

Welcome to AHB45 Committee on Traffic Flow Theory and Characteristics

January 12, 2009



Agenda

| Welcome and Call to Order | R. Bertini |
|-----------------------------------------------------------------------------------------|-----------------------------------|
| Introductions – Members & Friends | All Attendees |
| Review and Approval of Minutes: Committee Meeting of January 13, 2009 | R. Bertini |
| Chair's Report | R. Bertini |
| TRB Report | R. Cunard |
| FHWA Programs & Activities | B. Sheehan |
| Subcommittee Reports | |
| Paper Review and Sessions | R. Bertini |
| Mid-Year Meeting – July 7-9, 2010, Annecy, France | C. Buisson |
| Joint Subcommittee on Traffic Simulation Models AHB45(1) [see www.tft.pdx.edu/simsub.ht | : m] G. List |
| Committee Website | R. Bertini |
| Classic Papers Update | S. Ahn, J. Laval & N. Geroliminis |
| Research Problem Statements | M. Hadi |
| Greenshields Prize | N.H. Gartner |
| Special Report on Traffic Flow Theory | H. Mahmassani |
| Liaison with Other Committees | All Attendees |
| International Liaison Intern | ational members and attendees |
| COST Action TU0903: Methods & Tools Supporting Use, Calibration, & Validation of Simula | tion Models V. Punzo |
| Announcements and Future Meetings | All Attendees |
| TRISTAN VII – June 20–25, 2010, Tromsø, Norway | |
| TFT Mid-Year Meeting – July 7–9, 2010, Annecy, France [see www.tft2010.inrets.fr] | |
| WCTR – July 11–15, 2010, Lisbon, Portugal | |
| ITSC – September 19-22, 2010Madiera Island, Portugal | |
| TRB 2011 January 23-27 | |
| ISTTT19 – July 18-20, 2011, Berkeley, CA (w/Mid-Year Meeting) | |
| ISTTT20 – 2013, Berlin | |
| Committee Membership Rotation (9) | R. Bertini |
| New Business | All Attendees |
| Committee Communication Coordinator | |
| Mentors for Young and New Members/Volunteers | |
| Adjournment | R. Bertini |



Welcome New Members

- Dr. Vincenzo Punzo, Universitá di Napoli, Italy
- Dr. Jorge Laval, Georgia Institute of Technology
- Interested in new member suggestions
- Total membership: 25 + 5 International + 2 Young + 1
 Emeritus = 33



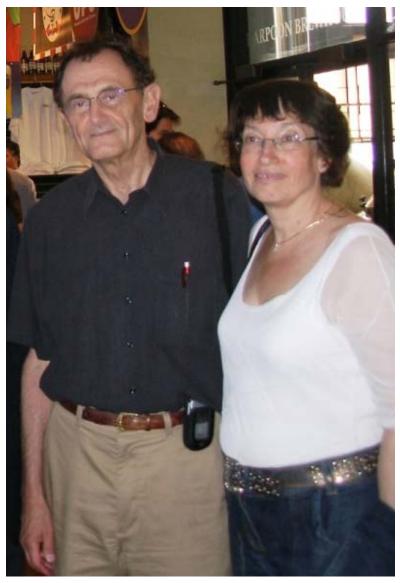
Congratulations Nate!

- 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











Review and Approve Minutes



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



- 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)



- 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?



- 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



| 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 |



TRR Citation Impact Factor

| 2008 | | 2008 | | | | 2007 | | | | 2006 | | | |
|------|----------------------|-------|--------|------|----------|-------|--------|------|----------|-------|--------|----------|--|
| Rank | Title | 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 | |



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 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



USDOT/FHWA Report

- ITS Strategic Plan (exploratory component)
- BTS Listening Sessions
- RD&T Strategic Plan public input (<u>www.regulations.gov</u>, search for RITA, until February8, 2010)
- FHWA Report welcome Bob Sheehan!



Subcommittee Work

- Strategic Plan revision coming in 2011 volunteers?
- Encouraging young participants: thoughts about suits and business meetings?
- Call for papers?
- Research problem statements?

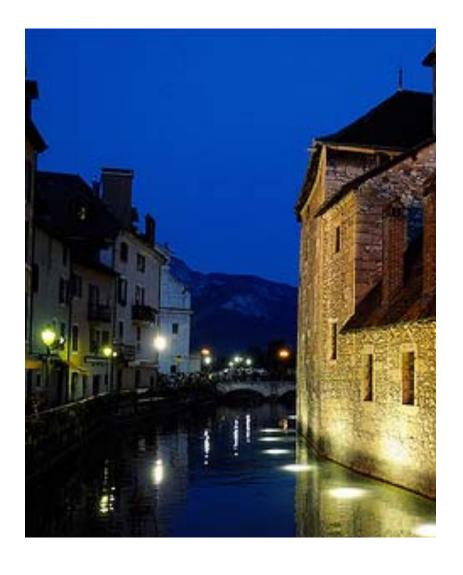


Paper Review & Sessions

- 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

| Annual Meeting | 2010 | 2009 | 2008 | 2007 | 2006 | 2005 | 2004 | 2003 | 2002 | 2001 |
|---------------------------------|-------------|------|------|------|-------|------|------|------|------|------|
| Papers Received | 101 | 92 | 82 | 88 | 70 | 69 | 80 | 40 | 42 | 25 |
| Presentation only | 13 | | / | 9 | / | 3 | | | 0 | |
| Publication only | 4 | | 2 | 2 | 5 | 2 | | | 3 | |
| Present and publish | 84 | | 73 | 77 | 58 | 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 | 20 | 19 | 19 | |
| Poster Sessions | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 0 | 0 | |
| Poster Papers | 40 | 39 | 33 | 39 | 32 | 25 | 30 | 0 | 0 | |
| Subtotal | 60 | 59 | 53 | 59 | 52 | 45 | 52 | 19 | 19 | |
| Percent Accepted | 62% | 68% | 65% | 69% | 74% | 67% | 69% | 48% | 49% | |
| Rejected | 37 | 28 | 28 | 27 | 18 | 22 | 23 | 21 | 20 | |
| Submitted for Publication | 88 | 78 | 76 | 79 | 63 | 66 | 71 | 40 | | |
| Accepted | 0 | 4.4 | 1 | 40 | 4.5 | | 4 | 4.5 | | |
| Revise and re-review | 0 | 14 | 19 | 16 | 15 | | 20 | 15 | | |
| To be determined | 31 | 29 | 18 | 29 | 21 | 40 | 16 | 4.5 | | |
| 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 | 444 | 004 | 000 | | | 000 | 050 | 000 | | |
| Assigned | 441 | 394 | 332 | | | 269 | 356 | 200 | | |
| Assigned/paper | 4.4 | 4.3 | 4.0 | | | 3.9 | 4.5 | 5 | | |
| Received | 394 | 360 | 315 | | | 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 Number of Reviews | 189 1–6 | 150 | 140 | | | | | | | |
| _ | | | | | | | | | | |
| Average TFT Reviewer Pool | 2.2 282 | | | | | | | | | |
| Number of Reviews | | | | | | | | | | |
| _ | 1–34 6.2 | | | | | | | | | |
| Average Total Pavious | | | | | | | | | | |
| Total Reviews | 1500 | | | | | | | | | |
| Friends Email List | 343 | | | | | | | | | |

By the Numbers 2010



Traffic Flow Theory and Characteristics Committee (AHB45)

SUMMER MEETING

of the Transportation Research Board

DOES
TRAFFIC DATA
SUPPORT
TRAFFIC MODELS?

Annecy, France, 7th-9th JULY 2010









GOALS OF THE CONFERENCE

Building on the success of the TRB Traffic Flow Theory Committee (TFTC) Summer Meeting and Greenshields 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 ADIVSORY 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 Elefteriadou University of Florida (FL-USA)
- Prof. Nathan Gartner University of Massashusetts Lowell (MA-USA)
- Prof. Benjamin Heydecker University College London (UK)
- Prof. Masao Kuwahara 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 COMMITEE LICIT-INRETS/ENTPE

- Christine Buisson
- Nicolas Chiabaut
- Victor Knoop
- 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

Annecy is a city located along an alpine lake. Annecy 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 Annecy. 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 registratio 06/15/10) | 420€ | |
| Gala dinner | | 60€ |



IMPORTANT DATES

15 March 2010: Submission of extended

abstracts

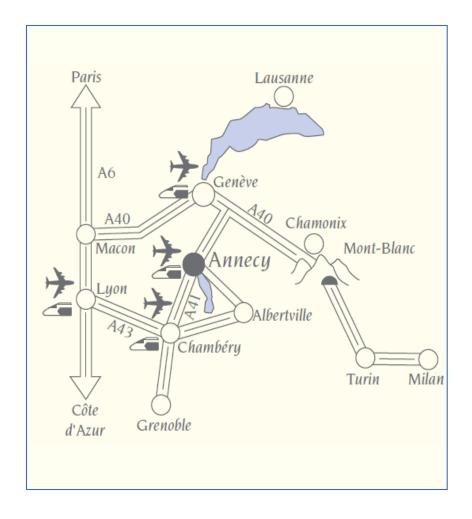
15 May 2010: Notification of acceptance

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.f

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Website

- New News Feature and RSS Feed
- Classic Papers Update



Research Problem Statements



Greenshields Prize

Research Problem Statements Committee on Traffic Flow Theory and Characteristics

89th Transportation Research Annual Meeting

January 12,2009

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



Special Report on TFT



Liaison With Other Committees

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



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, prenormative cooperation, and solving environmental, cross-border and public utility problems



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)



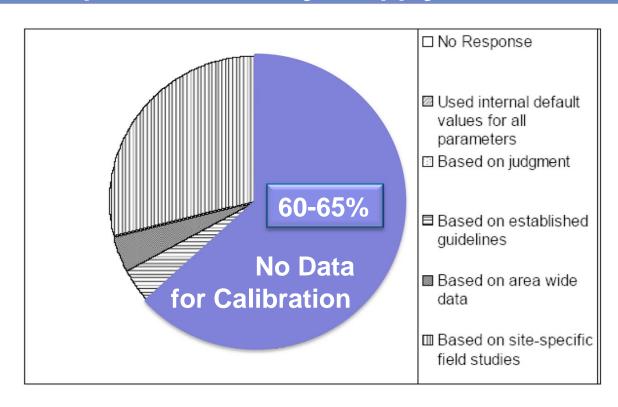
State-of-the-Practice

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...



M56 misery could have been avoided

EADERS who were driven to distraction by so-called improvements on the M56 through Cheshire can today deliver a resounding chorus of "I told you so" to the Highways Agency.

The Government department responsible for maintaining and planning motorways has finally admitted a serious error in reducing the Manchester-bound carriageway from three lanes to two in order to increase traffic flow.

Not only did the unnecessary work lead to increased traffic delays while the cones were in place, but traffic flow was far worse after the work had been completed. Worse still, the ill-conceived and badly executed exercise has seen bureau-

crats squander £5.3m of public money.

And all at a stress the sales and roads and spiag ruel costs have already caused enough misery for motorists.

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.

Indeed, part of the problem stemmed from the that some drivers were leaving it later andicate before changing and, an eventuality which was overlooked by the computer. Human intervention could have saved the frayed tempers of countless drivers, as well as a lot of cash.

This was a case where the computer said "yes" when the answer should have been "no".

We now trust that the Highways Agency will be more willing to perform a U-turn should our readers again voice concerns about an unsuitable After £1.5m is spent on M56, it will take £3.8m to put it right

■ Lane 'improvements' made things worse

We got it wrong, admit highway chiefs

DEAN KIRBY

BIGHWAYS hosses have admitted that a £1.5m scheme to improve traf-fic flow on the M56 actually made things worse.

And now they are having to spend more than double that traffic joining the motorway amount - £3.8m - on putting from the A556."

things right.
They admitted that a computer program 'got it wrong' and had 'falled to account for human behaviour'.

Motorists put up with chaos and readworks which cut the

layout to 'ease congestion'. It said in a statement: "The junction was altered last September with the aim of improving the flow of traffic.

"But while the scheme has helped vehicles merge more freely from the A556, there have been increased delays on the main carriageway.

"To combat this problem the Highways Agency is now plan-ning to reinstate three lanes on the main carriageway and adapt the hard shoulder to provide a long auxiliary lane for

The slip road leading on to

more weeks of roadworks the M56 at Junction 7 used to

30 minutes to a journey that used to take an hour."

Alwyn Burrage, from Chester, a regular commuter to Manchester, said: "I've generally had a trouble-free journey of about an hour each way. But since the changes, it has become a nightmare.

"Traffic was fine until this disaster of a decision. It's morning mayhem and accidents will almost certainly happen."

Work to modify the junction will start on August 26 for about 22 weeks.

Most of the work will be done at night to avoid further disruption.

Neal Symmons, from the Highways Agency, said: "We have monitored and evaluated the scheme and listened to drivers, which is why we are embarking on this new work.

We understand the frustra-

"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





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



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

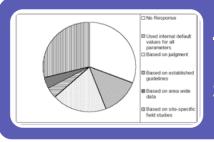
Four research areas and related WGs:

- 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



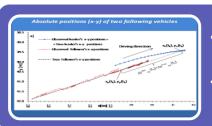
Task 1.3. Review of methodologies for traffic model estimation, calibration and validation



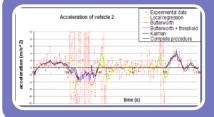


2. Highway modelling

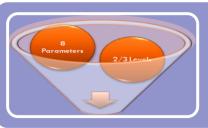
(Leaders: H. Koutsopoulos, P. Wagner)



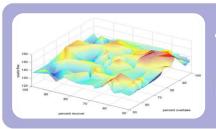
Task 2.1. Exchanging and sharing advanced traffic datasets



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



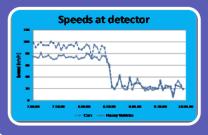
Task 2.4. Developing techniques for highway model estimation and validation



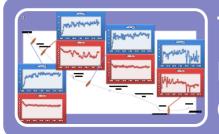


3. Network modelling

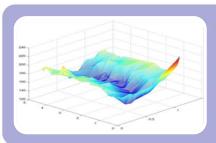
(Leaders: R. Liu, J. Barcelo)



Task 3.1. Exchanging and sharing standard traffic datasets



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



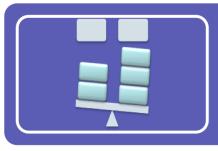
Task 3.3. Developing techniques for network model calibration, validation and O/D matrix refining





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 modelling | WG2.1 | | | | | | | | | | | | | | | | | | | |
| | WG2.2 | | | | | | | | | | | | | | | | | | | |
| | WG2.3 | | | | | | | | | | | | | | | | | | | |
| _ | WG2.4 | | | | | | | | | | | | | | | | | | | |
| Network modelling | WG3.1 | | | | | | | | | | | | | | | | | | | |
| | WG3.2 | | | | | | | | | | | | | | | | | | | |
| Ž | WG3.3 | | | | | | | | | | | | | | | | | | | |
| Synthesis Dissemin. | WG4.1 | | | | | | | | | | | | | | | | | | | |
| | WG4.2 | | | | | | | | | | | | | | | | | | | |
| Sy | WG4.3 | | | | | | | | | | | | | | | | | | | |
| | Milestones | | | | | | | | | | | | | | | | | | | |



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)



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?

Traffic
Simulation
Software
Industry

Road Safety Technologies Industry

European level policy makers

National
Government,
Regional and
Local
Transportation
Authorities

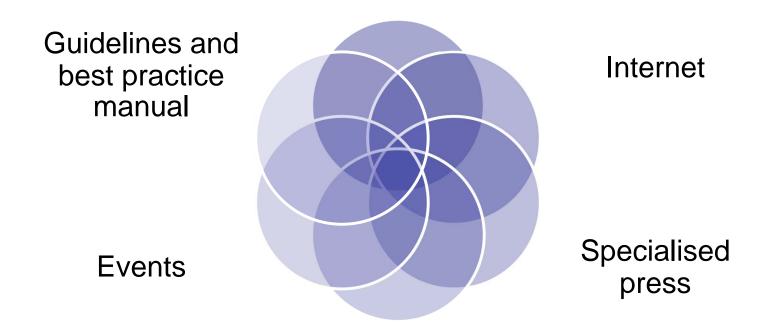
Transportation Consultancies

Road Operators



Dissemination Plan (2)

What?



Training School



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 |



Next Meetings

Barcelona, Spain: February 4-5, 2010

Annecy, 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 Annecy, France:

July 6-9, 2010

Subject: Does traffic data support traffic models?







- www.cost.esf.org
- vinpunzo@unina.it



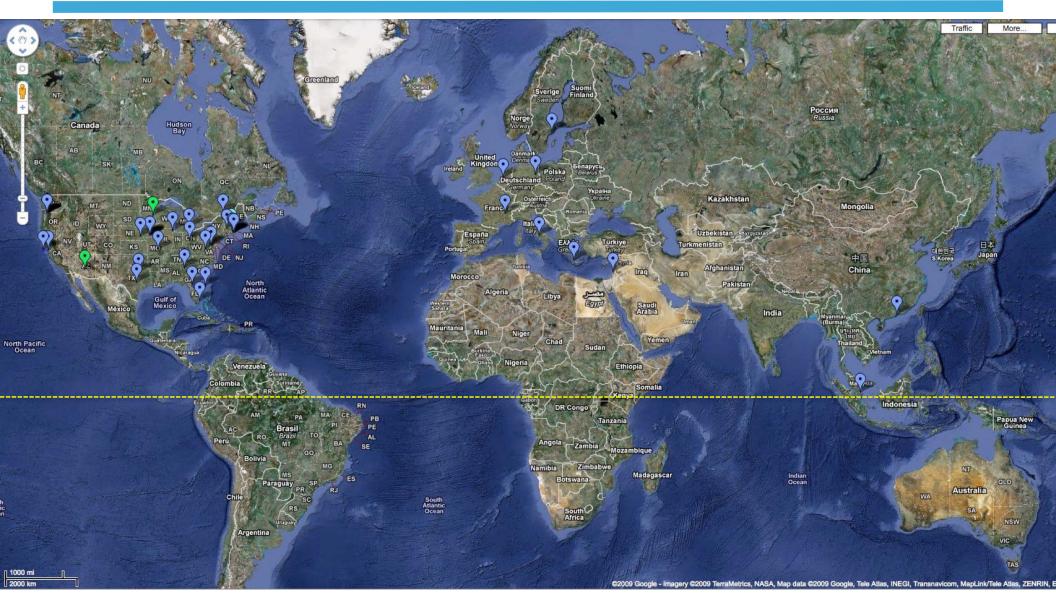


Agenda

| Welcome and Call to Order | R. Bertini |
|-----------------------------------------------------------------------------------------|-----------------------------------|
| Introductions – Members & Friends | All Attendees |
| Review and Approval of Minutes: Committee Meeting of January 13, 2009 | R. Bertini |
| Chair's Report | R. Bertini |
| TRB Report | R. Cunard |
| FHWA Programs & Activities | B. Sheehan |
| Subcommittee Reports | |
| Paper Review and Sessions | R. Bertini |
| Mid-Year Meeting – July 7-9, 2010, Annecy, France | C. Buisson |
| Joint Subcommittee on Traffic Simulation Models AHB45(1) [see www.tft.pdx.edu/simsub.ht | : m] G. List |
| Committee Website | R. Bertini |
| Classic Papers Update | S. Ahn, J. Laval & N. Geroliminis |
| Research Problem Statements | M. Hadi |
| Greenshields Prize | N.H. Gartner |
| Special Report on Traffic Flow Theory | H. Mahmassani |
| Liaison with Other Committees | All Attendees |
| International Liaison Intern | ational members and attendees |
| COST Action TU0903: Methods & Tools Supporting Use, Calibration, & Validation of Simula | tion Models V. Punzo |
| Announcements and Future Meetings | All Attendees |
| TRISTAN VII – June 20–25, 2010, Tromsø, Norway | |
| TFT Mid-Year Meeting – July 7–9, 2010, Annecy, France [see www.tft2010.inrets.fr] | |
| WCTR – July 11–15, 2010, Lisbon, Portugal | |
| ITSC – September 19-22, 2010Madiera Island, Portugal | |
| TRB 2011 January 23-27 | |
| ISTTT19 – July 18-20, 2011, Berkeley, CA (w/Mid-Year Meeting) | |
| ISTTT20 – 2013, Berlin | |
| Committee Membership Rotation (9) | R. Bertini |
| New Business | All Attendees |
| Committee Communication Coordinator | |
| Mentors for Young and New Members/Volunteers | |
| Adjournment | R. Bertini |



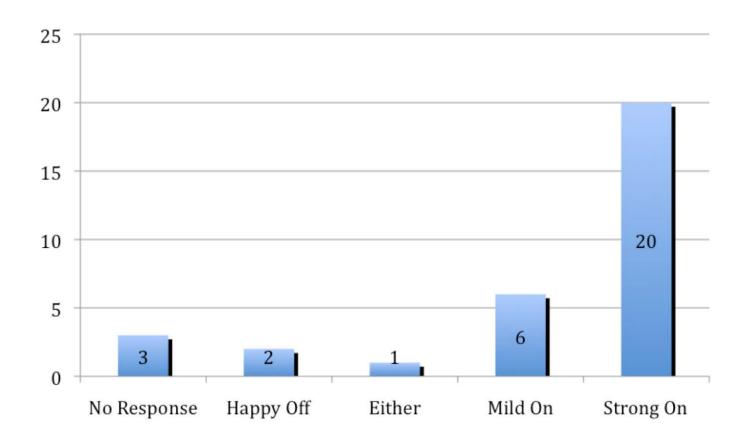
Committee Membership





Membership

- Rotate 1/3 of members (9 individuals)
- Conducted membership survey, most want to remain on committee





New Business

- Communications Coordinator
- Other Committee Liaisons
- Student Interest Group Meead Saberi (<u>meead@pdx.edu</u>)
 - Interest?
 - Activities?
 - Forum?
 - Communications?
 - Other ideas?
 - Volunteers?



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