Welcome to AHB45 Committee on Traffic Flow Theory and Characteristics

January 15, 2013
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
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?
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.groupsite.com
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
Propose Synthesis Study Topics:

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 Report

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Number</td>
<td>2862</td>
<td>3070</td>
<td>2847</td>
<td>3384</td>
<td>3694</td>
<td>3875</td>
<td>4226</td>
<td></td>
<td></td>
<td>4771</td>
</tr>
<tr>
<td>Total Presented</td>
<td>1688 (59%)</td>
<td>1849 (60%)</td>
<td>1759 (62%)</td>
<td>1882 (56%)</td>
<td>2190 (59%)</td>
<td>2322 (60%)</td>
<td>2550 (60%)</td>
<td></td>
<td></td>
<td>2765 (58%)</td>
</tr>
<tr>
<td>Lectern</td>
<td>888 (53%)</td>
<td>935 (51%)</td>
<td>867 (49%)</td>
<td>900 (48%)</td>
<td>921 (43%)</td>
<td>912 (39%)</td>
<td>979 (38%)</td>
<td></td>
<td></td>
<td>1048 (38%)</td>
</tr>
<tr>
<td>Poster</td>
<td>728 (43%)</td>
<td>752 (41%)</td>
<td>861 (49%)</td>
<td>952 (51%)</td>
<td>1232 (56%)</td>
<td>1352 (58%)</td>
<td>1515 (59%)</td>
<td></td>
<td></td>
<td>1655 (60%)</td>
</tr>
<tr>
<td>Meeting</td>
<td>21 (1%)</td>
<td>34 (2%)</td>
<td>31 (2%)</td>
<td>28 (2%)</td>
<td>20 (1%)</td>
<td>44 (1.9%)</td>
<td>40 (2%)</td>
<td></td>
<td></td>
<td>49 (2%)</td>
</tr>
<tr>
<td>Other Papers</td>
<td>2 (0.1%)</td>
<td>5 (0.2%)</td>
<td>0</td>
<td>2 (0.1%)</td>
<td>17 (0.8%)</td>
<td>14 (0.6%)</td>
<td>16 (1%)</td>
<td></td>
<td></td>
<td>13</td>
</tr>
<tr>
<td>Invited Presentations</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1750</td>
<td>2050</td>
<td>1990</td>
<td></td>
<td>2143</td>
</tr>
<tr>
<td>Total Speakers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3100</td>
<td>3300</td>
<td>4700</td>
<td></td>
<td>5100</td>
</tr>
<tr>
<td>Total Agencies/Orgs</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1700</td>
<td>?</td>
<td>2350</td>
<td></td>
<td>2500</td>
</tr>
</tbody>
</table>

### Sessions, Workshops, and Meetings

| Lectern 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  |       | 550  |
| Other Meetings   | 500+ | 500+ | 500+ | 500+ | 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
## Critical Issues Survey

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

<table>
<thead>
<tr>
<th>YEAR</th>
<th>TRR IMPACT FACTOR</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>.471</td>
</tr>
<tr>
<td>2010</td>
<td>.482</td>
</tr>
<tr>
<td>2009</td>
<td>.298</td>
</tr>
<tr>
<td>2008</td>
<td>.259</td>
</tr>
<tr>
<td>2007</td>
<td>.206</td>
</tr>
<tr>
<td>2006*</td>
<td>---</td>
</tr>
<tr>
<td>2005</td>
<td>.145</td>
</tr>
<tr>
<td>2004</td>
<td>.072</td>
</tr>
<tr>
<td>2003</td>
<td>.093</td>
</tr>
</tbody>
</table>

*No impact factor was computed for 2006

<table>
<thead>
<tr>
<th>MEASURE</th>
<th>TRR RANK IN 2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Citation Impact Factor</td>
<td>17th</td>
</tr>
<tr>
<td>Total Cites</td>
<td>1st</td>
</tr>
<tr>
<td># of Articles</td>
<td>1st</td>
</tr>
<tr>
<td>Cited Half-Life</td>
<td>4th</td>
</tr>
<tr>
<td>Eigen factor Score*</td>
<td>2nd</td>
</tr>
</tbody>
</table>

2011
21st
1st
1st
6th
2nd
USDOT/FHWA Report
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
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
Research Problem Statements
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 penal open discussion

• An important conclusion was to focus on strategic research areas to move TFT research forward and ensure funding for this research
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)
Thanks to subcommittee members authors and reviewers!
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Papers Received</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percent increase</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Presentation only</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Publication only</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Present and publish</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Submitted for Presentation</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lectern Sessions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lectern Papers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poster Sessions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Poster Papers</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Submitted for Publication</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accepted</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rejected</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Reviews</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assigned</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assigned/paper</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Received</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Received/paper</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Response rate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TFF Reviewer Pool</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of Reviews</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Reviews</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Friends Email List</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual Meeting Attendance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Midyear Meeting Attendance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SimSub Attendance</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sunday Workshop Attendees</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Facebook &quot;Likes&quot;</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
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 Macropscopic 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.
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
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.
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
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
92nd Transportation Research Board Meeting

Traffic Flow Theory and Characteristics Committee (AHB 45)

Outreach and Diversity Subcommittee

Case Study: Traffic Flow Theory and School Outreach
The George Washington University and the School Without Walls Grant School
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.
- 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.
Survey Conducted: December 2012

45 Respondents

Type of Work

- 72.1% Academic (university/school)
- 27.9% Governmental (public agency)
- 5% Industry (private)
- 2% Consulting (private entity/company)
- 0% Administrative

Highest Degree

- 77.8% Bachelor Degree
- 22.2% MS/ME Degree
- 0% High School/Equivalent
- 0% College Experience but No Degree
- 0% Associate Degree
- 0% Other

Introduction/Survey

Actions

AHB45 and School Outreach

Conclusion
AHB 45 Members and Friends Insights

Possibility of/Frequent Offering Internship/visiting Positions

- Yes: 61.5%
- No: 12.8%
- NA: 28.2%

Interest in Having Internship/Visiting Research Experience

- Yes: 68.9%
- No: 2.2%
- NA: 28.9%

Introduction + Survey  Actions  AHB45 and School Outreach  Conclusion
AHB 45 Members and Friends
Geographical Distribution

Introduction + Survey
Actions
AHB45 and School Outreach
Conclusion
AHB 45 Members and Friends: Interests + Outreach to Other Committees

- Intelligent Transportation Systems
- Highway Capacity and Quality of Service
- Managed Lanes
- Statistical Methods
- Transportation Network Modeling
- Freeway Operations
- Safety Data, Analysis and Evaluation
- Public Transportation Planning and Development
<table>
<thead>
<tr>
<th>Chosen Suggestions for Added Participations</th>
</tr>
</thead>
<tbody>
<tr>
<td>Timely Information</td>
</tr>
<tr>
<td>Data sharing within committee</td>
</tr>
<tr>
<td>Fewer number of papers, but higher quality</td>
</tr>
<tr>
<td>More practical applications</td>
</tr>
<tr>
<td>Additional webinars</td>
</tr>
<tr>
<td>Easy participation for overseas members</td>
</tr>
<tr>
<td>Committee not answering needs; advisor not positively perceiving involvement in committee activities</td>
</tr>
<tr>
<td>More activities targeted to students</td>
</tr>
<tr>
<td>Guidelines or practical views of scientific methods to the industry/consultancy</td>
</tr>
<tr>
<td>No more subgroups</td>
</tr>
<tr>
<td>Webinars and an active forum to receive questions and answers</td>
</tr>
<tr>
<td>interested in summer meetings; adding one day for such meetings during the ISTTT event.</td>
</tr>
<tr>
<td>Special meetings; reflection on the field's history</td>
</tr>
<tr>
<td>&quot;Have liaisons in every continent. Engage practitioners in developing research need statements&quot;</td>
</tr>
<tr>
<td>&quot;Ways to facilitate research collaborations&quot;</td>
</tr>
<tr>
<td>&quot;TFT does a great job with outreach due to Dr. Bertini's efforts. Keep up the good work.&quot;</td>
</tr>
<tr>
<td>&quot;So far so good&quot;</td>
</tr>
<tr>
<td>Reach out to undergraduate students, to non-civil/transportation fields</td>
</tr>
<tr>
<td>&quot;Open source for published papers&quot;</td>
</tr>
<tr>
<td>Increase in collaboration (visiting research/internship positions); outreach to public</td>
</tr>
<tr>
<td>Encourage young researchers to participate in the committee</td>
</tr>
<tr>
<td>Internship fair</td>
</tr>
<tr>
<td>Data availability (committee website); newsletter (regular; every month);</td>
</tr>
</tbody>
</table>

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”
Second Actions (two years time frame)

- 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)
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
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.
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
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
Field Trips and Hands-On Lab Experience

- Introduction + Survey
- Actions
- AHB45 and School Outreach
- Conclusion
In-Class Modules

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 shown afterwards (pages 12-13). These sheets will allow the students to record the time (a parameter) change is made, and the parameter(s) changed before recreating the congested states in questions (up to 10 changes). Moreover, since the parameters changed have direct behavioral interpretations, the students need to comment on the behaviors involved, that contributed to the creation of each state.

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

References:
Workshops

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

Physics
Mathematics/Statistics
Psychology

Objective: greatest impact on society and maximum outreach
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
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.
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)
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.
GA Tech Traffic Flow Webinars
www.webinars.jltraffic.com/

25 Archives
http://www.webinars.jltraffic.com/video-archives
Website

- News Items and RSS Feed
- 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
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
Crowd dynamics, modelling and management subcommittee

(Hoogendoorn & Sarvi)
Secretary: Winnie Dammen
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
Liaison With Other Committees
<table>
<thead>
<tr>
<th>International Liaison</th>
</tr>
</thead>
<tbody>
<tr>
<td>• NEARCTIS</td>
</tr>
<tr>
<td>• MULTITUDE</td>
</tr>
<tr>
<td>• MOCoPo Website</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>W. Daamen</td>
</tr>
<tr>
<td>V. Punzo</td>
</tr>
<tr>
<td>C. Buisson</td>
</tr>
</tbody>
</table>
Announcements/Future Meetings

- **Midyear Meeting Noordwijk, the Netherlands**
- ISTTT20 July 17-19, 2013, Noordwijk, the Netherlands
- 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)
Announcements/Future Meetings

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

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

- “Future Products”
Please don’t forget to sign in!