendees and encourage them to continue attending future TRB meetings.

Chair Bertini asked for discussion from committee members on the TRB report.

- Christine Buisson mentioned that the listing of authors and the corresponding sessions was regrettably missing from the Program book. Marguerite Zarrillo agreed that this was an inconvenient loss.
- Robert Bertini mentioned that the day of the week should not be missing along with dates.
- Jorge Laval would prefer that the presentations made available to all for free.
- Robert Bertini noted that there is a means of accessing the presentations at a small fee.



TRB Report

- More than 3700 papers received (>3400 last year)
- ~10,000 attendees
- Smoothest submission process (pre-converted to PDF & line nos.)
- 15,000 reviews (3–5 per paper)
- 2100 papers on DVD (>95%)
- 65 sessions and workshops address BOLD Ideas to Meet Big Challenges
- Major reduction in function rooms (17% fewer lectern sessions, 56% of papers in poster sessions)
- Please welcome, encourage and talk to “New Attendees” (ribbons)



TRB Report

- Encouraging mentors for new and young committee volunteers
- All PowerPoint presentations are being collected, available to State DOT employees and TRB year-round sponsors
- 50+ sessions are being e-recorded (video, audio + PPT), available to State DOT employees and TRB year-round sponsors
- TRB focus on webinars (GoToMeeting), websites, communications
 - We need communications coordinator
 - Do we want to try a webinar?



TRB Report

- Research Pays Off
 - Seeking 1 page write-up on benefits of research
 - www.trb.org/trb/publications/rpo.asp
- Online interactive program with ability to view papers in advance



TRB Report

Paper Submissions	2006	2007	2008	2009	2010
Total Number	2862	3070	2847	3384	3694
Total Presented	1688 (59%)	1849 (60%)	1759 (62%)	1882 (56%)	2190 (59%)
Papers in Lectern Session	888 (53%)	935 (51%)	867 (49%)	900 (48%)	921 (43%)
Papers in Poster Session	728 (43%)	752 (41%)	861 (49%)	952 (51%)	1232 (56%)
Papers in Meeting	21 (1%)	34 (2%)	31 (2%)	28 (2%)	20 (1%)
Other Papers	2 (0.1%)	5 (0.2%)	0	2 (0.1%)	17 (0.8%)
Invited Presentations					1750
Total Speakers					3100
Total Agencies/Organizations					1700

Sessions, Workshops, and Meetings	2004	2005	2006	2007	2008	2009	2010
Lectern Sessions	498	470	469	455	452	461	382
Poster Sessions	46	65	88	134	112	132	134
Workshops	62	62	73	79	86	89	99
Committee Meetings				425	442	424	444
Other Meetings							500+
Total Meetings							>1500

The Committee discussed the citation impact factor of the Transportation Research Record (TRR); there has been a decrease from 2007-2008, with the impact in 2008 at 0.26, now 21st rather than 23rd out of 26 journals.

- It was noted that TRR has many more articles per year than other journals.
- Nikolas Geroliminis mentioned that University Deans and Department Chairs require publications with high citation factors.
- Mohammed Hadi notes improvements in the impact factor in recent years; the impact factor for TRR was 0.09 a few years ago.
- It was suggested that the journal percent acceptance rate could be used instead of the citation impact factor.
- It was also suggested that we cite each other more.



TRR Citation Impact Factor

2008 Rank	Title	2008				2007				2006		
		Cites	Impact	5YI	Articles	Cites	Impact	5YI	Articles	Cites	Impact	Articles
1	IEEE T INTELL TRANSP	971	2.84	3.30	60	438	1.69	1.94	60	327	1.43	49
2	TRANSPORTMETRICA	61	2.04	1.62	14	27	0.96	0.96	12	25	1.57	11
3	TRANSPORT RES B-METH	2306	1.87	2.59	56	1801	1.95	2.55	67	1555	1.76	52
4	TRANSPORT RES A-POL	1558	1.83	2.38	97	1136	1.35	1.56	68	946	1.63	57
5	TRANSPORTATION	742	1.77	2.11	45	580	1.24	1.81	39	426	0.85	34
6	TRANSPORT SCI	2068	1.53	2.82	36	1613	1.43	2.10	35	1242	1.27	38
7	IEEE T VEH TECHNOL	6060	1.31	2.24	363	3252	1.19	1.41	368	2783	1.07	174
8	TRANSPORT RES E-LOG	735	1.27	2.47	71	350	1.00	1.39	47	266	0.64	27
9	J ADV TRANSPORT	166	1.21	0.88	20	105	0.56	0.43	13	102	0.73	16
10	TRANSPORT RES D-TR E	592	1.12	1.45	58	490	1.32	1.46	54	288	0.90	39
11	TRANSPORT RES C-EMER	705	1.08	1.88	44	562	0.88	1.75	24	462	0.77	25
12	J INTELL TRANSPORT S	60	1.03		17							
13	NETW SPAT ECON	147	0.72		24	126	0.51		20	73	0.49	19
14	J TRANSP ENG-ASCE	903	0.67	0.78	57	750	0.50	0.66	80	611	0.41	108
15	INT J AUTOMOT TECHN	239	0.52	0.57	90	202	0.48		90	174	0.78	110
16	P I MECH ENG F-J RAI	211	0.41	0.61	37	126	0.22	0.41	46	124	0.33	35
17	INT J VEHICLE DES	489	0.39	0.61	58	335	0.18	0.35	69	304	0.20	62
18	IET INTELL TRANSP SY	15	0.37	0.37	33							
19	P I MECH ENG D-J AUT	643	0.34	0.51	181	442	0.28	0.44	130	348	0.25	142
20	TRANSPORT PLAN TECHN	120	0.29	0.52	32	61	0.11	0.27	32	49	0.16	24
21	TRANSPORT RES REC	4108	0.26		703	3710	0.21		755			
22	INT J HEAVY VEH SYST	31	0.21		22	23	0.00	0.28	0	12	0.35	20
23	P I CIVIL ENG-TRANSP	44	0.14	0.25	25	35	0.11	0.14	21	40	0.13	23

5b. TRB Strategic Plan

- Identify and address emerging critical and cross-cutting issues
- Increase the involvement of key constituencies and groups
- Identify research needs, monitor ongoing research, and ensure the effective sharing of research results
- Optimize the effectiveness and value of the TRB annual meeting and conferences
- Ensure the quality, stature, accessibility and usefulness of TRB publications and products
- Take maximum advantage of new technologies, communications, and information innovations
- Ensure the effectiveness of standing committees and recognize research leadership
- http://onlinepubs.trb.org/onlinepubs/general/trb_strategic_plan.pdf

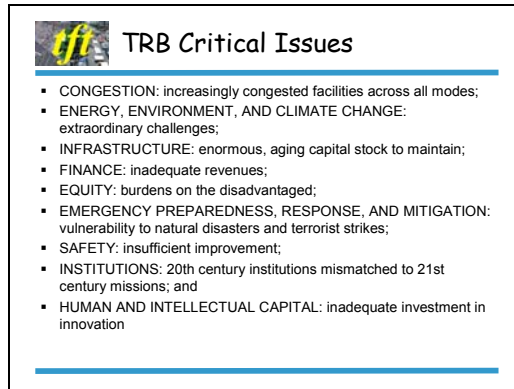


TRB Strategic Plan

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5c. TRB Critical Issues

- CONGESTION: increasingly congested facilities across all modes;
- ENERGY, ENVIRONMENT, AND CLIMATE CHANGE: extraordinary challenges;
- INFRASTRUCTURE: enormous, aging capital stock to maintain;
- FINANCE: inadequate revenues;
- EQUITY: burdens on the disadvantaged;
- EMERGENCY PREPAREDNESS, RESPONSE, AND MITIGATION: vulnerability to natural disasters and terrorist strikes;
- SAFETY: insufficient improvement;
- INSTITUTIONS: 20th century institutions mismatched to 21st century missions; and
- HUMAN AND INTELLECTUAL CAPITAL: inadequate investment in innovation



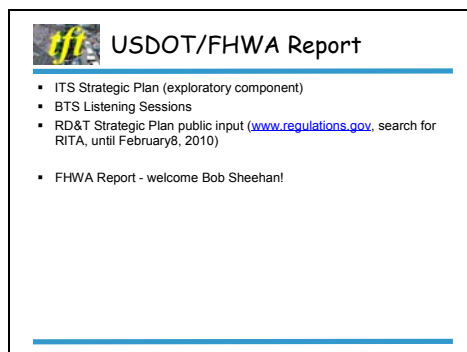
6. USDOT/FHWA Report

R. Bertini and Bob Sheehan

- ITS Strategic Plan (exploratory component)
- BTS Listening Sessions; give your card to Robert Bertini if you are interested.
- RD&T Strategic Plan public input (www.regulations.gov, search for RITA, until February 8, 2010). It needs much work; it is not really a strategic plan nor even a plan.
- FHWA Report - welcome Bob Sheehan!

Bob Sheehan presented a summary of FHWA programs and activities.

- The Traffic Analysis Toolbox (see <http://ops.fhwa.dot.gov/trafficanalysisitools/toolbox.htm>) is continuing to expand.
- Robert Bertini asked for comments on this report from the audience. TTT wants to work more closely with FHWA so that our expertise can continue to improve tools and expand knowledge.



Bob Sheehan Notes: FHWA Report on Traffic Analysis

FHWA sponsors various independent research projects that support improved transportation operations analysis by developing new traffic analysis and simulation tools and improving the analytical foundation of existing tools, and by developing and disseminating a combination of outreach, training, and guidance documents. The outcome of the FHWA efforts will ensure that transportation agencies have operational practices in place to make investment decisions based on the most current, relevant, and trusted analytical procedures, and transportation practitioners are effectively and efficiently evaluating, designing and managing their systems to maximize both mobility and safety.

1 TRAFFIC ANALYSIS TOOLBOX SERIES

The Traffic Analysis Toolbox is a collection of traffic analysis guidance documents that have been developed to present a high-level overview of the different types of traffic analysis tools.

- Volume I: Traffic Analysis Tools Primer
- Volume II: Decision Support Methodology for Selecting Traffic Analysis Tools
- Volume III: Guidelines for Applying Traffic Microsimulation Modeling Software
- Volumes IV: Guidelines for Applying CORSIM Microsimulation
- Volume V: Traffic Analysis Tools Case Studies: Benefits and Best Practices
- Volume VI: Definition, Interpretation, and Calculation of Traffic Analysis Tools Measures of Effectiveness
- Volume VII: Predicting Performance with Traffic Analysis Tools
- Volume VIII: Workzone Modeling and Simulation – A Guide for Decision-Makers
- Volume IX: Workzone Modeling and Simulation – A Guide for Analysts

The objective of the nine-volume toolbox is to provide assistance to traffic engineers and traffic operations professionals in the selection of the appropriate traffic analysis tool for operational improvements, provide assistance in creating analytical consistency and uniformity across federal, state and local agencies, and consultants, and provide practitioners with guidance on the appropriate application of microscopic traffic simulation models.

This toolbox is intended to provide middle managers and technical staff resource material (e.g., guidance documents, manuals, program descriptions, case studies and best practices, etc.) to assist them in designing, optimizing, evaluating and gauging the performance of their transportation facilities.

As traffic analysis tools program initiatives and products are completed and are ready to be made available to the transportation community, they will be made part of the toolbox. Traffic decision-makers and professionals that are unable to participate in the training program can use the toolbox. In addition, the toolbox will be a useful source of information for those individuals that have completed the training program and wish to augment their traffic analysis technical skills or to instruct others in their organizations.

All five volumes of the Traffic Analysis Toolbox may be viewed and downloaded at

2 HCM TRAINING COURSE

FHWA has secured some funds to Update the HCM Training Course. Two possible options are:

1. Update the existing NHI course
2. Works with McTrans (they are already updating their course to reflect the HCM2010) to convert the course to online and possibly a blended online/instructor-led

3 HCM CHAPTER ON ACTIVE TRAFFIC MANAGEMENT

This chapter (a placeholder for the HCM2010) is intended to provide recommended methodologies and measures of effectiveness for evaluating the impacts of ATM strategies on highway and street system demand, capacity, and performance. However, at this point in time available information on the performance of ATM strategies has not matured sufficiently to enable the development and presentation of specific recommended analysis methodologies. Consequently, this first generation of this chapter limits itself to the description of ATM strategies, a discussion of the mechanisms by which they affect demand, capacity, and performance, and general guidance on possible evaluation methods for ATM techniques.

A contract to perform research to develop the methods to evaluate the strategies that will be incorporated into the HCM has been awarded and underway.

4 UPDATE OF TRAFFIC ANALYSIS TOOLS WORKSHOP MATERIAL

FHWA is working with Noblis to update the Workshop material that will be turned into NHI Course. The Walk-through is scheduled for this week

5. Promote general models for planners to incorporate Operations into the planning process.

This is being accomplished through the Traffic Analysis Workshops/webinars being held. In addition this will be accomplished in upcoming workshops in Q4 and 2010 that will showcase innovative techniques that can be utilized for analyzing operations in the planning process.

6. Promote online IDAS NHI course

This is being accomplished through the Traffic Analysis Workshops/webinars being held, as well as the IDAS support contract with Workshops and NHI. The pilot was held in December 2008. Additional TAT and IDAS technical assistance workshops will be provided as requested for remainder of FY 2009.

7. Traffic Analysis Tools Pooled Fund Study, “Traffic Analysis Tools Consistency:

Recommended Practice” – a \$285K effort

8. Traffic Analysis Tools Pooled Fund Study, “Guidance on the level of effort required to conduct traffic analysis” – Proposals were evaluated and a contractor was recommended but contract not yet awarded

9. Tools for HOV to HOT Benefits Analysis: Assessment of Analysis Tools for HOV and HOT Lanes Analysis.

5 NEXT GENERATION SIMULATION (NGSIM)

The goals of this multi-million, multi-year project are:

- Improve the quality, trust and use of simulation tools
- Foster an environment of public-private cooperation
- Influence and stimulate the commercial modeling market

The objectives of NGSIM are to:

- Develop a core of driver behavior algorithms
 - Open source for free public use
 - Supporting documentation
- Collect new data sets to support algorithm development and validation

The current NGSIM products include:

- Vehicle trajectory data sets collected on freeways and arterials consisting of:
 - Eight hours of video using eight synchronized cameras
 - Vehicle positions every 0.1sec intervals
- NGSIM vehicle detection/tracking software to process video images
- Driver behavior algorithms, including:
 - Freeway lane selection with a target lane concept
 - Cooperative/forced merge
 - Oversaturated freeway flow
 - Arterial lane selection

All NGSIM products are freely available at <http://ngsim.fhwa.dot.gov/>.

7. Subcommittee Work

R.L. Bertini

Chair Bertini notes his philosophy for administrating the TFT workload and would like to delegate more of the work to subcommittees. The Chair will need help with the following:

- A volunteer is needed to lead the strategic plan task force coming in 2011.
- Younger members need to think about future communication methods.
- Mohammed Hadi needs help with problem statements.
- Members need to construct a list of topics for next TRB 2011 sessions and call for papers.

- The Paper Review Report is online. There were 4 lectern sessions sponsored by TFT and 2 poster sessions. There were 101 papers submitted which led to 441 reviews, with approximately 4 reviews per paper. Of the 101 papers, 13 were submitted for presentation-only, 4 for publication-only and 84 for both presentation and publication. Of the 97 papers submitted for presentation, 20 were presented in lectern sessions and 40 in poster sessions. Of the 88 papers submitted for publication, 0 were accepted, 31 are to be determined. Thanks went to Hani Mahmassani, Sue Ahn, Nikolas Geroliminis, Tomer Toledo and Travis Waller. There are 189 TFT reviewers this year out of a pool of 282. It was noted that there was a huge jump in the number of papers from 2003 to 2004 since our first call for papers. This has been sustained. There are an impressive 341 friends on the email list.

Annual Meeting	2010	2009	2008	2007	2006	2005	2004	2003	2002	2001
Papers Received	101	92	82	88	70	69	60	40	42	25
Presentation only	13	7	9	7	3					
Publication only	4	2	2	5	2				3	
Present and publish	84	73	77	88	64					
Submitted for Presentation	97	87	81	86	70	67	75	40	39	
Lectern Sessions	4	4	4	4	4	4	4	4	4	
Lectern Papers	20	20	20	20	20	20	19	19		
Poster Sessions	2	2	2	2	2	2	0	0		
Poster Papers	40	39	33	39	32	25	30	0		
Subtotal	80	59	53	59	52	45	52	19		
Percent Accepted	62%	68%	65%	69%	74%	67%	69%	48%		
Rejected	37	20	20	27	18	22	23	21		
Submitted for Publication	00	70	70	79	60	66	71	40		
Accepted	0	1	1	1	1	1	1	1		
Revise and re-review	0	14	19	10	15		20	15		
To be determined	31	29	18	29	21		16			
Subtotal	31	43	38	45	36	42	40	15		
Publication Slots	-25	-23	-21	-22	-17	-21	-24	-12		
Acceptance Rate	28%	29%	28%	28%	27%	30%	30%	30%		
Rejected	57	35	38	34	27	24	31	28		
Reviews										
Assigned	441	394	332		269	356	200			
Assigned/paper	4.4	4.3	4.0		3.9	4.5	5			
Received	394	360	316		248	317	120			
Received/paper	3.9	3.9	3.8		3.6	4.0	3			
Response rate	89%	90%	95%		92%	89%				
TFT Reviewers	189	190	140							
Number of Reviews	1-6									
Average	2.2									
TFT Reviewer Pool	282									
Number of Reviews	1-34									
Average	6.2									
Total Reviews	1500									
Friends Email List	343									

AHB45 Committee on Traffic Flow Theory and Characteristics

By the Numbers 2010

Paper Review & Sessions

- Committee Meeting: Traffic Flow Theory and Characteristics Committee, Marriott, Tuesday January 12, 2010, 3:45PM- 5:30PM
- Meeting: Traffic Simulation Models Joint Subcommittee of AHB45, AHB40, AHB25, AHB20, Marriott, Monday January 11, 2010, 7:30PM- 9:30PM
- Workshop 164: Modeling Congestion Pricing Impacts, Shoreham, Sunday January 10, 2010, 1:30PM-4:30PM
- Workshop 174: Doctoral Student Research in Transportation Modeling, Hilton, Sunday January 10, 2010, 1:30PM- 4:30PM
- Session (Lectern) 409: Traffic Flow Theory Applications, Marriott, Tuesday January 12, 2010, 8:00AM-9:45AM
- Session (Lectern) 452: Traffic Breakdown and Characteristics of Congested Traffic, Marriott, Tuesday January 12, 2010, 10:15AM- 12:00PM
- Session (Lectern) 560: Car-Following Behavior and Driver Heterogeneity, Marriott, Tuesday January 12, 2010, 7:30PM- 9:30PM
- Session (Poster) 627: Research in Traffic Flow Theory and Characteristics, Part 1: Measurement and Models, Marriott, Wednesday January 13, 2010, 9:30AM- 12:00PM
- Session (Poster) 628: Research in Traffic Flow Theory and Characteristics, Part 2: Simulation and Applications, Marriott, Wednesday January 13, 2010, 9:30AM- 12:00PM
- Session (Lectern) 676: Traffic Simulation Evaluation and Applications, Marriott, Wednesday January 13, 2010, 2:30PM- 4:00PM

8. 2010 Mid-Year Summer TFTC Committee Meeting

Christine Buisson

Does Traffic Data Support Traffic Models? will be held in Annecy, France, 7th to 9th of July, 2010. Note the website www.tft2010.inrets.fr. Annecy is 50 km away from Lake Genève, Switzerland. Eight papers presented at the meeting will be selected for publication in Transportation Research C. Late registration fees will be in place after June 15, 2010. Note that the abstracts are due March 15 2010. A show of hands indicated a large attendance from the TFTC committee members and friends.

Traffic Flow Theory and Characteristics Committee (AHB45)

SUMMER MEETING

of the Transportation Research Board

DOES TRAFFIC DATA SUPPORT TRAFFIC MODELS?

Anncyy, France,
7th-9th JULY 2010

GOALS OF THE CONFERENCE

Building on the success of the TRB Traffic Flow Theory Committee (TFTC) Summer Meeting and Greenfields Symposium held in Woods Hole, MA, USA in July 2008, the TFTC committee invites you to participate in its 2010 Summer Meeting and Conference. The theme of the conference will be: **Does traffic data support traffic models?**

All papers opposing, confronting, comparing data and models are welcome. Extended abstracts are due on **March 15, 2010** and will be peer-reviewed.

We are pleased to announce that eight papers will be selected for publication in a special issue of **Transportation Research Part C**.

COST ACTION'S WORKSHOP

This meeting is jointly organized by the European COST Action TU0903 "Methods and tools for supporting the use, calibration and validation of traffic simulation models". This workshop will take place in the evening July 6 and the morning of July 7 at the same location.

www.tft2010.inrets.fr

INTERNATIONAL ADVISORY COMMITTEE

- Prof. Jaume Barcelo – UPC Barcelona (SP)
- Prof. Robert Bertini – Washington DC and Portland University (OR-USA)
- Prof. Michel Bierlaire – EPFL Lausanne (CH)
- Prof. Michael Cassidy – UC Berkeley (CA-USA)
- Prof. Winnie Daamen – TU Delft (NL)
- Prof. Lily Elitheraidou – University of Florida (FL-USA)
- Prof. Nathan Gartner – University of Massachusetts Lowell (MA-USA)
- Prof. Benjamin Hejblacker – University College London (UK)
- Prof. Masao Kawahara – ITS Tokyo (JP)
- Prof. Hani Mahmassani – Northwestern University (IL-USA)
- Prof. Markos Papageorgiou – Technical University of Crete (GR)
- Prof. Vincenzo Punzo – University of Napoli (IT)

LOCAL ORGANIZING COMMITTEE LICIT-INRETS/ENTPE

- Christine Buisson
- Nicolas Chabaut
- Victor Knop
- Ludovic Leclercq

PAPER SELECTION PROCESS

Authors are requested to submit an extended abstract before 15 March 2010. The abstract should contain figures and references. The total length of the abstract must not exceed 4 pages. Papers will be selected on this basis for the conference. Full papers are due before the conference 7 July 2010.

Hereafter eight papers will be selected for the special issue of Transportation Research Part C through the regular reviewing process of this journal.

AREAS COVERED

Topic of the conference include, but are not limited to:


- New devices to collect more accurate data
- Data collection/storage/sharing
- The use of data to build new models
- Calibration and validation of traffic models (microscopic and macroscopic)
- Calibration and validation of network models
- Online applications (calibration, traffic prediction and analysis for traffic control, ...)
- Missing data
- Travel time estimation
- OD matrix estimation

VENUE

Anney is a city located along an alpine lake. Anney is 50 km from Geneva Airport and 150 from Lyon. The city is connected to the TGV high speed train network.


The summer meeting and conferences will be held in the Imperial Palace in Anney. The registration fee includes coffee breaks and lunches. The gala dinner will take place on a boat with a tour of the old city's canals and the lake.

A choice of hotels at various rates is provided on the web site.




REGISTRATION FEES

Registration	Regular	320 €
	Student	200 €
Late registration (after 06/15/10)		420 €
Gala dinner		60 €



IMPORTANT DATES

15 March 2010:	Submission of extended abstracts
15 May 2010:	Notification of acceptance
15 June 2010:	Closure of early bird registration
7 June 2010:	Submission of full papers
7-9 July 2010:	Summer meeting and conference of the TFTC committee



www.tft2010.inrets.fr

9. Joint Sub-Committee on Traffic Simulation Models

George List

Monday night's meeting on *Traffic Simulation Models Joint Subcommittee of AHB40, AHB25, AHB20 and AHB45* was well attended, 80+. The Network Modeling ADB30 would like to join the SimSub group of Committees.

The Workshop #164: *Modeling Congestion Pricing Impacts*, Shoreham, Sunday January 10, 2010, 1:30PM to 4:30PM was well attended

Announcements

- Four Task Groups... Mohammed Hadi, John Halkias, Rahim Benekohal, E Chang Chu?
- Award Paper ... Wilco, Paris, Igman ?
- Traffic Simulation Pioneer Award ... Clyde Lee ?
- Modeling Award ... Lily Elefteriadou & Daniel (Jian) Sun ?
- **ACTION** Alex Stevanovic volunteered to work on the SimSub website ... ?

George's REPORT IS NEEDED

PLACE GEORGE'S SLIDES HERE

10. TFTC Committee Website

R. Bertini

- Volunteers are needed to update and expand the list of historical papers on the website include Nikolas Geroliminis, Libby Jones, Sue Ahn and Jorge Laval.
- It was suggested that three paper categories be established on the website: old and no longer accessible, highly cited journal papers and ISTTT papers.
- It was suggested that all members help with the website updates.
- Committee members mentioned plans to scan papers and submit them to the website.
- It was agreed that copyrights are not a problem for TRR papers as long as the authors agree (TRB does not retain copyright) and that scanned papers can be placed on our website.
- It was mentioned that ISTTT papers are made available on Google.
- Books can be scanned as well.
- It was suggested that a repository of free tools and software for and by professors and students be placed on the website.

11. Research Problem Statements

M. Hadi

The preparation of Research Problem Statements is a high priority for TRB. There is also always an opportunity to submit NCHRP problem statements (as successfully done by other committees such as the Highway Capacity and Quality of Service Committee over the years). All of the TFT research problem statements posted on the TFT website and linked to the TRB Research Needs Statements (RNS) database.

Problem Statement Topics are listed and accepted. Now they need to be ranked or prioritized. TFTC committee members should select two as the most important. A score and rank will be given to each of the problem statement topics according to this vote. The top four statements will be discussed at the annual meeting. Then problem statements can be written for these top four.

Comments and discussion followed:

- HCQS problem statements follow the same process.
- There is a need to connect the problem statement to State DOT as others have done. In other words, the problem statement needs a champion in government.
- It was suggested that TFTC could join forces with another committee on the same problem statement.
- The Network Modeling Committee can join with TFTC making a stronger statement.
- TFTC lacks membership from State DOTs.
- TFTC could join forces with University Transportation Centers as well as State DOT on problem statement write-ups.
- **ACTION** Marguerite Zarrillo and Michael Mahut both volunteered to assist Mohammed Hadi on the problem statement next steps.

TFT Statements (1)

- Investigation of synchronized flow and modeling of instability in flow
- Driver behavior under different congestion levels
- Influence of lane discipline on capacity
- Role of anticipation in microscopic driver behavior
- Using of trajectory data in model calibration and validation
- Modeling vehicle/pedestrian environment
- Probabilistic description (uncertainty) of road capacity
- Capacity and travel behaviors at bottlenecks
- Traffic flow theory in emergency and evacuation cases
- Psychological factors and their effect on traffic flow

TFT Statements (2)

- Gap acceptance behavior of different types of drivers
- Model the interaction of cars and trucks (longitudinal and lateral)
- Emission modeling as related to traffic characteristics
- Green flow – What flow is most “green”
- Fuel consumption modeling as related to traffic characteristics
- Developing microscopic crash prediction models
- Use of vehicle probe data to develop traffic flow model
- “Simulation abuse:” a collection of bloopers instead of a collection of successes

TFT Statements (3)

- Calibration, verification and validation of micro simulation models: guidelines and data needs
- Difference in characteristics of traffic among US and European Freeways
- Effect of longer cycle length on flow

Simulation Survey TFT-Related

- Data needs for calibration
- Sensitivity of simulation model results to the degree of calibration
- Procedures and guidelines for calibration and validation of simulation/DTA models
- Standards of simulation program Performance measures
- **Develop case studies and modeling handbook**
- Work zone modeling
- Incident modeling
- Driver behavior under different congestion levels
- Air quality, noise, and fuel consumption modeling
- Effect of geometric design and sight restrictions

Simulation Survey TFT-Related

- Modeling of roundabout
- Improved Traffic Flow Models for Mesoscopic Simulation Modeling
- The effect of emerging IntelliDrive technologies.
- Effect of mixed vehicle types (trucks, trains, buses, etc.)
- Evaluation of safety based on simulation results
- Traveler behaviors during emergency events
- Effect of weather conditions (visibility/pavement conditions)

Next Steps

- Each member select 2 topics as the most important topics
- Scores will be given to the statements based on the number of votes
- Identify the top four statement
- Discuss in the annual meeting
 - Topics that are important but did not appear in the top four
 - Does the topic requires additional research
 - etc.
- Write statements for the four selected problems
- Engage with possible funding sources in the U.S. and Europe

12. Greenshields Prize

N. Gartner

The Greenshields Prize Committee members (Nathan Gartner, Ludovic Leclerque, Hesham Rakha) have selected seven possible candidates for the prize. The Committee is still attending the remaining candidates' TRB presentations. There are 12 items on the score sheet to determine how well the papers meet the spirit of Greenshields. Discussion followed about when and how the prize would be announced. This is an annual prize.

There are other possible awards that can be developed.

13. Monographs – Special Report

Hani Mahmassani

The historical document was originally funded by FHWA. Updates to it may be difficult to agree upon. In other words, it may be difficult to develop consensus on revisions and/or additions to the monograph from all members of TFC Committee. Currently, the document, of which its original draft is posted on the TFC website, is uneven in its text and in its thinking. It needs to be updated. It is still useful pedagogically speaking. In the area of car-following, the document is up to date only until 1970s. Otherwise it is somewhat up to date to 2003.

It is suggested and agreed to formulate a new subcommittee to work on the monograph document, maybe one chapter each year, possibly using an online group-editing tool. **ACTION** Volunteers for membership to this subcommittee include **Lily Elefteriadou, Hani Mahmassani** and **Alex Skabardonis**.

14. Liaison With Other Committees

Vincenzo Punzo

Vincenzo Punzo briefed TFC Committee members on an initiative, Action TU903, lead by the European Cooperation in Science and Technology (COST). The objective is to give guidance and promote procedures and methods for calibrating and validating traffic simulation models. Workshops and meetings are being held every 3 months until late 2013. Models are being used extensively in transport applications, however, the fidelity of the conclusions drawn are questionable.

European Cooperation in Science
and Technology
- COST -



Action TU0903 - Methods and tools for supporting the use, calibration and validation of traffic simulation models

Vincenzo Punzo

Università di Napoli "Federico II", Italy

Chairman

vinpunzo@unina.it

Vincenzo Punzo

89th TRB Annual meeting, 10-14/01/2010, Washington D.C.



COST – European Cooperation in Science and Technology

COST is an intergovernmental framework for European Cooperation in Science and Technology, allowing the coordination of nationally-funded research on a European level.

COST has clearly shown its strength in non-competitive research, pre-normative cooperation, and solving environmental, cross-border and public utility problems

Vincenzo Punzo

89th TRB Annual meeting, 10-14/01/2010, Washington D.C.



Overview

The **main objective** of the Action is to *develop, implement and promote the use of methods and procedures for supporting the use of traffic simulation models, especially on the topics of model calibration and validation*

15 COST Countries + (USA, JP)
(BE,CH,ES,FI,FR,DE,GR, IE, IL,IT, LV, NL,PT,SE,UK)

4 Years Duration
End of Action: 14/10/2013



Motivations

Many traffic simulation models available and extensively used

How much may we trust fidelity of results and conclusions drawn?

**the same simulation study carried out by
different people is likely to give different results**

Trustworthiness of the results depends on the ability of users

Correct use is a difficult task even for experts



Research needs

Methods and procedures to help users apply available traffic simulation models **correctly, effectively and repeatably**

Calibration and validation of models



Transport and traffic modelling nature

Transport and traffic models are developed following an approach which is half-way between deductive and inductive,

“whereby one first develops (via physical reasoning and/or adequate idealisations and/or physical analogies) a basic mathematical modelling structure and then one fits this specific structure (its parameters) to real data”

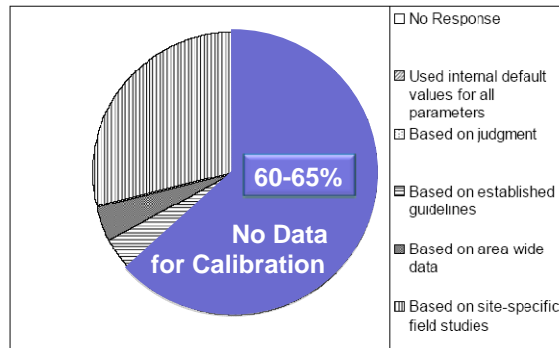
(Papageorgiou, 1998)



State-of-the-Practice

National Cooperative Highway Research Program (NCHRP 3-85):
“Guidance for the Use of Alternative Traffic Analysis Tools in Highway Capacity Analyses”
USA Transportation Research Board (2007)

“If you have used micro-simulation tools, what calibration and/or validation procedures did you apply?”



What is starting to happen...



“We now understand that this wasteful disaster resulted from a computerised traffic modelling program which failed to take into account the random way in which road users would react to the changes on the carriageway.”

The Parable of the Blind Leading the Blind

BRUEGEL, Pieter the Elder,

Museo Nazionale di Capodimonte, Napoli



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What is missing and **why**?

Lack of a common understanding of the problem

Lack of established methods and procedures:

- For calibration
- For validation
- For data estimation

Lack of reliable data

Lack of appropriate tools in commercial software

Most effort and resources have been focused only on **model (and software) development**

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The main objective

To develop, implement and promote the use of methods and procedures for supporting the use of traffic simulation models, especially on the topics of model calibration and validation



Scientific programme

Research focuses on the two modelling levels:

- a Highway level
- a Network level

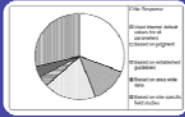
Four research areas and related WGs:

- Updated review of traffic simulation practice and research
- Highway modelling
- Network modelling
- Synthesis, dissemination and training



1. Updated review of traffic simulation practice and research

(Leaders: S. P. Hoogendoorn, C. Buisson)



Task 1.1. Survey of the usage of traffic simulation tools



Task 1.2. Review of traffic data collection and estimation techniques



Task 1.3. Review of methodologies for traffic model estimation, calibration and validation

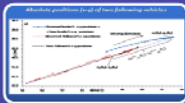
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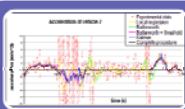


2. Highway modelling

(Leaders: H. Koutsopoulos, P. Wagner)



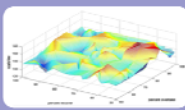
Task 2.1. Exchanging and sharing advanced traffic datasets



Task 2.2. Defining contents, quality and estimation techniques for advanced traffic datasets



Task 2.3. Understanding the role and impact of parameters on model outputs



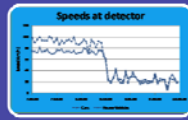
Task 2.4. Developing techniques for highway model estimation and validation

Vincenzo Punzo

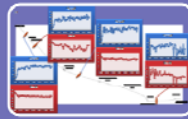
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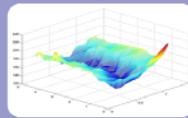
3. Network modelling (Leaders: R. Liu, J. Barcelo)



Task 3.1. Exchanging and sharing standard traffic datasets



Task 3.2. Defining contents, quality and data reduction techniques for standard traffic datasets



Task 3.3. Developing techniques for network model calibration, validation and O/D matrix refining

4. Synthesis, dissemination and training (Leaders: M. Brackstone, C. Antoniou)



Task 4.1. Harmonizing approaches and outputs



Task 4.2. Guidelines and best practice manual for model calibration and validation



Task 4.3. Training end users to the correct use of traffic simulation tools

Timetable

		Year 1	Year 2	Year 3	Year 4
State of the art	WG1.1				
	WG1.2				
	WG1.3				
Highway modeling	WG2.1				
	WG2.2				
	WG2.3				
	WG2.4				
Network modeling	WG3.1				
	WG3.2				
	WG3.3				
Synthesis Dissemination	WG4.1				
	WG4.2				
	WG4.3				
Milestones					

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pr.



Organization

4 Working Groups (WGs)

1 Core Group inside the MC:

- Chair, Vice-Chair
- 8 Leaders and Co-Leaders of the 4 WGs
- STSM manager

2-3 Meetings per year

- participation of all the WGs
- grouping of WG and MC meetings

2 Open workshops (at milestones 2 and 4)

1 Training school (for early stage researchers and practitioners)

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Organization – Steering Committee

Chair	V. Punzo (IT)	
Vice- chair	T. Toledo (IL)	
WG1 Leaders	S. P. Hoogendoorn (NL)	C. Buisson (FR)
WG2 Leaders	H. Koutsopoulos (SE)	P. Wagner (DE)
WG3 Leaders	R. Liu (UK)	J. Barcelo (ES)
WG4 Leaders	M. Brackstone (UK)	C. Antoniou (GR)
STSM manager	P. Vortisch (DE)	



Liaison and interaction with other research programmes

Network of Excellence for Advanced Road Cooperative Traffic Management in the Information Society (**NEARCTIS**)

COST Action TU0702, Real-Time Monitoring, Surveillance and Control of Road Networks under Adverse Weather Conditions

TRB Traffic Flow Theory and Characteristics Committee and Calibration, Verification and Validation (**CVV**) Task Group, as part of the Simulation Sub-Committee

Federal Highway Administration (USA) Next Generation Simulation (**NGSIM**) Program

International Traffic Database (**ITDb**) project



Main Deliverables

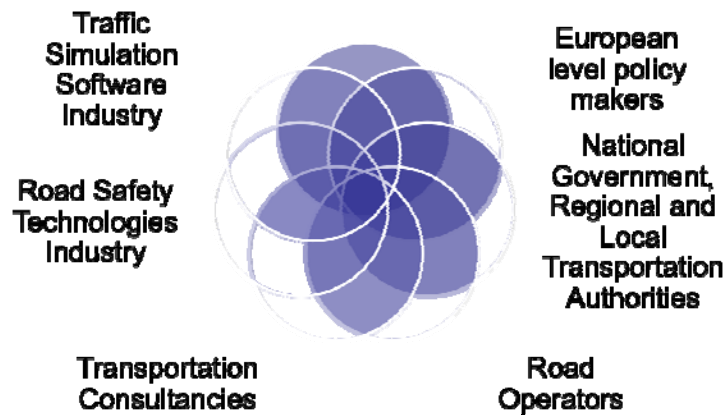
Methods and procedures for calibration and validation

Guidelines for calibration and validation

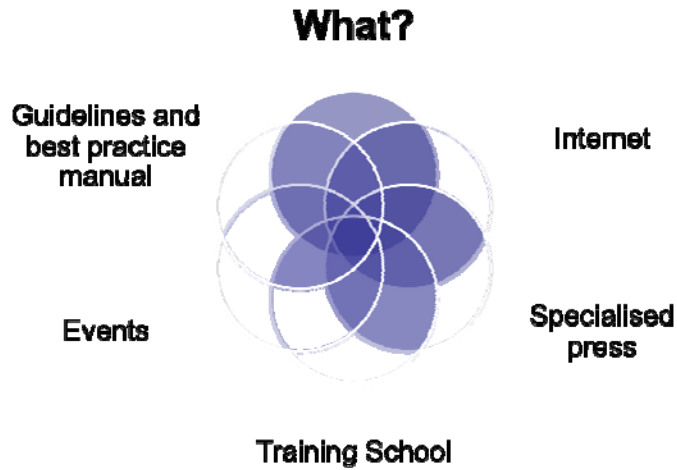
Training school for early researchers and practitioners

Dissemination Plan (1)

Who?



Dissemination Plan (2)



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Dissemination Plan (3)

- **How?**

Potential Audience	Dissemination Methods
European level policy makers	Guidelines, Case Study and Final Reports, Workshops and Conferences
National Government, Regional and Local Transportation Authorities; Road Operators	National Workshops, General Information on the Website, Guidelines, Case study and Final Reports, Training School
Transportation Consultancies;	National Workshops, Conferences, Case Study and Final Reports, Guidelines, Training School, Internet Discussion Forum
Road Safety Technologies Industry; Traffic Simulation Software Industry	Articles in Peer-Reviewed Scientific and Technical Journals, Guidelines, Workshops and Conferences
Universities and Research Institutes; Other Research Networks and Frameworks	Articles in Peer-Reviewed Scientific and Technical Journals, Guidelines, Case Study and Final Reports, Workshops and Conferences, Training School, Internet Discussion Forum

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Next Meetings

- **Barcelona, Spain: February 4-5, 2010**
- **Annecey, France: July 6-9, 2010**



The **COST Action TU0903** and the **TFTC Committee** invite you to participate in their Summer Meeting and Conference to be held in Annecey, France:

July 6-9, 2010

Subject : Does traffic data support traffic models?





• www.cost.esf.org

• vinpunzo@unina.it

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15. Announcements and Future Meetings

Attendees

- TRISTAN VII – June 20–25, 2010, Tromsø, Norway
[<http://www.sintef.no/Projectweb/TRISTAN>]
- TFT Mid-Year Meeting – July 7-9, 2010, Annecy, France
[<http://www.tft2010.inrets.fr>]
- WCTR – July 11–15, 2010, Lisbon, Portugal
[http://www.civil.ist.utl.pt/wctr12_lisboa/int_01_conference_WCTRinfo.htm]
- ITSC – September 19-22, 2010, Madeira Island, Portugal
[<http://itsc2010.isr.uc.pt/site/>]
- TRB 2011 – January 23-27, 2011, Washington DC, US
[<http://www.trb.org/>]
- ISHC – HCQS Mid-Year Meeting – June 28-July 1, 2011, Stockholm, Sweden
[<http://www.ahb40.org>]
- ISTTT19 – TFT Mid-Year Meeting – July 18-20, 2011, Berkeley, CA – with pub. in Transp. Res. [<http://www.isttt19.org>]
- ISTTT20 – 2013, Berlin, Germany

R. Bertini reminded members that the website (www.tft.pdx.edu) is available as a resource for the committee. Send suggestions and edits to Robert Bertini at bertini@pdx.edu. Note that the username for password-protected documents is still **AHB45**. The password remains the same.

16. Committee Membership & Leadership

R.L. Bertini

The Committee Membership runs on a three year rotation cycle. All members are extended until 2010 for rotation. There is a desire to rotate 1/3 of committee members, or 9 members. It is suggested to diversify the committee geographically; members from South America, Australia and Africa are missing. In response to the email request sent out, the following occurred:

- 3 members did not respond
- 2 members were happy to rotate off the committee
- 1 member could go either way
- 6 members felt mildly inclined to remain on the committee
- 20 members felt strongly about remaining on the committee

17. New Business

Attendees

ACTION Stephen Mattingly volunteered to be TFTC Committee's Communications Coordinator.

Meead Saberi of Portland State University, meead@pdx.edu, volunteered to lead the TFTC Committee's Student Interest Group.

The committee discussed the fact that there is a need to identify a volunteer to organize the TFTC's 2012 Mid-Year Meeting somewhere in the U.S. Members and friends need to start thinking about volunteering their assistance.

18. Adjournment

R.L. Bertini

Nikolas Geroliminis made a motion to adjourn the meeting and Stephen Mattingly second the motion. Chair Bertini adjourned the meeting.