

Sustainable Pavements Subcommittee, AFD00(1)

Monday, January 11, 2016 8:00PM - 9:45PM

Marriott Marquis, George Washington University (M1)

Sponsored By:

Section - Pavement Management (AFD00)

MEETING AGENDA

Subcommittee

Chair:

Gerardo W. Flintsch (flintsch@vt.edu)

Secretary:

Filippo Giustozzi (filippo.giustozzi@polimi.it)

Webmaster:

Samer Katicha (skaticha@vt.edu)

Committee Research Coordinator (CRC):

Jeremy Gregory (jgregory@mit.edu)

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Senthil Thyagarajan (Senthil.Thyagarajan.CTR@dot.gov)

Committee Scope:

The scope of the subcommittee is concerned with identifying methodologies and applied research to improve the sustainability of the transportation systems in the context of highway and airfield pavement engineering, including the definition, measurement and assessment of the degree of sustainability, together with means of enhancing pavements' sustainability and embedding more sustainable materials, construction practices, pavement systems, and pavement management approaches into the discipline of pavement engineering.

Meeting Agenda

1. **Welcome Attendees, Introductions, and Sign in**
2. **Approval of 2015 Meeting Minutes** (received through the year by email)
3. **General Subcommittee Activities (...get involved!)**
 - ✓ Online meetings (every 2-4 months)
 - ✓ Invited presentations
 - ✓ Forum and open discussions
 - ✓ Co-sponsoring conferences and workshops
 - ✓ Peer-review of TRB papers
 - ✓ Research Need Statements preparation
 - ✓ ...

4. 2016 Annual Meeting (podium and poster sessions)

- ✓ 1 Call for papers
- ✓ 12 papers assigned/ reviewed by this committee:
 - 6 recommended for presentation in a poster session;
 - 1 recommended for publication, 2 in TRR journal

Poster Session - Session 385

Quantifying Pavement Sustainability

Monday 2:00 PM- 3:45 PM - Convention Center, Hall E

Gerardo Flintsch, Virginia Polytechnic Institute and State University, presiding

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Subcommittee on Sustainable Pavements (AFD00(1))

	Presentation number	Board number
Decision-Tree Based Approach to Making Post-Flooding Road Opening and Closure Decisions for Transportation Agencies		
Ricardo Medina, University of New Hampshire		
Rajib Mallick, Worcester Polytechnic Institute	16-5828	H152
Paul Kirshen		
Leslie McCarthy, Villanova University		
Jo Sias Daniel, University of New Hampshire		
Quantifying Sustainable Strategies for the Construction of Highway Pavements		
Rebekah Yang, University of Illinois, Urbana Champaign	16-5896	J170
Hasan Ozer, University of Illinois, Urbana Champaign		
Imad Al-Qadi, University of Illinois, Urbana Champaign		
Assessment of Pavement Deflection-Caused Fuel Consumption via FWD Data		
Abbas Booshehrian, University of Minnesota, Twin Cities		
Arghavan Louhghalam, Massachusetts Institute of Technology	16-6246	J173
Lev Khazanovich, University of Minnesota		
Franz Josef Ulm		
Model Development, Field Section Characterization, and Model Comparison for Excess Vehicle Fuel Use due to Pavement Structural Response		
Erdem Coleri, Oregon State University		
John Harvey, University of California, Davis	16-6191	J172
Imen Zaabar, Michigan State University		
Arghavan Louhghalam, Massachusetts Institute of Technology		
Karim Chatti, Michigan State University		
Informing Roadway Sustainability Practices Using Greenroads Certified Project Data		
James Lew, University of Washington	16-4844	J169
Stephen Muench, University of Washington		
Jeralee Anderson, Greenroads		
Simulation of Annual Excess Fuel Consumption from Pavement Structural Response for California Test Sections		
John Harvey, University of California, Davis	16-6932	J171
Jeremy Lea, University of California, Davis		
Chang Mo Kim, University of California, Davis		

Session 673

Leveraging Knowledge Through Twinning of Research Projects: Three Twinned Projects from European Commission Horizon 2020 and FHWA

Tuesday, 3:45 PM- 5:30 PM , Convention Center, 151B

Debra Elston, Federal Highway Administration (FHWA), presiding
Alessandro Damiani, European Commission, presiding

Sponsored by:

Standing Committee on International Cooperation (A0010)

Standing Committee on Technology Transfer (ABG30)

Subcommittee on **Sustainable Pavements (AFD00(1))**

Standing Committee on Characteristics of Asphalt Paving Mixtures to Meet Structural Requirements (AFK50)

Standing Committee on Urban Freight Transportation (AT025)

The three twinned projects that will be presented are:

- *ECOLABEL (now LCE4ROADS) Project (EU) and National Sustainable Pavement Consortium Project (US)*
- *DURABROADS Project (EU) and Warm Mix Project (US)*
- *Urban Freight Movement and Context Sensitive Solutions (EU and US)*

5. Preparing the 2017 Annual Meeting

- a. *Call For Papers*
- b. *Workshops*
- c. *Other?* (webinar ideas, etc.)

6. Webinars

- ✓ *Do we want to organize any webinars?*

7. Research Needs Statements

- ✓ *Current ideas for research projects:*
 - a) **High Modulus Base Courses:** In Europe, high modulus asphalt base courses have been used to improve pavement performance, reduce pavement thickness, and ultimately improve its life cycle cost. These mixtures are designed based on performance and not volumetric requirements. Recently, NAPA and FHWA have become interested in bringing this technology to the US; however, there is no clear design method at this time. This project will be designed to translate the french EME specification to the current US standards. The research team will understand the benefits of this high modulus mix design in the MEPDG.
 - b) **Ground Tire Rubber RNS** - ALDOT will champion this one: State agencies are currently looking for options besides putting polymer into asphalt mixtures. One option is using Ground Tire Rubber in conjunction with or as a substitute for SBS. While this option exists, little guidance exists on how to specify and test this binder to ensure performance as the 1mm gap in the DSR and m-value from the BBR tend to produce erroneous results. This project will be designed to develop guidance to GTR

modified binder testing. In addition, the researcher will try to quantify differences in production methods such as terminal blends, plant mix, and asphalt rubber.

- c) **LCI:** Quantification of benefit forms the basis for LCA. Accuracy of the inputs plays an important factor in deciding the efficiency of the LCA. Thus, LCI plays an important role in LCA application. The LCI is sensitive to both location and time. With the improvements in technology, the LCI loses its precision with time. Hence there is an absolute necessity to develop and maintain the LCI with frequent updates for each specific region. There is a need to identify the entities that should be collected as part of LCI. The entities can be related to materials, construction equipment's, vehicles, or operational activities. The LCI entities can be identified based on level of LCA to be conducted and can be part of construction, maintenance or use phase of the pavement. However, a guidelines or standard on entities to be collected in projects depending on the level of LCA is currently missing. Such a guidelines will assist the state agencies interested in LCA to build there LCI knowing what entity to collect and how to consistently maintain the LCI database. The guidelines should address the methodology to handle the uncertainty associated with estimation of each entity. Current PCR/EPD available for specific materials can be taken as a foundation. A standard or guideline to collect and maintain a LCI database would be an essential foundation for future PCRs and LCAs/EPDs for roads.

✓ *Any Synthesis topics?*

✓ *We should create a Subcommittee for each idea – volunteers?*

8. Presentations

FHWA Sustainable Pavements Program, Gina Ahlstrom,
(FHWA), <https://www.fhwa.dot.gov/pavement/sustainability/>

Sustainable Pavement & Railroad Initial Training Network (SUP&R ITN), Davide Lo Presti
(University of Nottingham), <http://superitn.eu/wp/>

LCE4Roads, Rocío Fernandez Flores (ACCIONA), <http://ecolabelproject.eu/>

National Sustainable Pavement Consortium, Ben Bowers
(VTRC) <http://www.pooledfund.org/Details/Study/497>

World Conference on Pavements and Assets Management WCPAM, Milan (Italy), June 2017,
Maurizio Crispino (Polytechnic University of Milan)

9. Web-meeting:

✓ Proposed Schedule (tentative)

- March 23, 2016, 11:00 – 12:00 EST
- May 18, 2016, 11:00 – 12:00 EST
- July 27, 2016, 11:00 – 12:00 EST
- September 28, 2016, 11:00 – 12:00 EST
- November 23, 2016, 11:00 – 12:00 EST

✓ Meeting focus?

✓ Volunteer for presentation?

10. Other Committee Business and Updates

- ✓ Do we want to organize a national or international symposium or conference?
- ✓ Or co-sponsor?

11. Conferences and other announcements:

- ✓ 8th RILEM International Conference of Mechanisms of Cracking and Debonding in Pavements, Nantes, France – June 2016
- ✓ ASCE International Conference on Transportation & Development (ICTD 2016), Houston, Texas – June 2016
- ✓ 11th National Conference on Transportation Asset Management, Minneapolis, Minnesota – July 2016
- ✓ 5th International Conference on Accelerated Pavement Testing, San Jose, Costa Rica – September 2016
- ✓ World Conference on Pavements and Assets Management WCPAM, Milan (Italy), June 12-16, 2017
- ✓ Other conference announcements?

12. Adjourn