



Welcome to AHB45 Committee on Traffic Flow Theory and Characteristics

January 15, 2013

The chairman called the meeting at 1:32pm.



Self-Introductions

Please don't forget to sign in!



Review and Approve Minutes

- January 2012
 - July 2012
 - Special thanks to Marguerite Zarrillo for chairing the summer meeting!
 - Thanks to Sue Ahn and Meead Saberi for preparing the minutes!
-



Membership Update

- Total membership: 25 + 5 International + 4 Young + 1 Emeritus = 35
 - Strong international (37%)
 - Improve gender/racial diversity (~43%)
 - Urgent need to improve organizational diversity (11% non-academic, no state DOT or MPO)
 - Welcome new young member Eric Gonzales, Rutgers!
 - Sue Ahn is our new Secretary – thank you Sue!
 - Mohammed Hadi is Research Coordinator
 - Steve Mattingly is Communications Coordinator
-

Members and friends are dominated by academia. However, there is an understanding that our committee is academic in nature.

TRB encourages the participation of practitioners, and there is urgent need to improve organizational diversity.

Welcome suggestions on new committee members.

Mohammed Hadi needs more participants for problem statements.



Membership Update

- 2013 Membership rotation
 - 10 members must rotate off including 6 who have reached their 9 year limit
 - Member survey conducted with some suggestions for new members (TRB limits number of members from same organization)
 - Geographic representation?
 - State DOT? Other agency?
 - Private?
 - Non traditional?
-

Any input on future members is welcome.

More diversity on geographical region is desirable. We have few members from Australia and Asia but none from South America.

For non traditional members, we suggested Google, emergency responders and couple others last year. We should think about some non-traditional members for presentation, workshop, etc. TRB will offer free registration.

Members suggested WAZ, TomTom, INRIX, Garmin, etc. for data, data processing, algorithm/model development, and smart city (energy, transportation).

B. Coifman suggested that we should open up to international state DOT equivalent members.



Chair Report

- *TRB 2013 Deploying Transportation Research - Doing Things Smarter, Better, Faster*
 - Always possible to update paper reviewer pool (~440 members)
 - State DOT and MPO involvement
 - Desire to produce some products in next 2 years
 - Young Members Council (YMC)
 - YMC-TAC business meeting and Group-level YMC meetings
 - YMC-sponsored technical sessions on leadership development, entrepreneurial skill-building, and policy discussions of interest to young professionals
 - YMC Reception with Young Professionals in Transportation—National
 - TransportationCamp 2012, a technology-oriented “unconference”
 - Interactive online community at <http://ymc.groupsites.com>
-

The chairman’s goal is to raise the profile of the committee by being product oriented.

For example, there are approximately 500 TRR pubs (from this committee). We should go back and suggest some important ones for TRB Circular. Lots of activities and options for products and finding funding.

YMC met on Saturday at the George Washington University campus.



TRB Report

- 4771 papers received (>4226 last year)
 - 2,765 papers, 2,143 invited presentations, 460 lectern sessions, 180 poster sessions and 110 workshops
 - 60% of papers in poster sessions (59% last year)
 - New TRB Mobile App
 - New Compendium Flash Drive
 - AMOnline
 - More than 40 sessions and workshops will address the spotlight theme for 2013: Deploying Transportation Research - Doing Things Smarter, Better, Faster.
 - 2015 DC Convention Center location
-

The new TRB mobile app was well received; but E Wilson mentioned that it didn't work well for the Android system.

Flash drives containing papers will be mailed to registrants. All ppt slides are available on the web (AMOnline)

The annual meeting will be held at the DC Convention Center starting 2015. Marriot Marquis will be completed by then as the conference designated hotel. There will be a tunnel connection between the convention center and the metro (and the hotel).

A Skabardonis raised the concern that it will not be as easy to network and interact with people and that the conference hotel will be sold out fast.

The chairman suggested that we propose something other than poster sessions, podium sessions, and committee meetings, such as debates, proposition session to resolve different philosophy, approach, etc.) E Xuan suggested a competition (The Artificial Network Committee has done this) for data analysis, routing, etc. C Buisson will join the effort and coordinate with H Van Lint for his ongoing activities. B Coifman suggested flow charts (different theoretical approaches) as part of "proposition" sessions – F Fermke has done something like this. The chairman suggested a subcommittee to organize a session

along this line for next year.



TRB Report

- Propose Synthesis Study Topics:
<http://www.trb.org/Studies/Synthesis/SynthesesSubmittal.asp>
 - Committee Communication Coordinators Council
 - Committee Research Coordinators (CRC) Back to Basics Initiative
 - Practice Ready Papers Database prp.trb.org
 - Research Needs Statements Database rns.trb.org
 - Research Pays Off articles Gjayapra@nas.edu
 - SHRP2 Implementation Program:
 - Innovative Bridge Designs for Rapid Renewal
 - Preservation Options for Heavily-Traveled Roadways
 - Organizational Assessment and Leadership Strategies to Improve Operations
 - Strategies for Managing Risk
 - Project Management Strategies for Complex Projects
 - Implementing *Eco-Logical*
-

TRB likes webinar sessions that we propose.



TRB Report

Paper Submissions	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Total Number			2862	3070	2847	3384	3694	3875	4226	4771
Total Presented			1688 (59%)	1849 (60%)	1759 (62%)	1882 (56%)	2190 (59%)	2322 (60%)	2550 (60%)	2765 (58%)
Papers - Lecture			888 (53%)	935 (51%)	867 (49%)	900 (48%)	921 (43%)	912 (39%)	979 (38%)	1048 (38%)
Papers - Poster			728 (43%)	752 (41%)	861 (49%)	952 (51%)	1232 (56%)	1352 (58%)	1515 (59%)	1655 (60%)
Papers - Meeting			21 (1%)	34 (2%)	31 (2%)	28 (2%)	20 (1%)	44 (1.9%)	40 (2%)	49 (2%)
Other Papers			2 (0.1%)	5 (0.2%)	0	2 (0.1%)	17 (0.8%)	14 (0.6%)	16 (1%)	13
Invited Presentations							1750	2050	1990	2143
Total Speakers							3100	3300	4700	5100
Total Agencies/Orgs							1700	?	2350	2500
Sessions, Workshops, and Meetings										
Lecture Sessions	498	470	469	455	452	461	382	418	448	460
Poster Sessions	46	65	88	134	112	132	134	145	162	180
Workshops	62	62	73	79	86	89	99	110	108	110
Committee Meetings				425	442	424	444	503	530	550
Other Meetings							500+	500+	500+	500+
Total Meetings							>1500	>1500	>1500	>1500



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
-

The TRB leadership is interested in TRB critical issues.
Please take a look and comment.



Critical Issues Survey

	VERY	SOMEWHAT	NOT VERY			
A. CONGESTION. Increasingly congested facilities across all modes.	68.2% (58)	25.9% (22)	4.7% (4)	1.2% (1)	1.39	85
B. ENERGY, ENVIRONMENT, AND CLIMATE CHANGE. Extraordinary challenges.	58.8% (50)	38.8% (33)	2.4% (2)	0.0% (0)	1.44	85
C. INFRASTRUCTURE. Enormous, aging capital stock to maintain.	84.7% (72)	15.3% (13)	0.0% (0)	0.0% (0)	1.15	85
D. FINANCE. Inadequate revenues.	76.5% (65)	23.5% (20)	0.0% (0)	0.0% (0)	1.24	85
E. EQUITY. Burdens on the disadvantaged.	21.2% (18)	45.9% (39)	30.6% (26)	2.4% (2)	2.14	85
F. EMERGENCY PREPAREDNESS, RESPONSE, AND MITIGATION. Vulnerability to natural disasters and terrorist strikes.	35.3% (30)	43.5% (37)	16.5% (14)	4.7% (4)	1.91	85
G. SAFETY. Insufficient improvement.	47.1% (40)	40.0% (34)	9.4% (8)	3.5% (3)	1.69	85
H. INSTITUTIONS. 20th century institutions mismatched to 21st century missions.	41.2% (35)	35.3% (30)	17.6% (15)	5.9% (5)	1.88	85
I. HUMAN & INTELLECTUAL CAPITAL. Inadequate investment in innovation	51.8% (44)	42.4% (36)	5.9% (5)	0.0% (0)	1.54	85



TRR Update

- ISI Impact Factor = 0.471 for 2011
- TRR ranks 21 out of 28 Transportation Science and Technology journals
- See other measures
- 840 articles published in 2010 (next two journals 440 and 143)
- High half lives
- We are posting lists of our committee TRR published papers

YEAR	TRR IMPACT FACTOR
2011	.471
2010	.482
2009	.298
2008	.259
2007	.206
2006*	---
2005	.145
2004	.072
2003	.093

*No impact factor was computed for 2006

MEASURE	TRR RANK IN 2010	2011
Citation Impact Factor	17th	21 st
Total Cites	1st	1 st
# of Articles	1st	1 st
Cited Half-Life	4th	6 th
Eigen factor Score*	2nd	2 nd

The ISI impact factor for TRR went down a little bit.



USDOT/FHWA Report

B Shehan gave USDOT/FHWA report

Areas of focus related to the TFTC committee

- Dynamic management (arterial, traffic flow)
- Decision support (forecasting and prediction): ICM (San Diego, Dallas), real time simulation as the main engine, multiple data sources, transit, status of infrastructure, system response to changes made; datasets will be available soon on line
- Development of algorithms to assess performance measures
- Connected Vehicle: dynamic mobility apps (speed harmonization, cooperative adaptive control), broad agency announcement in this area (modeling, traffic flow analysis issue)
- Virtual data access: integrate different data sources at regional level (so MPO can access the data for monitoring): virtual tools to reformat, reprocess, etc.
- AMOS testbed: demand management strategies (sim based), dynamic mobility program, state can evaluate their own ATDM systems; actual design and development of the program this year. (what/where no decision).



Subcommittees

- | | |
|---|-----------------------|
| 1. Joint Subcommittee on Traffic Simulation Models | List |
| 2. Research Problem Statements | Hadi |
| 3. Paper Review | Bertini |
| 4. Greenshields Prize | Gartner |
| 5. Mid-Year Meeting | Hadi |
| 6. Outreach and Diversity | Hamdar |
| 7. Committee Website | Bertini |
| 8. Strategic Planning | Bertini |
| 9. Classic/Historic Papers | Ahn/Laval/Geroliminis |
| 10. Special Report on Traffic Flow Theory | Mahmassani |
| 11. PEPSub | van Lint |
| 12. NEW: Crowd Flow Dynamics, Modeling, and Management | Sarvi/Hoogendoorn |
-

Official subcommittee meetings can be scheduled with request.



SimSub

SimSub Website:

<http://sites.google.com/site/trbcommitteeahb45/>

To join, send email to:

TRBCommitteeAHB45@gmail.com

Within few days you will get an invitation to join "Friends of SimSub" which is a Google group through which we post announcements and distribute emails about SimSub activities.

Sunday Simulation Workshop: Analysis, Modeling, and Simulation in Support of Real-Time Operations and Management

G List gave an update on the SimSub Subcommittee activities.

There were about 50 people at the subcommittee meeting; There was a workshop on Sunday at Marriot (150 people, 6 presentations)

Development of a simulation manual was suggested. Thanks Mohammed for suggesting the idea. FHWA would be receptive and may provide funding. A great result and example of "product". G List, M Hadi, H Mahmassani, and K Courage (?) will contribute to developing an outline or problem statement to generate funding. The manual will be owned by the committee.

J Halkias: Traffic analysis toolbox on FHWA website (vol 3B) is used extensively in the US as well as in Europe (13 ICM guide, 14 DTA guide).

M Hadi commented that it is an opportunity to attract state DOT's participation.

G List is soliciting ideas for workshop. Freeway Operations Committee is interested in a joint workshop.

D Kail (at UFL) is a candidate for the annual report for the SimSub Subcommittee. The Chairman encouraged young members participation.

Research Problem Statements

This presentation was given by M Hadi.

TRB Back to the Basics Initiative

- Major initiative of the TRB with 100 committee participating
- TRB is allocating a lot of resources
- Provide ongoing guidance and training through a community of Committee Research Coordinators (CRCs)
- Enhance the RNS Database and other tools
- Each committee has research coordinator(s)
 - However, it is expected that they will be helped by volunteers and/or research subcommittee

Objectives

- Develop and maintain an up-to-date set of research needs statements.
- Assure that committee approved statements are included in the TRB RNS database
- Coordinate with other committees
- Maximize the probability of statements are funded
- Make those who manage and conduct research aware of committee' s RNSs

Past Efforts

- SimSub Survey (about 50 participants) identified and prioritized 43 research issues in 2006
- Traffic flow theory survey in 2008
- Currently RNS has 8 statements uploaded in 2008
- RNS may have statements by other committees related to TFT and SimSub

2012 Mid-Year Meeting Research Needs Workshop

- Two-hour workshop that included
 - Panelists discussion
 - Audience and panel open discussion
- An important conclusion was to focus on strategic research areas to move TFT research forward and ensure funding for this research

Managing change in large-scale complex systems.

Note that this includes hardware, software, and communications.

Potential Focus Areas

- Transportation System Simulation Manual
 - A subgroup was formed to establish the foundation of the manual
- Driver behaviors in response to advanced strategies (both existing and emerging)
- Collection of NGSIM-Type databases
- TFT/Simulation Models that deal with variations in driver behaviors under different congestion levels/ Congestion types/instability in flows
 - Produce model vehicle trajectories that better reflect driver behaviors (e.g., for emission/safety modeling)

Driver and Traveler behavior

Emerging strategies: e.g., connected vehicles

Synthesis should be incorporated in the sim manual?

Could be discussed again in the summer during ISTTT.

Alex and Margerrite will help Mohammed with problem statement.

Alex (Stevanovic) can help generate problem statements for NCHRP and other funding sources.

Hani: Synthesis is a vehicle to deliver research



Paper Review & Sessions

Thanks to subcommittee
members authors and
reviewers!



Paper Review & Sessions

Lectern Sessions:

- 213 [Urban Networks](#) Monday 8:00 - 9:45 AM Marriott
- 666 [Car Following](#) Tuesday 7:30 - 9:30 PM Marriott
- 828 [Simulation and Calibration](#) Thursday 8:00 - 9:45 AM Marriott
- 841 [Macroscopic Models and Freeway Networks](#) Thursday 10:15 AM - 12:00 PM Marriott

Special Lectern Sessions:

- 769 [Calibration of Traffic Simulation Models](#) (top papers from our special call for papers), Wednesday 2:30 - 4:00 PM, Marriott
- 807 [Operation of Buses on Highways or Exclusive Lanes](#) (top papers from special call for papers), Wednesday 4:30 - 6:00 PM, Marriott

Poster Sessions:

- 497 [Traffic Flow Theory and Characteristics Part 1](#), Tuesday 8:30 - 10:15 AM Marriott
- 726 [Traffic Flow Theory and Characteristics Part 2](#), Wednesday 8:30 - 10:15 AM Marriott

Special Poster Sessions:

- 398 [Calibration of Traffic Models](#) (response to special call for papers), Monday 4:15 - 6:00 PM, Marriott.
- 404: [Innovations in Traffic Flow Theory and Characteristics, and Highway Capacity and Quality of Service](#) (papers from Summer Meeting in Fort Lauderdale), Monday 4:15 - 6:00 PM, Marriott.

We are co-sponsoring a session on [Transport Data Program Development: International Best Practices](#), Wednesday 2:30-4:00 PM Hilton.

There were 6 instead of 4 lectern sessions - the biggest program so far.

R Cunard's report:

Registration was 10% higher. Thanked for submission and review.

It has been 60 years to host the annual meeting on this property; in 2015 we will transition to the Convention Center.

Mobile App (50% Apple, 15% iPad, 35% Android) requires WiFi connection. Feedback on the app is welcome.

3 years of ppt slides will be available on the website.

H Mahmassani asked if there is any way to digitize older TRR submissions; this is on the way. B Coifman suggested that at least some top articles should be digitized.

Interpretations of Practice-ready papers (implementation ready for practitioners)

There is no guidance for reviewers. M Sarvi suggested to establish additional criteria (patens, etc.) and encourage authors to provide reasons for why the paper is practice-ready. Further comments/suggestions can be relayed to the chairman.

The chairman encouraged to follow the TRB format (length requirement, line numbers, etc.) to be respectful to reviewers. Paper review coordinators should return papers that do not follow the guidelines ("information for authors").

E Wilson mentioned that papers written in Latex format have to be re-formatted. R Cunard responded that there is nothing we can do..



Special Calls for Papers

- Analytical Methods for Traffic Models for Calibration and Validation
 - Joint with ABJ80 Statistical Methods
 - Vincenzo Punzo and Mark Brackstone
 - 29 papers received
 - Created one special podium session and one special poster session
 - Interactions Between Traffic Flow Modeling and BRT Systems
 - Joint with SHB25 Traffic Signal Systems and AP050 Bus Transit Systems
 - Nicolas Chiabaut
 - 6 papers received by TFT
 - Created one special podium session
-



Special Calls for Papers

- Modeling Cooperative Traffic Management and ITS
 - Joint call with AHB15 Intelligent Transportation Systems
 - Received 12 papers
 - 1 lectern 3 poster in regular sessions
 - Transient Behavior in Transportation Networks
 - No papers sent to AHB45 under this call
 - Assessment
 - Worthwhile
 - Encourages collaboration across committees
 - Mechanics require manual effort
 - Future Calls? Subcommittees? Ideas?
-



Greenshields Prize

- Papers/presentations being reviewed this week
- Announcement at mid-year meeting in the Netherlands



Certificate of Appreciation for active involvement was presented to M Hadi H Rakha is stepping down from the Greenshields Prize subcommittee. Certificate of Appreciation was presented to him.



Greenshields Prize

- **Greenshields Prize for 2012**
- LMRS: Integrated Lane Change Model with Relaxation and Synchronization
Wouter Schakel, Victor Knoop, and Bart Van Arem, B.,
- May We Trust Results of Car-following Models Calibration Based on Trajectory Data?
Vincenzo Punzo, Biagio Ciuffo, and
Marcello Montanino




The Traffic Flow Theory and Characteristics Committee peer-reviewed this paper, which was awarded the 2012 Greenshields Prize by the committee, honoring the contributions of Bruce Greenshields to the field of traffic flow theory.

Greenshields Prize: 2012 cycle (Ludovic Leclercq, Hesham Rakha, Nathan Gartner)



Mid-Year Meetings



- 2007 ISTTT London (in pub)
- 2008 Greenshields Symposium, Woods Hole 
- 2009 ISTTT Hong Kong (lunch table)
- 2010 Does Traffic Data Support Traffic Models? Annecy, France
- 2011 ISTTT Berkeley (one hour w/SimSub)
- 2012 Joint Summer Meeting with HCQS Committee, June 19-22, Fort Lauderdale, Florida
- 2013 ISTTT, July 17-19, Noordwijk, the Netherlands
- 2014 TBD U.S. (commemorate committee 50th anniversary)
- 2015 ISTTT Kobe
- 2016 TBD (Ideas? International?)



Mid-Year Meeting 2012



- Successful Joint Meeting of HCQS and TFTC
 - Special thanks to Mohammed Hadi and all of the organizers
 - Organized special poster session with top papers
-

M Hadi presented the results of the Joint Meeting in 2012.

**INNOVATIONS IN TRAFFIC FLOW THEORY AND
CHARACTERISTICS, AND HIGHWAY CAPACITY
AND QUALITY OF SERVICE SYMPOSIUM**

JUNE 19-22, 2012

HILTON FORT LAUDERDALE BEACH HOTEL
FORT LAUDERDALE, FLORIDA

Joint Summer Meeting of the
Highway Capacity and Quality of Service (AHB40)
and
Traffic Flow Theory and Characteristics (AHB45)

Conference Planning Committee

- Dr. Mohammed Hadi, Florida International University, *Chair*
- Dr. Rober Bertini, Portland State University
- Dr. Darcy Bullock, Purdue University
- Dr. Nikolas Geroliminis, L'Ecole Polytechnique Federale de Lausanne (EPFL), Switzerland
- Dr. Lily Elefteriadou, University of Florida
- Dr. Samer Hamdar, George Washington University
- Mr. William Sampson, University of Florida
- Dr. Bastian Schroeder, North Carolina State University
- Mr. Robert Sheehan, Federal Highway Administration



Program Overview

- FHWA Predictive Traffic Flow workshop
- TFT, HCQS, and SimSub Meetings
- FDOT LOS Task Force Meeting
- TFT Research Needs Workshop
- Presentation sessions
 - 60 extended abstracts submitted and 45 selected for presentations
 - Total number of sessions is 8 in two parallel tracks

Next steps on Join Activities

- Joint session of the two committees at the annual meeting with selected papers invited
- Collaboration between HCQS and TFT on research

TFT Statements (1)

- Developing microscopic crash prediction models/utilize simulation for safety
- Emission/fuel consumption modeling as related to traffic characteristics
- Modeling advanced strategies (ATDM, connected vehicles, etc.)
- 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

TFT Statements (2)

- Capacity and travel behaviors at bottlenecks
- Traffic flow modeling in emergency and evacuation cases
- Psychological factors and their effect on traffic flow
- Gap acceptance behavior of different types of drivers under different conditions
- Model the interaction of cars and trucks (longitudinal and lateral)
- Green flow – What flow is most “green”
- 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 and procedures for calibration and validation
- Sensitivity of simulation model results to the degree of calibration
- 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
- Reflecting effects of geometric design and sight restrictions
- Modeling of roundabout
- Improved Traffic Flow Models for Mesoscopic Simulation Modeling
- The effect of emerging connected vehicle technologies.

Simulation Survey TFT-Related

- 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)

Questions

- What is the best approach to collect research needs?
- What transportation agency needs that can be addressed by TFT research?
- What type of research is needed to enable expanding the science of traffic simulation?
- How can TFT research support highway capacity analysis?
- How TFT research is related to the research of other committees?
- What is the TFT role in a data rich environment?

Potential TFT RNS

Next Steps





Outreach and Diversity



TRANSPORTATION
RESEARCH BOARD
OF THE NATIONAL ACADEMIES



THE GEORGE
WASHINGTON
UNIVERSITY
WASHINGTON, D.C.



The School Without Walls
at Washington, D.C.
Home & School Association

92ND TRANSPORTATION RESEARCH
BOARD MEETING

TRAFFIC FLOW THEORY AND
CHARACTERISTICS COMMITTEE
(AHB 45)

OUTREACH AND DIVERSITY
SUBCOMMITTEE



Transportation Research Board
92nd Annual Meeting
January 13-17, 2013 • Washington, D.C.

Case Study: Traffic Flow Theory and School Outreach
The George Washington University and the School Without Walls Grant School

S Hamdar chairs the subcommittee and gave a presentation.

Objectives



- Continue to embrace new communications and outreach mechanisms beyond traditional TRB audience through Committee Communications Coordinator and relevant subcommittees
- Continue to use committee website as primary communications venue
- Review past committee sponsored Transportation Research Records and highlight most significant publications since the committee's founding.
- Engage and interact with state DOTs and practitioners for effective dissemination of research advances and state-of-the-art practices.
- Work with ad hoc subcommittee on the website to create a clearinghouse of seminal publications via our website that conveys a sense of the rich history of this field
- Consider expanding clearinghouse into literature review of seminal research
- For expanded inclusiveness continue to grow the webinar series of Annual Meeting papers/presentations after each Annual Meeting
- Develop a 21st century version/venue for the Special Report on Traffic Flow Theory (<http://www.tfhrc.gov/its/tft/tft.htm>) which has become recognized as an authoritative source of information on traffic flow models worldwide (1964, 1975 and 2002 editions).
- Work with a subcommittee on Teaching Traffic Flow Theory and develop innovative methods of teaching fundamental TFT concepts to students
- Find ways to encourage the mentoring of graduate students and young professionals, particularly to convey the history of traffic flow theory research so that future research can successfully build on the past efforts of the best scholars.



Introduction+Survey

Actions

AHB45 and School Outreach

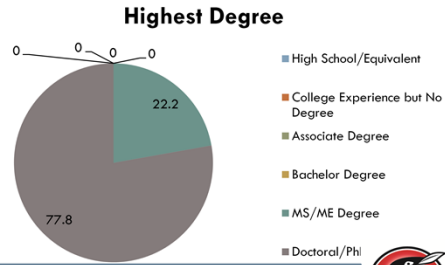
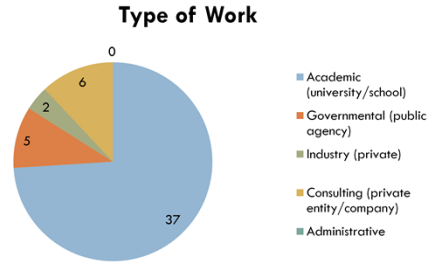
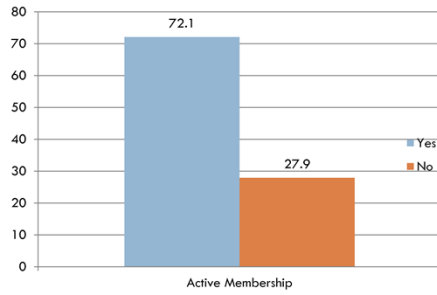
Conclusion



AHB 45 Members and Friends Insights



- Survey Conducted: December 2012
- 45 Respondents



Introduction+Survey

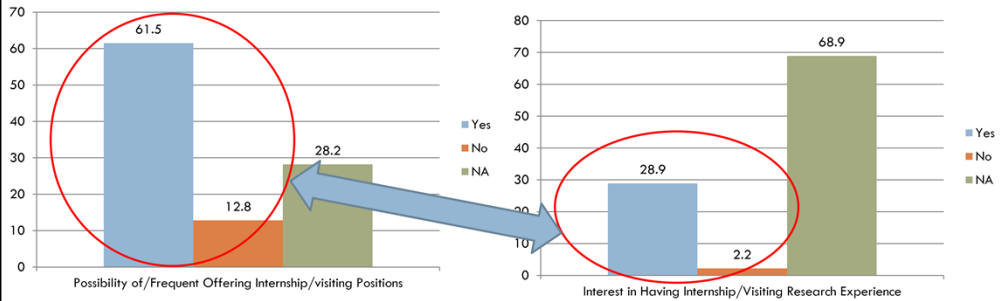
Actions

AHB45 and School Outreach

Conclusion



AHB 45 Members and Friends Insights



Introduction+Survey

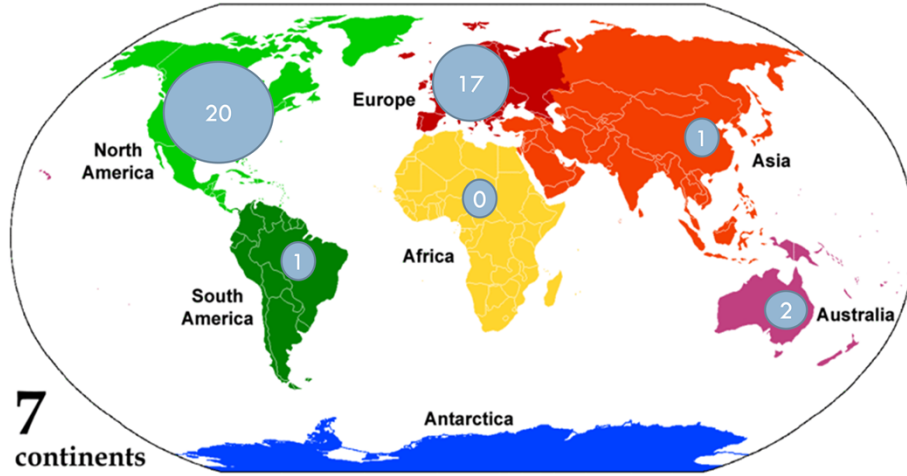
Actions

AHB45 and School Outreach

Conclusion



AHB 45 Members and Friends Geographical Distribution



7
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Introduction+Survey

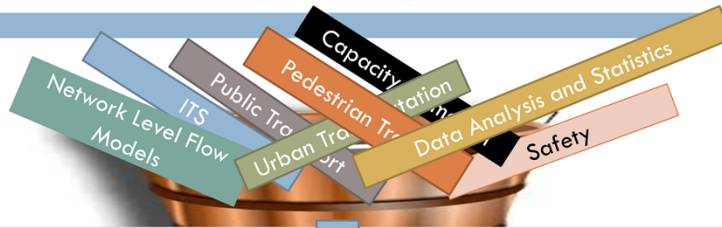
Actions

AHB45 and School Outreach

Conclusion



AHB 45 Members and Friends: Interests + Outreach to Other Committees



AHB15	Intelligent Transportation Systems
AHB40	Highway Capacity and Quality of Service
AHB35	Managed Lanes
ABJ80	Statistical Methods
ADB30	Transportation Network Modeling
AHB20	Freeway Operations
ANB20	Safety Data, Analysis and Evaluation
AP025	Public Transportation Planning and Development

AHB 45 Members and Friends Suggestions



Chosen Suggestions for Added Participations

Timely Information
Data sharing within committee
Fewer number of papers, but higher quality
More practical applications
Additional webinars
Easy participation for overseas members
Committee not answering needs; advisor not positively perceiving involvement in committee activities
More activities targeted to students
Guidelines or practical views of scientific methods to the industry/consultancy
No more subgroups
Webinars and an active forum to receive questions and answers
interested in summer meetings; adding one day for such meetings during the ISTTT event.
Special meetings; reflection on the field's history
"Have liaisons in every continent. Engage practitioners in developing research need statements"
"Ways to facilitate research collaborations"
"TFT does a great job with outreach due to Dr. Bertini's efforts. Keep up the good work."
"So far so good"
Reach out to undergraduate students, to non-civil/transportation fields
"Open source for published papers"
Increase in collaboration (visiting research/internship positions); outreach to public
Encourage young researchers to participate in the committee
Internship fair
Data availability (committee website); newsletter (regular; every month);



Introduction+Survey

Actions

AHB45 and School Outreach

Conclusion



First Actions (one year time frame)



- An internship/position announcement wall is to be established at the AHB45 Facebook Wall (possibility: adding such wall on AHB45 main site and announcements through newsletter)
- Establish a data resource center through the AHB 45 main site
- Establish monthly newsletters (RFP, position, data availability, major event announcements)
- Update communication venue for Special Report on Traffic Flow Theory, main AHB45 publications among other information (communicating with google, amazon and apple – apps)
- Streamline coordination with other “sister committees”




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Second Actions (two years time fram

- Look into annual meetings' details: additional day when coinciding with ISTTT, special session related to the field's history : possible honoring of major researchers in the field reflecting on our past – possible related award
- Delegates/point of contact in different regions for encouraging more diverse audience (focus on Asia, South America ...etc)
- Outreach to Industry: best industry originated paper (TRB + Annual Meeting); Special Speaker from Industry at Annual Meetings (at least one)
- Look into best young professional/student papers + internship/career Fair
- Increase # of webinars while looking into possible establishing of live interactive blog
- **Outreach to pre-university education field: start with DC public schools (in progress)**

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Cunard Award: Best paper with lead author (< 35 years old). We should push for giving certificates and encourage young authors.

B Coifman suggested to provide a venue for reviewers to comment on/recommend excellent paper for awards.

C Buisson suggested that Greenshield's subcommittee develop more concrete criteria for awards.

Background 1: DC Public Schools



- 125 Schools: 20 High, 25 Middle, 80 Elementary
- Demographics of Students:
 - ▣ 79% Black, 12 % Latino, 7% White, 2% Other
 - ▣ 66% Free and Reduced Lunch
- Curriculum Structure: Each Part: K12, Primary, Middle and Secondary



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Administrative Burdens / Challenges

- Curricular Alignment / Flexibility
 - ▣ Work needs to be done to better align Traffic curriculum to DC Standards.
- Funding
 - ▣ Local school funds are already stretched thin.
- Field Trips to Traffic Labs
 - ▣ School Without Walls is unique in having an open campus.



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Background 2: School Without Walls



- School Characteristics:
 - Humanities Magnet School – Students from all over the city. Application-based acceptance.
 - Field Trips, Internships, and Flexible Curriculum
- School Demographics and Representativeness of DC Public Schools
 - 47% black, 36% White, 7% Latino, 4 % Asian, 5% Multiple Races
 - 23% Free and Reduced Lunch
- Faculty Characteristics:
 - 47 Members
 - Collaboration is emphasized
- Curriculum could be introduced into the following areas or through an interdisciplinary approach: Physics, Mathematics/Statistics and Psychology



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General Educational Advice:

- Doing is better than lecturing
 - ▣ Use games or explorations
 - Show relationships between traffic variables
 - ▣ Analyze real highways and problems
 - Provide students with tools to solve actual issues.
- Trust the students.
 - ▣ With a little help they can get where you want them to go.
- Don't get lost in the weeds.
 - ▣ The concepts are accessible to High School students, but some of the techniques aren't



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Field Trips and Hands-On Lab Experience



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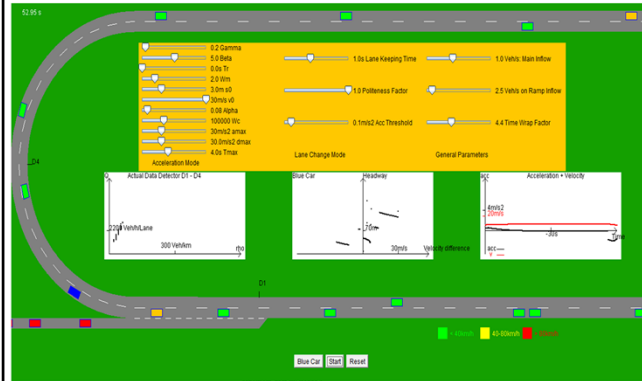
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Develop a library of modules in collaboration with the subcommittee led by H Van Lint.

In-Class Modules



Task 2:
When changing the acceleration and the lane changing parameter values, each student needs to... describe in a sentence or 2 the change in behavior produced (pages 9 and 10).

Task 3:
In real-life, traffic can be seen belonging to an uncongested region (Free Traffic - FT) left side of the fundamental flow-Q - density diagram; i.e. left side of the triangle seen in Figure 2 (presented next) or to a congested region (right side of the fundamental flow-Q - density diagram, i.e. on or under the right side of the triangle seen in Figure 2 presented next). In the congested region, five

and Moving Localized Cluster (MLC). Each of these congestion dynamics can be illustrated through a three dimensional figure showing the longitudinal location coordinate "x" of the vehicle, the time "t" when this location was reached by the vehicle and the velocity "V" of the vehicle. The corresponding illustrations can be seen in Figure 2.

For added clarity, Figure 3 shows the same congestion dynamics using the 3D directional figure (i.e. location, time and density) and their corresponding location on the fundamental diagram.

Each student needs to create 4 out of the 5 congestion dynamics stated earlier. In doing so, the student needs to fill the sheets afterwards (pages 11-12). These sheets will allow the students to record the time (t) parameter(s) change is/are made, and the parameter(s) changed before recreating the congested states in questions up to 10 chapters. Moreover, since the parameters changed have direct behavioral interpretation, the students need to comment on the behaviors/ events that contributed to the creation of each state.

Task 4:
The feedback of each student on this transportation module is appreciated.

References:

- Chandler, R. R. Herman, and W. Montroll, 1958, *Traffic Dynamics: Studies in Car-Following*, Operations Research 6, pp. 165-184.
- Hausdor, S. H., Trethet, M., Mahammasani, H. S., and Keating, A., 2008, *Modeling Driver Behavior as a Sequential Task*, National Research Council (U.S.), Transportation Research Board Meeting (67th, 2008, Washington, D.C.), Preprint CD-ROM.
- Keating, A., M. Trethet and D. Helbing, 2007, MOBIL - General Lane Changing Model for Car-Following Models, Transportation Research Record, Volume 1999/2007, pp. 86-94.
- Trethet M. K. Hamecke and D. Helbing, 2000, *Congested Traffic States in Empirical Observations and Microscopic Simulations*, Physical Review E, Volume 2, No. 2, pp. 1800-1824.



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Workshops



All Day Workshop Dedicated for “Standard” High-school Classes:

Physics

Mathematics/Statistics

Psychology

Objective: greatest impact on society and maximum outreach



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Follow-Up: Field Projects/Internships



- Summer Internships
- High-school students mentoring (from faculty or graduate students)
- Resulting publications → possible venues
- Attract high-school students to the transportation field in general and the traffic flow theory field in particular



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Suggestions



- Local Public Schools/Academic-Industry Institutions Partnerships
- Centralized Resources to be used and tailored to different regions/countries (presentations, workshop modules)
- School/University research experience
- TRB-DC Public School Partnership.



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AHB45 Subcommittees Coordination



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Acknowledgements



- School Without Walls Faculty and Staff
- Members of the AHB45 Outreach and Diversity Subcommittee: Vikash Gayah, Meead Saberi, Ethan Xuan, Jing Dong, Stephen Mattingly, Monica Menendez and Stella So
- AHB45 Committee Members and Friends (especially who participated in the survey)



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Committee Communications

- TFT Facebook Page: 304 “Likes” (up from 242 last year)
- Student Interest Group: 38 members
<http://tftcsig.ning.com/>





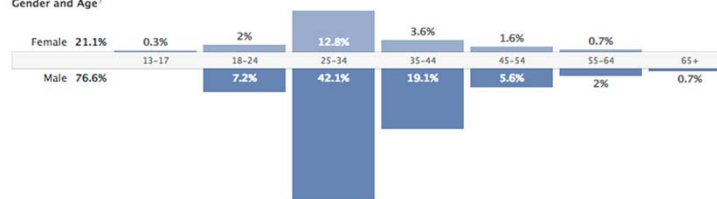
Facebook Update

- Total number of persons who have liked the page so far: 304 (from more than 20 countries)
- Female: 21%/Male: 77%
- Most of the Likes are in the range of 25-34 years old. The top 5 countries where people have liked us from are the U.S., Netherlands, Italy, India, and Canada.

Countries⁷

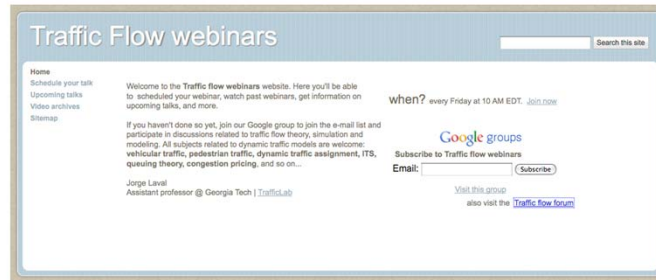
148	United States of America
11	Netherlands
11	Italy
11	India
9	Canada
9	Greece
9	United Kingdom
8	Bangladesh
8	Japan
5	Egypt
4	Switzerland
4	Vietnam
4	Germany
4	Turkey
3	Spain
3	Sweden
3	Australia
3	Austria
3	Nigeria
3	Taiwan

Gender and Age⁷





Webinars



GA Tech Traffic Flow Webinars
www.webinars.jltraffic.com/

25 Archives

<http://www.webinars.jltraffic.com/video-archives>

The webinars were less active due to transitions.

There were 3 webinars by Greenshield's awardees.

Special webinars (e.g., best of TFT) can be hosted by TRB. (TRB is in favor of these activities.)



Website

- News Items and RSS Feed
<http://www.tft.pdx.edu/news.php>
- Anyone can contribute items
- Revised 2001 Monograph: 32 sold, 322+ downloaded
- Greenshields Symposium 2008
TR Circular Published!
- New Greenshields Prize page
- New listing of 497 papers contributed by committee



AHB45
Committee on Traffic Flow Theory & Characteristics
Transportation Research Board
National Academy of Sciences



[Subscribe to our RSS feed](#)

TfB Annual Meeting Activities: AHB45 Committee on Traffic Flow Theory and Characteristics - January 2011

Workshop 08
Simulation Modeling and Analysis of Effect of Operational Improvements on Shortwave Gas Emissions: Integrating U.S. EPA MOVES Mode and Onset From Speed Emission Models with Simulation Models
Monday, January 23, 8:00am-12:00pm

Commuting Meeting
Tuesday, January 25, 1:00-5:00 PM Marriott Marquis Ballroom 06

Breakfast Meeting
Monday, January 24, 7:30-9:30 PM Marriott Wilson B & C

Poster Session 001: Traffic Estimation and Control Methods
Monday, January 24, 8:00-10:30 PM Marriott Turquoise Ballroom East

Poster Session 001: Microscopic Modeling of Car Following and Lane Changing
Tuesday, January 25, 7:30-9:30 PM Marriott Turquoise Ballroom East

Poster Session 001: Driver Behavior and Traffic Microsimulation
Wednesday, January 26, 2:00-4:00 PM Marriott Turquoise Ballroom East

Poster Session 002: Microscopic Properties of Traffic Flow
Wednesday, January 26, 4:00-6:00 PM Marriott Turquoise Ballroom East

Poster Session 003: Research in Traffic Flow Theory and Characteristics Part 1
Tuesday, January 25, 7:30-9:30 PM Marriott Ballroom 2

Poster Session 003: Research in Traffic Flow Theory and Characteristics Part 2
Wednesday, January 26, 9:00 AM-12 Noon Marriott Ballroom 2

Also please remember to contribute to either the following "interactive session on creating the future of transportation (students only)" U.S. DOT Senior Level Dialogue With Transportation Researchers
Tuesday, January 25, 3:00-4:00 PM Marriott Marquis Ballroom 06

TRB **TfB 2011 Workshop on Active Transportation and Demand Management - January 2011**

The purpose of this workshop is to introduce Active Transportation and Demand Management (ATDM) and identify an educational research agenda. The workshop will explore the TfB's ATDM program, review recent findings, announcements by different ATDM departments, and discuss the preliminary path of ATDM to stimulate discussion and identification of potential research needs. The workshop will be held on Sunday, January 23, 2011, 10:00 AM to 12:00 Noon at the Marriott Marquis.

Invites Requested for Annual Meeting - December 2010

The purpose of this workshop is to introduce TfB members to the upcoming TfB meeting. It is a pre-meeting workshop. Please visit the TfB website: <http://www.tft.pdx.edu/ahb45/annualmeeting2011>. In case of any missed questions, feel free to email: ahb45@tft.pdx.edu or contact the TfB staff at the appropriate address. It is greatly helpful to have articles that describe how simulator models are being used to plan, design, and operate traffic networks. Please take time to send the submissions required for the TfB meeting request. The goal is to send out the meeting electronically, so we can thank you for meeting and support for TfB.

For the Historical Paper Subcommittee, N Geroliminis provided the following ideas.

- Scan some classical papers
- Compute impact factors for the Tft committee; E Xuan can contribute to this activity. E Xuan also suggested to track citations using Google scholars.
- L Leclercq suggested to send a Google list of papers to committee members and select 5 papers; V Knoop and V Gayah volunteered for this activity.



Strategic Planning

- Thanks to Marguerite Zarrillo and Avi Unnikrishnan
 - Submitted draft Triennial Strategic Plan and awaiting comments
 - Highlights
 - Primary Activities
 - Committee Membership and Management
 - SimSub
 - Traffic Flow Characteristics
 - Research Problem Statements
 - Communications and Outreach
 - Think “products”
 - Engage non-traditional partners/participants who can't travel
-



TSP Review Comments

- Specific to our committee:
 - Post Annual Meeting webinars are excellent
 - Lacks organizational diversity—discuss steps to improve
 - Focus more on actions to be taken
 - General Operations Section comments:
 - Very positive trends (level of activity, interaction with other committees, use of social media, midyear meetings, alternative meeting formats, international engagement, development of handbooks)
 - Need to update/expand research problem statements
 - Consider impact of new technology or outside activity on mission
 - Consider Best Young Member Paper Award
 - “Keep up the good work!”
-



Classic Papers

- Update from Nikolas Geroliminis, Sue Ahn and Jorge Laval
-



TFT Historic Papers

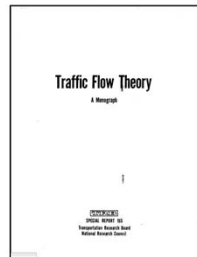
- 497 papers and 57 issues of HRR/TRR since 1963 (50 years in 2013!)
 - Some topics now covered by newer committees
 - Predecessor committees:
 - Committee on Traffic Flow Theory (1963-1970)
 - Committee on Characteristics of Traffic Flow (1965-1970)
 - Committee on Speed Characteristics (1963-1965)
 - Lists available via website on Google Docs
 - Comments – have any papers influenced research and practice?
 - Are any papers highly cited?
 - Literature review or annotated bibliography?
-



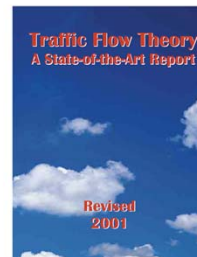
Special Report on TFT



1964



1975



2001



PEPSub

H Van Lint gave a presentation

B Coifman suggested two versions for teachers (shared exams, etc.) and students.

The chairman suggested some sort of synthesis to introduce newcomers to TFT.

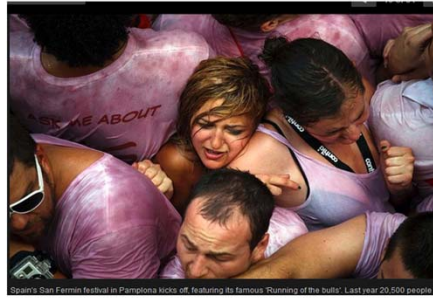


**Crowd dynamics, modelling and management
subcommittee**

(Hoogendoorn & Sarvi)
Secretary: Winnie Dammen

M Sarvi gave a presentation.

The subject has been recognized as the need area by TRB.



Spain's San Fermín festival in Pamplona kicks off, featuring its famous 'Running of the bulls'. Last year 20,500 people

This TRB subcommittee aims to bring together scientists and practitioners from different disciplines working on crowd flow theory, modeling, operations, and management.

This multidisciplinary approach taken by the committee will assist in further theoretical development and understanding of crowd dynamic, while keeping a strong focus on the application perspectives in flows and crowd management and the design of crowd/pedestrian facilities.

Key themes

- 1) Crowd flow dynamics
- 2) Crowd modeling and simulation
- 3) Management of pedestrian flows

Activities:

- 1) Pedestrian flow dynamics and crowd management monograph
- 2) Centre of Excellence
- 3) Special call for papers (TR-C special edition is underway)
- 4) Workshop in 2014

Liaisons:

- 1) Traffic Flow Theory committee (main)
- 2) Highway Capacity committee
- 3) Committee working on security
- 4) Visualization committee
- 5) Evacuation committee (taskforce)
- 6) Pedestrian committee
- 7) Network committee

The chairman asked for the link to the website to advertise on the TFTC committee website.

We should start taking action to schedule something for next year.



Liaison With Other Committees

HCQS Committee: Saturday workshop

They are developing new research directions/vision. They will send the research statements to us.



International Liaison

- NEARCTIS W. Daamen
 - MULTITUDE V. Punzo
 - MOCOPo Website C. Buisson
-

C Buisson gave a presentation on Multitude and NEARCTIS

V Punzo gave a presentation on COST Action - MULTITUDE



Announcements/Future Meetings

- **Midyear Meeting Noordwijk, the Netherlands**
 - ISTTT20 July 17-19, 2013, Noordwijk, the Netherlands
 - ABMTRANS'13, 2nd International Workshop on Agent-based Mobility, Traffic and Transportation Models, Methodologies and Applications, Halifax, Nova Scotia, Canada, 25-28 June 2013 (papers due January 28, 2013)
 - Conference on Agent-Based Modeling in Transportation Planning and Operations, Blacksburg, VA, 30 September-2 October 2013 (abstracts due March 8, 2013)
 - Mobil.TUM 2013, ITS for Connected Mobility, 18-19 June, 2013, Munich, Germany (abstracts were due December 31, 2012)
-

H Van Lint announced ISTTT20.

S Hoogendoorn announced that on 7/16, there will be two master classes (by Nathan Gartner and Michele Blaire)

35 papers will be published.

Papers on podium sessions will be published in Transportation B, C, F in special issues and Social Procedia.

IEEE-ITSC conference will take place in the Netherlands (abstract is due 3/15): ITS for all transportation modes



Announcements/Future Meetings

- Transportation Visualization Symposium, Irvine, CA, 23-25 October 2013 (abstracts due February 15, 2013)
 - Special Issue on Traffic Flow Modeling in new *International Journal of Transportation* (<http://www.sersc.org/journals/IJT/>), submissions due April 30, 2013.
-



New Business

- Predecessor committees
 - Committee on Speed Characteristics (1939-1963) TO-13A
 - Committee on Characteristics of Traffic Flow (1963-1970) TO-12
 - Committee on Traffic Flow Theory (1963-1970) TO-9

 - Committee on Traffic Flow Theory and Characteristics (1971-present) AHB45

 - 50th Anniversary 1963-2013 Commemoration Ideas
 - Sunday workshop and/or Special Session at 2014 AM
 - Special call for papers?
 - 2014 Summer Meeting w/Circular
 - Other possibilities
 - Volunteers
-

Commemoration of 50th anniversary in 2014

The chairman suggested planning/organizing a spotlight session sponsored by our committee for past papers and called for a subcommittee. M Zarrillo and A Skabardonis volunteered for the subcommittee.

The 50th anniversary call for papers (“Genealogy of traffic flow models”): This should be handled by the Historical Papers subcommittee. F Van Wageningen-Kessels and L Leclercq volunteered to draft a call.



Summer Meeting 2014

#	Answer	Response	%
1	Prefer international location:	4	18%
2	Prefer TRB facility at Woods Hole, Massachusetts if available	4	18%
3	Prefer TRB facility at Irvine, California if available	3	14%
4	Prefer downtown Portland, Oregon	7	32%
5	Prefer a mountain (e.g. Skamania Lodge) or Pacific ocean location near Portland, Oregon	3	14%
6	We should hold a summer meeting in 2014 with another committee:	1	5%
7	We should skip a summer meeting in 2014	0	0%
Total		22	100%



New Business

- 2014 Annual Meeting Call for Papers
 - International?
 - Mixed Traffic?
 - Other ideas?

 - “Future Products”
-

H Wei suggested a possibility of hosting a midyear meeting in China jointly with COTA



Adjourn

Please don't forget to sign in!
