

PLANNING AND ENVIRONMENT GROUP

Resource Conservation & Recovery in Transportation (ADC60) Triennial Strategic Plan (TSP)

2016-2019

Submitted by:

Jennie Armstrong, RG

Chair person

December 2016

Committee Name and Number: Resource Conservation & Recovery (ADC60)

Committee Chairperson: Jennie Armstrong
Science Teacher
Aloha High School, Beaverton, Oregon

Vice Chairperson: Cyrus Parker
Geologist
North Carolina Department of Transportation

TSP Three-Year Period: 2016-2019

Date Prepared: December 2016

1. Committee Scope: The committee shares the latest knowledge, expertise, and experience in development and integration of proactive environmental management systems and sustainability concepts into transportation programs, in the industry's evolution from a solid and hazardous waste remediation and management approach to a resource efficiency approach. The Committee focuses on systems-based solutions and research associated with resource efficiency-and contamination-related technical areas such as toxic and hazardous materials tracking, pollution prevention, product substitution and green designs, recycling and reuse of materials, advances in environmental site assessment technologies and methodologies, and brownfields programs.

A. When did your committee last consider the scope? The Committee last considered its scope in 2014, when the committee changed its name from "Waste Management and Resource Efficiency in Transportation" to "Resource Conservation & Recovery."

B. Does the current scope statement accurately reflect your committee's activities? Mostly.

Should the scope be modified? The scope should be modified to include the work of our sub-committee "Transportation Infrastructure, Facilities and Right-of-ways as Sustainable Resources."

C. What changes are proposed and why are these changes necessary? No changes proposed at this time. The committee will consider modifications to the scope over the next year.

2. Committee Strategic Planning

A. Has your committee conducted strategic planning sessions? If so, please attach results.

The committee includes strategic planning in all our in-person meetings. This includes

both the TRB annual meeting in Washington DC, and our summer workshop, which moves to a different state each year.

Emerging issues and technologies are identified at each meeting by bringing in outside speakers, discussing research needs, and active participation in the not-on-agenda time provided at each meeting. In addition, each summer workshop has a slightly different theme that typically reflects the biggest issues and successes for the location where the workshop is being held. By moving the workshop each year, we endeavor to cast as wide a net as possible in identifying emerging issues and technologies.

Since its inception, this committee has adjusted its scope to capture the most recent issues within our scope. What started out as a committee focused on contamination and waste management, has flourished into a committee focused on risk management and resource efficiency as it pertains to sustainability, environmental management systems, water quality, health and safety, reuse and recycling, climate resiliency, as well as contamination and waste management. In 2014, the committee widened our scope even further to include a sub-committee on “Transportation Infrastructure, Facilities and Right-of-ways as Sustainable Resources.” This sub-committee has focused on using transportation properties for alternative energy production, native species habitat, and water quality treatment. Like its parent committee it will continue to expand the topics under its umbrella as new concepts and issues become apparent.

The committee has recently turned its focus to developing research needs statements and seeking funding for the issues identified through the above processes. Part of our committee meeting time at each annual meeting is now given over to roughing out a few research needs statements, based on the input of members and friends of the committee in the weeks right before the annual meeting. These ideas are then polished for submittal to the various funding databases over the course of the following year.

B. If you have not done strategic planning, what are your committee’s strategic directions for the future? Not applicable.

3. Critical and Cross-Cutting Issues

Identify committee’s activities that helped address any critical and cross-cutting issues identified by (a) the committee, (b) the TRB Executive Committee (<http://onlinepubs.trb.org/Onlinepubs/general/CriticalIssues06.pdf>), (c) the Technical Activities Council (<http://onlinepubs.trb.org/Onlinepubs/dva/DivAGuide.pdf>, p. 58), and (d) the Planning and Environment Group that fall under the scope of the committee.

A. What are the key long term and emerging issues that your committee is tracking?

The committee’s recent shift to focus more on research needs, has helped us identify emerging issues more clearly. Our summer workshops also help identify emerging

issues, as the hosting agencies influence the tone of each meeting and the abstracts submitted reflect new technologies and management strategies in stages from cutting-edge research to full implementation.

Emerging issues that we are currently tracking are as follows:

- Barriers to using rights of ways for alternative energy production. (This is a main focus of our new sub-committee).
- Use of drones and other technologies in environmental assessments and managing environmental resources (ADC60 co-sponsored a workshop on drone use at the 2017 annual meeting, as well as including a related session in our 2016 summer workshop).
- Winter maintenance alternatives, such as abrasive free road maintenance, use of biochar, use of recycled sweepings, etc. (Our last 2 summer workshops have included sessions focused on this issue, and we submitted a related research needs statement to the TRB and Transportation Environmental Research Ideas databases this year).
- Management options for excavated materials that are not quite clean (contain contaminants below regulatory cleanup levels).
- Improving acceptance, regulatory approval and use of proven recycled materials in construction. (Use of recycled materials typically fills more than one session in our summer workshops, and we sponsored the session on “successful Recycling and Use of Recycled Materials” for the 2017 annual meeting).
- Managing risks related to PCBs in paints used on transportation infrastructure, in the wake of superfund site discoveries potentially linking PCB contamination to infrastructure sources. (We included presentations in our 2013 summer workshop, and have since submitted a related research needs statement to the TRB research needs database).

B. What plans do you have to address cross-cutting issues with other committees?

Our committee has worked actively to support cross-cutting sessions at the annual meetings, sponsored by our TRB group.

Our committee also has members and friends who routinely attend the annual meetings of other committees as liaisons, to share our activities and bring back information regarding common interests to our committee. We routinely send liaisons to the following committee meetings:

- ADD40 Transportation and Sustainability
- ALO50 Environmental Issues in Transportation Law
- ADC30 Ecology and Transportation
- AHD10(1) Environmental Maintenance Sub-Committee
- ATO40 Transportation of Hazardous Materials
- AFP40 Geo-Environmental Processes

- AFB60 Hydrology, Hydraulics and Water Quality

We will continue to support such liaison efforts and expand or adjust the list as we learn about other committees with shared interests.

In addition, ADC60 leadership actively participates in TRB group meetings and teleconferences, looking for ways to cooperate with other committees in our group. As a result, we have co-sponsored sessions with cross-cutting issues in many past annual meetings, taking the lead on several in the past couple of years. For example, ADC60 took the lead on the 2016 workshop “Meet the Regulators,” the 2015 workshop “Environmental Training: Preparing the Transportation Workforce,” and the 2015 session “Meeting Environmental Commitments in Design-Build Projects.”

Our committee has also been very successful in reaching out to other committees with cross-cutting interests and included them as co-sponsors of our summer workshops, as follows:

- 2011, Portland, Oregon: ADC50 Historic and Archeological Preservation
- 2014, New York City: ADD40 Committee on Sustainability
- 2016, Asheville, North Carolina: AFP40 Geo-Environmental Processes

We plan to continue this trend, partnering with AFP70 Aggregates Committee for our 2017 workshop in Duluth, Minnesota. We will continue to look for partnering opportunities as we plan subsequent workshops.

4 Committee Activity Plans

A. What activities are planned next year to achieve your goals?

The committee’s four main goals are as follows:

- Continue to increase engagement and attendance at our summer workshops by building our reputation and providing a rigorous and applicable program.
- Monitor emerging issues and technologies and produce relevant research needs statements to support those concepts.
- Strengthen our sub-committee on “Transportation Infrastructure, Facilities and Right-of-ways as Sustainable Resources”
- Continue to look for cross-cutting issues and opportunities to partner with other TRB committees and other organizations with common interests.

In the next year, ADC60 will use the following activities to further these 4 main goals.

Summer Workshops:

- Plans are already well underway for the 2017 workshop in Duluth Minnesota, hosted by the University of Minnesota Duluth Natural Resources Unit and Center for Economic Development, and the Minnesota Department of Transportation. This workshop will focus on Intermodal Connections: Natural Resources and Sustainability.
- We will continue to build on our outreach success in prior summer workshops to bring in engaged participants and sponsors.

- We will plan forwards for the 2018 summer workshop, which we hope to hold in Washington State, depending on negotiations with potential hosts there.

Emerging Issues and Technologies:

- The committee will include speakers in our annual business meeting, who will address some of the emerging issues and technologies identified by friends and committee members during the course of 2016.
- The committee will set aside time in our business meeting at the annual meeting for roughing out two to four research needs statements, based on the feedback in the weeks prior to that meeting. These research needs statements will then get fleshed out by those supporting them and our Research Coordinator during the following year.

Transportation Infrastructure, Facilities and Right-of-ways as Sustainable Resources subcommittee:

- The committee will initiate a discussion of our official scope at the annual meeting and use emailed chains to flesh out a new scope that includes our subcommittee activities.
- The committee has dedicated one whole session at the annual meeting to alternative uses or right of ways, as well as including several related presentations in our poster session
- The committee will dedicate at least one session (likely more) in the summer workshop to issues related to this subcommittee’s work.

Cross-cutting Issues:

- The committee leadership will use the Environment and Energy Executive Board meeting, at the annual meeting, to discuss potential areas of cooperation for the next year with leadership of other committees.
- The committee has cosponsored several sessions at the 2017 annual meeting, based on overlapping areas of interest with other committees, including:
 - “Alternative Uses of Rights of Way” lectern session, led by ADC60
 - “Lidar & transportation: Field Applications and Practical Implications” workshop, led by ADC50
 - “Next Generation Biofuels: Technical Potential, Emissions, and Scale-up Challenges” lectern session, led by ADC80
- Committee members and friends will attend the business meetings of other related committees at the annual meeting to share information regarding our workshop and research goals, as well as to bring back information about other committee’s activities to our committee meetings.
- The 2017 summer workshop will be co-sponsored by committee AFP70 Aggregates, to help cross-pollinate with other TRB participants looking at reuse and recycling from a different perspective.

B. What activities are envisioned in future years?

In future years, ADC60 will address these same goals in the following ways:

Summer Workshops:

- Continue to hold annual summer workshops around the country, striving to continue our trend of increased attendance and improved content.
- Continue to seek out a variety of hosts and geographic locations for our workshops, to continue to interact with colleagues from around the country and discuss common interests and research needs.

Emerging Issues and Technologies:

- Continue to monitor emerging issues and technologies and continue our new focus on developing and submitting research needs statements.
- Use our summer workshops to look at emerging topics in greater depth and identify common research needs.

Transportation Infrastructure, Facilities and Right-of-ways as Sustainable Resources subcommittee:

- Work to engage other committees with cross cutting interests in the activities of this new sub-committee
- Sponsor related sessions at the annual meetings and including sessions in our summer workshops
- Track relevant research and write research needs statements to fill the gaps in knowledge and implementation.

Cross-cutting Issues:

- Continue to look for cross-cutting issues and opportunities to partner with other TRB committees and other organizations with common interests.

5 Committee Organization and Membership

A. Describe the membership gender and racial diversity.

The Committee has a full complement of 25 regular members (including the Committee Chair), two young members, and two DOT members. Eighteen members are male, and seven are female.

White	11
Black	2
Hispanic	0
Asian or Pacific Islander	3
American Indian	0
Unknown	8
Female	7
Male	18

Since the last Triennial Self-Evaluation (2009-2012), the number of young members has increased by 2, the number of female members increased by three, and the number of minority members increased by 3.

B. How is membership distributed geographically?

Although the majority of our members are still located in the Eastern portion of the country, our geographic distribution has improved, with members added in the northwest, southwest and central regions. (Note that the region divisions were different in our last triennial plan, so it is not possible to give numerical comparisons). We still need to focus on recruiting in those regions, as well as needing to look for potential international members.

North West US	3
South West US	2
Central US	3
North East US	10
South East US	7
International	0

C. How is membership distributed across professional affiliation?

Of the Committee members, three work for state government, three for local agencies, three for the federal government, six for educational institutions, and ten in the private sector. The following professional affiliations constitute Committee membership:

- Aloha High School, Beaverton, OR
- Maryland Department of Transportation
- Los Angeles County Metropolitan Transportation Authority
- Louis Berger
- Law Office of Denise R. Ferguson, LLC
- Virginia Tech Transportation Institute
- Weston Solutions, Inc.
- Center for Toxicology and Environmental Health
- Metropolitan Transportation Authority of NYS
- Andrews Engineering, Inc.
- University of Alabama
- TerraLogic, LLC
- Office of the Assistant Secretary for Research and Technology (OST-R)
- Federal Transit Administration

- North Carolina Department of Transportation
- Wisconsin Highway Research Program
- Good Company
- University of Florida
- Virginia Department of Transportation
- Dewberry
- AECOM
- New York City Transit
- U.S. Environmental Protection Agency
- AMEC Foster Wheeler
- Washington University

D. How many “friends” are associated with the committee?

The Committee has 42 persons on the MyTRB friends list, excluding the 25 members and TRB staff. Note that MyTRB is relatively new and many people interested in our committee proceedings still have not yet signed up on that registration system. Other metrics to measure interest in our committee activities, include summer workshop attendance (163 people in 2016) and abstract submittals for our workshop (72 in 2016). We will continue to encourage those that attend our meetings and workshops to register as friends through MyTRB.

E. List subcommittees and their chairs.

- Transportation Infrastructure, Facilities and Right-of-ways as Sustainable Resources – Andrew Alden, Virginia Tech Transportation Institute
- Summer Workshops – Jennie Armstrong, Aloha High School
- Environmental Management Systems – Cris Liban, LA Metro
- Papers & Presentations Coordinator – Andrew Alden, Virginia Tech Transportation Institute
- Research Coordinator – Andrew Graettinger, University of Alabama
- Communications Coordinator – Angelo Elmi, Metropolitan Transportation Authority of NYC
- Secretary – Joyce Rebar, Maryland Department of Transportation

6. Interaction with Other TRB Committees, Organizations, and Customers

A. List other TRB committees with which your committee maintains a formal liaison representation.

The Committee maintains an active liaison relationship with the following TRB committees and customers:

- ADD40 Transportation and Sustainability (Meetings routinely attended by our

- members; co-sponsored our 2014 summer workshop in New York City, NY)
- ALO50 Environmental Issues in Transportation Law (One of our members is also a member of this committee; meetings routinely attended by our members)
- ADC30 Ecology and Transportation (Meetings routinely attended by our members)
- AHD10(1) Environmental Maintenance Sub-Committee (Meetings routinely attended by our members)
- ATO40 Transportation of Hazardous Materials (Meetings routinely attended by our members)
- AFP40 Geo-Environmental Processes (Co-sponsored our 2016 summer workshop in Asheville, NC; One of our members is also a member of this committee)
- ADC80 (One of our members is also a member of this committee)
- AFP70 Aggregates (Co-sponsoring our 2017 summer workshop in Duluth, MN; meetings routinely attended by our friends)

B. List outside organizations with which your committee maintains ongoing liaison representation.

- American Association of State Highway and Transportation Officials Standing Committee on the Environment (AASHTO SCOE) (ADC60 leadership attended past meetings when held by SCOE at the TRB annual meeting and invites SCOE members to our meetings.)

C. List shared activities during the past year (examples should include work on cross-cutting issues, information exchange, research, etc.)

ADC60 co-sponsored several sessions at the 2017 annual meeting, based on overlapping areas of interest with other committees, including:

- “Alternative Uses of Rights of Way” lectern session, led by ADC60
- “Lidar & transportation: Field Applications and Practical Implications” workshop, led by ADC50
- “Next Generation Biofuels: Technical Potential, Emissions, and Scale-up Challenges” lectern session, led by ADC80

In 2016, ADC60 invited AFP40 Geo-Environmental Processes to co-sponsor our summer workshop, which they enthusiastically participated in co-planning and hosted an independent session of their own, as well as contributing to the main program. The meeting was hosted by the North Carolina Department of Transportation and included key note speakers from the Federal highways Administration, National Oceanographic and Atmospheric Administration, IBM and BMW. Attendees travelled from 19 different states and included federal, state and local government agencies, education and research centers and private industry.

7. Business Meeting Attendance (information from the most recent meeting)

Attendance at the 2016 annual business meeting included 13 members and 10 friends of the committee.

Attendance at the mid-year meeting, held in conjunction with the 2016 summer workshop, included 9 members in person, 4 members via telephone/internet connection and 8 friends.

Attendance at the 2016 summer workshop included 163 people.

8. Technology Transfer Activities for Colleagues and Customers

A. Is the committee planning to publish documents within the next two years? (proceedings, circulars, etc.) Please list and give anticipated dates.

ADC60 will publish minutes from the annual and mid-year business meetings. We will also publish an official program for our summer workshop. Minutes will be published within 30 days of the meetings and the summer program will be published in June 2017.

B. Workshops proposed (excluding the TRB Annual Meeting).

Our 2017 workshop will be co-hosted in Duluth Minnesota, by the University of Minnesota Duluth Natural Resources Unit and Center for Economic Development, and the Minnesota Department of Transportation. This workshop will focus on Intermodal Connections: Natural Resources and Sustainability.

Discussion for potential future Mid-Year Workshops (2018) with Washington State are ongoing.

C. Conferences proposed.

See above.

D. Other activities (web pages, newsletters, updating of millennium paper, etc.)

The Committee has its own website maintained by members with the Metropolitan Transportation Authority of New York City. The Committee website contains information about our committee, programs from past workshops and information about our upcoming 2017 summer workshop.

9. Research Needs and Problem Statements (Of particular interest are problem statements for TRB Cooperative Research Programs, but please list related activities your committee is involved with as well.)

A. How do you determine and select research needs and problem statements? (workshops, call for ideas, etc.)

The committee canvases members and friends for research needs ideas in December. Those that seem most urgent or that have repeated requests are taken up during dedicated time at the annual business meeting. When we receive many different requests, selection of those research needs is done by polling members. When only a select few are submitted, ADC60 leadership works to combine them into a manageable number.

During the annual business meeting, ASC60 dedicates 30 to 40 minutes to rough out research needs statements, based on the ideas gathered during December. The meeting breaks into smaller groups, and each group works on a research idea. At the end of the meeting, we have several research ideas roughed out, that include input from multiple interested parties. Our Research coordinator then takes those drafts, adds some background research and adjusts them based on the additional information gathered. Then he sends another draft back out to all members and involved parties for further comment, prior to submitting a final research needs statement to appropriate funding databases.

B. Number of Research Problem Statements currently under development?

During our 2016 annual business meeting, we drafted four research needs statements on the following topics:

- Effectiveness of Environmental Management Systems
- Winter Maintenance Alternatives: living snow fence & eliminating abrasives
- Barriers & solutions for slightly contaminated fill material
- Implementable Renewable Energy projects for rights of way

Following the annual meeting we were able to complete and submit four research needs statements, as follows:

- Implementation of Living Snow Fences: TRB and TERI databases
- Alternatives to Winter Abrasives: TRB and TERI
- Environmental Management System Effectiveness: TRB and TCRP databases
- Evaluating and minimizing impacts from PCBs and metals in paints: TRB RNS database (note that this RNS topic had been identified in the previous year)

A research topic development session is planned for the 2017 annual meeting, although the topics have not yet been selected.

C. List Research Problem Statements funded during last three years?

None of the committee's research needs statements have been funded, at this time.

- D. Are the statements available to the public (for example, in TRB Research Needs Database, <http://rns.trb.org/>)? Yes**

10. General Remarks and Comments Offered by the Committee

- A. Should your committee continue in its present form with its present title? Yes.**

The Committee continues to be very active, and it is a well-supported TRB committee.

If no, please explain. Not applicable.

- B. Should it be merged with one or more other committees? No.**

If yes, please explain. Not applicable.

- C. Any other comments considered appropriate by the committee.**

ADC60 continues to be a very active committee. We host an annual summer workshop that continues to grow each year, as represented by the growing number of abstracts received each year, the growing number of corporate sponsors engaged and the growing number of attendees. We have recognized that we were failing to fulfil the research needs portion of our responsibilities and have worked to ensure that developing research needs statements is now a core part of our business meetings and our work throughout the year. We also recently, at the request of TRB staff, took on a sub-committee that stretches our knowledge base into new areas, looking at how transportation properties could be used to support alternative goals, like energy production, carbon sequestration, clean water and native species habitat. We will continue to work to streamline and strengthen our efforts in all three of these areas as we endeavor to carry out the goals of TRB.

11. Annual Reports of Committee Activities (Please attach last three years of annual reports and supporting documents).

The following summary includes all sessions sponsored and co-sponsored over the past four years of annual TRB meetings (2013-2016). Following this summary, the programs for the past three years of summer workshops are also attached (2014-2016). Finally, a copy of our 2016 annual work plan is attached, along with the items successfully completed in that year.

2016 Annual Meeting

ADC60 - Waste Management and Resource Efficiency in Transportation

2 Paper/Conference Sessions

1 Poster Session

1 Workshop

3 Published Meetings

Lectern Session 548

Decarbonizing Transportation Construction Materials: Opportunities and Barriers to Increased Use of Recycled Content

Tuesday, Jan 12, 2016 10:15AM 12:00PM

Lectern Session 487

Superfund: Department of Transportation Liability and Allocation Process

Tuesday, Jan 12, 2016 8:00AM 9:45AM

Published Meeting - Committee

Waste Management and Resource Efficiency Mid-Year Meeting Planning Subcommittee, ADC60 (1)

Tuesday, Jan 12, 2016 1:30PM 3:15PM

Published Meeting - Committee

Transportation Infrastructure, Facilities, and Right-of-Ways as Sustainable Resources Subcommittee, ADC60 (2)

Monday, Jan 11, 2016 8:00AM 9:45AM

Published Meeting - Committee

Resource Conservation and Recovery Committee

Monday, Jan 11, 2016 10:15AM 1:15PM

Poster Session 442

Current Issues in Resource Conservation and Recovery

Monday, Jan 11, 2016 4:15PM 6:00PM

Workshop 164

Meet the Regulators: Emerging Issues in Hazardous Materials Management and Climate Change

Sunday, Jan 10, 2016 1:30PM 4:30PM

2015 Annual Meeting

ADC60 - Waste Management and Resource Efficiency in Transportation

2 Paper/Conference Sessions

1 Poster Session

1 Workshop

3 Published Meetings

2 Cosponsored Sessions/Meetings

Paper or Conference Session (S)s

206 (CGS15-029)

Monday, January 12, 2015, 8:00am- 9:45am, Convention Center, 140A

[Department of Transportation Rights-of-Way and Infrastructure for Energy Production](#)

[Andrew Scott Alden](#), Virginia Tech Transportation Institute, presiding

Sponsored by Committee on Waste Management and Resource Efficiency in Transportation

[Innovative Finance to Support Alternative Fuels Infrastructure](#) (P15-5420)

[Diane Turchetta](#), U.S. Department of Transportation

[Cultivating ROW Vegetation for Carbon Sequestration and for Feedstocks to Biofuels and Biopower](#)

(P15-5519)

[Joshua Proudfoot](#), Good Company

[Mapping Right of Way: A Technology Solution with Alternative Green Uses](#) (P15-5520)

[Nina Safivi](#), Vermont Agency of Transportation

[MassDOT Solar PV Energy Program](#) (P15-7127)

[Hongyan \(Lily\) Oliver](#), Massachusetts Department of Transportation

401 (CGS15-035)

Monday, January 12, 2015, 3:45pm- 5:30pm, Convention Center, 156

Best Practices to Prevent and Control Salt Contamination

Edward D. Wallingford, Virginia Department of Transportation, presiding

Sponsored by Committee on Waste Management and Resource Efficiency in Transportation

Snow and Ice Control Environmental BMPs (P15-6285)

Xianming Shi, Washington State University

Managing and Recycling of Salt-Laden Runoff: Turning an Environmental Challenge into a Supply Opportunity (P15-6321)

Michael Fitch, Virginia Department of Transportation

Minimizing Salt Usage Through Established Practice (P15-6284)

Wilfrid A. Nixon, University of Iowa

Salt Deicing Environmental Impact: Remedial Strategies and Best Practices For Transportation Authorities (P15-5527)

Eric B. Schmidley, Leidos Engineering, LLC

Poster Session (P)s

535 (CGP15-006)

Tuesday, January 13, 2015, 8:30am-10:15am, Convention Center, Hall E

Current Issues in Waste Management and Resource Efficiency in Transportation

Edward D. Wallingford, Virginia Department of Transportation, presiding

Sponsored by Committee on Waste Management and Resource Efficiency in Transportation; Committee on Transportation Infrastructure, Facilities, and Right-of-Ways as Sustainable Resources

Five+ Year Evaluation of Engineered Fill with Recycled Coal Combustion Products (15-0933)

Georgene M. Geary, Consultant

John Pugh, Southern Company

Jim McNamara, Georgia Environmental Protection Division

Environmental Life-Cycle Assessment of Pavement Maintenance, Repair, and Rehabilitation Activities (15-4260)

Ossama Salem, Syracuse University

Sudipta Ghorai, Syracuse University

Environmental and Economic Consequences of Permanent Roadway Infrastructure Commitment: City Road Network Life-Cycle Assessment and Los Angeles County (15-4715)

Andrew Michael Fraser, Arizona State University

Mikhail V. Chester, Arizona State University

Piezoelectric Energy Harvesting on Public Roadways (15-3623)

Haocheng Xiong, Virginia Tech Transportation Institute

Linbing Wang, Virginia Polytechnic Institute and State University

Eric Weaver, Federal Highway Administration

Investigation of Leaching Behavior of Municipal Solid Waste Incineration Bottom Ash Used as Road Construction Materials (15-4970)

Kazi Tasneem, University of Central Florida

Jongwan Eun, University of Wisconsin, Madison

BooHyun Nam, University of Central Florida

Waste Management and Resource Efficiency in Transportation Committee (P15-5421)

Edward D. Wallingford, Virginia Department of Transportation

Jennie Armstrong, Oregon Department of Transportation

Andrew Scott Alden, Virginia Tech Transportation Institute

Municipal Separate Storm Sewer Systems: Complying with National Pollutant Discharge Elimination

System Stormwater Program (P15-6286)

Thomas Graupensperger, Dewberry Inc.

Sustainable Infrastructure Projects: Using Sustainability Metrics (P15-6287)

James D. Heeren, Dewberry

Workshop (W)s

159 (CGW15-006)

Sunday, January 11, 2015, 1:30pm- 4:30pm, Convention Center, 146B

Environmental Training: Preparing the Transportation Workforce

Thomas Elliott, National Highway Institute, presiding

Sponsored by Committee on Waste Management and Resource Efficiency in Transportation

Environmental training of the transportation workforce is a critical activity, whether informational or instructional, whether in the context of environmental permit requirements (e.g., storm water, waste, water quality, etc.), contract specifications compliance, components of environmental management systems, or agency policy. The various tools and methods available for the development and presentation of training materials are explored through examples and discussion.

Why is Environmental Training Needed for the Transportation Industry and who are the Training Targets? (P15-7100)

Thomas Elliott, National Highway Institute

Establishing the Culture: Success and Challenges of Training Programs (P15-5512)

Thomas Abdallah, New York City Transit Authority

Emmanuel (Cris) B. Liban, Los Angeles County Metropolitan Transportation Authority

Principals of Adult Learning/Training Do's and Don'ts (P15-5517)

Diana Long, Rahall Transportation Institute

Group Activity: Distilling the Message and Developing a Training Curriculum Outline (P15-7052)

Edward D. Wallingford, Virginia Department of Transportation

Innovative Training Approaches (P15-5513)

Diane Nulton, McCormick Taylor & Associates, Inc.

State-of-the-Art Colorado DOT Field Stormwater Training Center (P15-7101)

Art Hirsch, TerraLogic

Published Meeting - Committee (M)s

CGM15-036

Monday, January 12, 2015, 10:15am- 1:15pm, Marriott Marquis, Independence G (M4)

Waste Management and Resource Efficiency in Transportation Committee

Edward D. Wallingford, Virginia Department of Transportation, presiding

Sponsored by Committee on Waste Management and Resource Efficiency in Transportation

CGM15-054

Tuesday, January 13, 2015, 3:45pm- 5:30pm, Marriott Marquis, Mint (M4)

Waste Management and Resource Efficiency Mid-Year Meeting Planning Subcommittee, ADC60(1)

Jennie Armstrong, Oregon Department of Transportation, presiding

Sponsored by Committee on Waste Management and Resource Efficiency in Transportation

CGM15-055

Tuesday, January 13, 2015, 1:30pm- 3:15pm, Marriott Marquis, Mint (M4)

Transportation Infrastructure, Facilities, and Right-of-Ways as Sustainable Resources Subcommittee, ADC60(2)

[Andrew Scott Alden](#), Virginia Tech Transportation Institute, presiding
Sponsored by Committee on Waste Management and Resource Efficiency in Transportation

ADC60 Cosponsored Sessions (only editable by the primary committee sponsor)

CGS15-022

Wednesday, January 14, 2015, 8:00am- 9:45am, Convention Center, 140A

[Meeting Environmental Commitments in Design-Build Projects](#)

[Karel Cubick](#), MS Consultants, Inc., presiding

[Interstate 15-Interstate 215 Improvement Design-Build Project \(Devore Interchange\)](#) (P15-5975)

[Brian Calvert](#), ICF International

[Presidio Parkway Project, South Approach to Golden Gate Bridge: Public-Private Partnership](#) (P15-5976)

[Josh Channell](#), HNTB Corporation

[Making Environmental Compliance Work for Design-Build Highway Projects: California Perspective](#)
(P15-5981)

[Stephanie Blanco](#), Parsons Transportation Group Inc.

[Due Diligence and Contamination Management in Design-Build Projects](#) (P15-5983)

[Cyrus F. Parker](#), North Carolina Department of Transportation

[Maintaining Final Environmental Impact Statement Noise Mitigation Commitments Through Design-Build Process](#) (P15-5978)

[Kevin J. Keller](#), PB Americas, Inc.

[Design-Build Noise Wall Contract Terms in Virginia](#) (P15-5985)

[Paul Kohler](#), Virginia Department of Transportation

CGS15-023

Wednesday, January 14, 2015, 4:30pm- 6:00pm, Convention Center, 140A

[Evaluating Environment and Energy Benefits: When Does Greenhouse Gas Reduction Make Sense Anyway?](#)

[Jean-Daniel Maurice Saphores](#), University of California, Irvine, presiding

[Analyzing Impacts of Global Transport CO2 Emissions Using Multisectoral Tool](#) (P15-6400)

[Erin Cooper](#), EMBARQ/World Resources Institute

[Benoit Lefevre](#), EMBARQ/World Resources Institute

[Julien Pestiaux](#), Cornell University

[Envisioning an Emission Diet: Application of Travel Demand Mechanisms to Facilitate Policy Decision Making](#) (P15-6401)

[Timothy F. Welch](#), Georgia Institute of Technology

[Sabyasachee Mishra](#), University of Memphis

[Understanding Co-benefits of Strategies to Reduce Greenhouse Gases: Overview of FHWA and AASHTO Activities](#) (P15-6402)

[Shari M. Schaftlein](#), Federal Highway Administration

[Michael Culp](#), Federal Highway Administration

[Stefan M. Natzke](#), Federal Highway Administration

[Mark Anthony Ferroni](#), Federal Highway Administration

[Gary Jensen](#), Federal Highway Administration

[Jennifer Brickett](#), American Association of State Highway and Transportation Officials

[Co-benefits of Carbon Mitigation in the Transportation Sector from Fine Particles, Black Carbon, Methane, and Hydrofluorocarbons](#) (P15-6403)

[Drew K. Kodjak](#), International Council on Clean Transportation
[Ray Minjares](#), International Council on Clean Transportation
[Analysis of Cost-effectiveness of Clean Trucks Program in Southern California](#) (P15-6404)
[Jean-Daniel Maurice Saphores](#), University of California, Irvine
[Tammie Kuo](#), University of California, Irvine

2014 Annual Meeting

ADC60 - Waste Management and Resource Efficiency in Transportation
2 Paper/Conference Sessions
1 Poster Session
3 Published Meetings

Paper or Conference Session (S)s

239 (CGS14-024)

Monday, January 13, 2014, 8:00am- 9:45am, Hilton, Jefferson West
[Environmental Management Systems and Practices for Transit Agencies: Successes and Lessons Learned](#)
[David Emil Soltis](#), Consultant, presiding
Sponsored by Committee on Waste Management and Resource Efficiency in Transportation

[Federal Transit Agency Perspective](#) (P14-5561)

[Antoinette Quagliata](#), Federal Transit Administration

[Los Angeles Metro Environmental Management System Successes and Lessons Learned](#) (P14-5562)

[Emmanuel \(Cris\) B. Liban](#), Los Angeles County Metropolitan Transportation Authority

[SEPTA Environmental Management System Successes and Lessons Learned](#) (P14-5564)

[Erik Stephen Johanson](#), Southeastern Pennsylvania Transportation Authority

[Capital Metro, Austin, Texas: Environmental Management System Successes and Lessons Learned](#) (P14-5563)

[Jennifer Golech](#), Capital Metropolitan Transportation Authority

503 (CGS14-025)

Tuesday, January 14, 2014, 8:00am- 9:45am, Hilton, Columbia Hall 6
[Effects of and Adaptation to Climate Change in Transportation Systems](#)
[Thomas Abdallah](#), New York City Transit Authority, presiding
Sponsored by Committee on Waste Management and Resource Efficiency in Transportation
[Investing in U.S. Transportation Systems and Post-Sandy Adaptation](#) (P14-5572)

[Thomas Lewis](#), Louis Berger Group, Inc.

[Benefit-Cost Evaluation for a Tidal Barrier](#) (P14-5567)

[Michael Tumulty](#), STV Incorporated

[Infrastructure and Water Management in the Netherlands](#) (P14-5570)

[Niek Veraart](#), Louis Berger Group, Inc.

[Overview of Climate Change Adaptation Strategies for Transportation Agencies](#) (P14-5571)

[Steven Eget](#), Dewberry

[NYCTA's Accomplishments and Plans](#) (P14-5565)

[Angelo Elmi](#), MTA New York City Transit

Poster Session (P)s

578 (CGP14-006)

Tuesday, January 14, 2014, 10:45am-12:30pm, Hilton, International Center

Waste Management and Resource Efficiency in Transportation

Edward D. Wallingford, Virginia Department of Transportation, presiding

Sponsored by Committee on Waste Management and Resource Efficiency in Transportation

Decision Methodology for Temperature Control of Pavements (14-1250)

Henry Brown, University of Missouri, Columbia

Matthew Kraus, University of Missouri, Columbia

John J. Bowders, University of Missouri, Columbia

Evaluation of Waste Concrete Road Materials for Use in Oyster Aquaculture (14-4146)

Dong Hee Kang, Morgan State University

Kelton Clark, Patuxent Environmental & Aquatic Research Laboratory

James Hunter, Morgan State University

Mark Bundy, Patuxent Environmental & Aquatic Research Laboratory

Z. Andrew Farkas, Morgan State University

Solar Energy Harvesting from Roadways (14-4380)

Savannah Gregor, University of Rhode Island

Kang-Won Wayne Lee, University of Rhode Island

Piezoelectric Energy Harvesting on Public Roadways (14-5292)

Haocheng Xiong, Virginia Tech Transportation Institute

Linbing Wang, Virginia Polytechnic Institute and State University

Cristian Druta, Virginia Polytechnic Institute and State University

Eric Weaver, Federal Highway Administration

Waste Management and Resource Efficiency in Transportation Committee (P14-5359)

Edward D. Wallingford, Virginia Department of Transportation

Published Meeting - Committee (M)s

CGM14-036

Tuesday, January 14, 2014, 3:45pm- 7:00pm, Hilton, Columbia Hall 1

Waste Management and Resource Efficiency in Transportation Committee

Edward D. Wallingford, Virginia Department of Transportation, presiding

Sponsored by Committee on Waste Management and Resource Efficiency in Transportation

CGM14-054

Monday, January 13, 2014, 10:15am-12:00pm, Hilton, Piscataway

Waste Management and Resource Efficiency Mid-Year Meeting Planning Subcommittee, ADC60(1)

Edward D. Wallingford, Virginia Department of Transportation, presiding

Sponsored by Committee on Waste Management and Resource Efficiency in Transportation

CGM14-055

Tuesday, January 14, 2014, 1:30pm- 3:15pm, Hilton, L'Enfant

Transportation Infrastructure, Facilities, and Right-of-Ways as Sustainable Resources Subcommittee, ADC60(2)

Andrew Scott Alden, Virginia Tech Transportation Institute; Steven Eget, Dewberry, presiding

Sponsored by Committee on Waste Management and Resource Efficiency in Transportation

2013 Annual Meeting

ADC60 - Waste Management and Resource Efficiency in Transportation

3 Paper/Conference Sessions

2 Published Meetings

2 Cosponsored Sessions/Meetings

Paper or Conference Session (S)

533 (CGS13-036)

Tuesday, January 15, 2013, 10:15am-12:00pm, Hilton, Georgetown West

[Controlling Costs and Protecting the Environment in Transportation Operations and Maintenance](#)

[Jennie Armstrong](#), Oregon Department of Transportation, presiding

Sponsored by Committee on Waste Management and Resource Efficiency in Transportation; Committee on Maintenance and Operations Management

[Case Study: Former DOT Disposal Pit – From Discovery to Final Approach](#) (P13-7057)

[Diane Anderson](#), WRS Infrastructure & Environment, Inc.

[John D. Schert](#), William W. Hinkley Center for Solid and Hazardous Waste Management

[Analysis of Pathogen Destruction and Leachate Constituents in Deer Mortality Static Windrow](#)

[Composting](#) (13-1221)

[Bridget Donaldson](#), Virginia Center for Transportation Innovation and Research

[Garrett Smith](#), Virginia Tech

[Young-Jun Kweon](#), Virginia Department of Transportation

[David Wilson](#), Virginia Department of Transportation

[Impact of Stormwater Pipe Lining Materials on Water Quality: Field Study and Resulting Specifications](#)

(13-4148)

[Bridget Donaldson](#), Virginia Center for Transportation Innovation and Research

[Andrew Whelton](#), University of South Alabama

[Maintenance Meets Sustainability: Best Practices for Recently Completed NCHRP Project 25-25/Task 73](#)

[Study on Improved Environmental Performance of Highway Maintenance](#) (P13-6706)

[Gary R. McVoy](#), Parsons Brinckerhoff

386 (CGS13-037)

Monday, January 14, 2013, 3:45pm- 5:30pm, Hilton, Georgetown East

[Conserving Resources in Transportation Projects and Operations](#)

[Tuncer B. Edil](#), University of Wisconsin, Madison, presiding

Sponsored by Committee on Waste Management and Resource Efficiency in Transportation

[Comparative Pavement Life-Cycle Assessment with Parameter Uncertainty](#) (13-3829)

[Margaret Wildnauer](#), Massachusetts Institute of Technology

[Arash Noshadravan](#), Massachusetts Institute of Technology

[Jeremy Gregory](#), Massachusetts Institute of Technology

[Randolph Kirchain](#), Massachusetts Institute of Technology

[Twenty-first Century Advancements in Recycled Asphalt Pavement and Recycled Asphalt Shingles](#) (P13-

6457)

[Victor Lee Gallivan](#), Gallivan Consulting, Inc.

[Improving Performance of Transportation Projects Using Recovered Aggregates](#) (P13-6459)

[Michael Blumenthal](#), Rubber Manufacturers Association

[Waste to Resource: Management of Slurry-Generated Soils in Washington State](#) (P13-6461)

[Michael Hutchinson](#), GeoEngineers Inc.

[Sarah Calderwood](#), Washington State Department of Transportation

641 (CGS13-038)

Tuesday, January 15, 2013, 3:45pm- 5:30pm, Hilton, Columbia Hall 6

[Changing Stormwater Management Requirements for Facilities and Operations: Pollution Prevention and Housekeeping Options](#)

[Edward D. Wallingford](#), Virginia Department of Transportation, presiding
Sponsored by Committee on Waste Management and Resource Efficiency in Transportation; Committee on Hydrology, Hydraulics and Water Quality

[EPA's Perspective on Stormwater Management at Departments of Transportation](#) (P13-6556)

[Rachel Herbert](#), U.S. Environmental Protection Agency

[Pennsylvania DOT's Stormwater Management Activities: Challenges and Solutions](#) (P13-6557)

[Kenneth Jerome Thornton](#), Pennsylvania Department of Transportation

[Overview of DOT Audits - How to Prepare and Recent Findings](#) (P13-6558)

[Anna Lantin](#), RBF Consulting

[Scott Taylor](#), Michael Baker International

[Arizona DOT's Stormwater Management Activities: Challenges and Solutions](#) (P13-6559)

[Wendy Terlizzi](#), Arizona Department of Transportation

Published Meeting - Committee (M)s

CGM13-036

Tuesday, January 15, 2013, 12:15pm- 3:15pm, Hilton, Columbia Hall 1

[Waste Management and Resource Efficiency in Transportation Committee](#)

[Edward D. Wallingford](#), Virginia Department of Transportation, presiding

Sponsored by Committee on Waste Management and Resource Efficiency in Transportation

CGM13-038

Monday, January 14, 2013, 10:15am-12:00pm, Hilton, Oak Lawn

[Waste Management and Remediation Subcommittee, ADC60\(1\)](#)

[Jennie Armstrong](#), Oregon Department of Transportation, presiding

Sponsored by Committee on Waste Management and Resource Efficiency in Transportation

ADC60 Cosponsored Sessions (only editable by the primary committee sponsor)

CGP13-002

Tuesday, January 15, 2013, 10:45am-12:30pm, Hilton, International Center

[Current Issues in Transportation and the Environment](#)

[Eduardo Maeyama](#), Parsons Brinckerhoff, presiding

[Ecology and Transportation](#) (P13-5299)

[Alexander Fredric Levy](#), ARCADIS

[Waste Management and Resource Efficiency in Transportation](#) (P13-5645)

[Edward D. Wallingford](#), Virginia Department of Transportation

[David Emil Soltis](#), Consultant

[Environmental Analysis in Transportation](#) (P13-5837)

[Charles 'Muggs' Stoll](#), San Diego Association of Governments

[Christopher Gesing](#), Michael Baker Jr., Inc.

[Road Construction, Repair, and Maintenance: Review of the Impact on the Environment](#) (13-3167)

[Kenya Rolle](#), Florida A&M University

[Doreen Clemence Kobelo](#), Florida A&M University

[Cool Pavement Strategies for Mitigating Heat Island: Do They Help Reduce Energy Use?](#) (P13-5971)

[Hui Li](#), University of California, Davis

[John Harvey](#), University of California, Davis

[David Jones](#), University of California, Davis

[Streamlined Path to a New Urban Boulevard in Music City](#) (P13-5972)

[Nancy T. Skinner](#), Parsons Brinckerhoff, Inc.
[Jonathan Cleghon](#), Metropolitan Government of Nashville
Investigation of Environmental Impact of Urban Road Capacity Reductions (P13-5973)
[Aravinth Thiagarajah](#), Imperial College London, United Kingdom
[Robin J. North](#), Imperial College London, United Kingdom
NEPA-CEQA and California High-Speed Rail: Where We Have Been and Where We Are Headed (P13-5974)
[Lynne Marie Whately](#), California High-Speed Rail Program Management Team
[Bryan Keith Porter](#), Parsons Brinckerhoff, Sacramento
Assessing Microscale Variation in Vehicle Emissions and Pollutant Concentrations for Use in Environmental and Epidemiological Studies (P13-5975)
[David Williams](#), Imperial College London, United Kingdom
[Robin J. North](#), Imperial College London, United Kingdom
Maryland's Watershed Resources Registry: GIS Tool for Broad-Based Collaborative Planning and Protection from a Watershed Perspective (P13-5976)
[Donna Buscemi](#), Maryland State Highway Administration
[Heather Blair Lowe](#), Maryland State Highway Administration
Development of GIS Tool for Assessment of Projected Sea Level and Tidal Change Effects on Transportation Infrastructure in Florida (P13-5977)
[Alexis Thomas](#), University of Florida
Incorporating Advances in Context-Sensitive Solutions into Interdisciplinary-Level Graduate Course (P13-5978)
[Richard V. Taylor](#), Federal Highway Administration
[Margaret McFarland](#), University of Maryland
Measuring Emissions from a General Aviation Engine Burning Alternative Jet Fuels (P13-6000)
[Edward Peltier](#), University of Kansas
[Jeremiah Johnson](#), University of Kansas
[Alex Karwas](#), University of Kansas
[Ray Taghavi](#), University of Kansas
NCHRP Project 25-25, Task 71: Templates for Project-Level Analysis with MOVES, CAL3QHC/R, and AERMOD (P13-6001)
[Maureen Mullen](#), TranSystems Corporation
[Leo Tidd](#), Louis Berger Group, Inc.
Emissions Exposure Modeling System for Assessing Impacts of Low-Emission Truck Technology (P13-6002)
[Glareh Amirjamshidi](#), University of Toronto, Canada
Finding Environmental History During the Environmental Process (P13-6282)
[Kenneth J. Basalik](#), CHRS, Inc.
Dairy Farming in Nineteenth-Century Delaware: Archaeological Data Recovery at Weldin Site, 7-NC-B11 (P13-6284)
[Barbara Shaffer](#), McCormick Taylor, Inc.
Taneytown Historic District Interpretive Program (P13-6286)
[Anne E. Bruder](#), Maryland State Highway Administration
Multi-instrument Geophysical Investigations of Historic Cemeteries (P13-6319)
[Beverly A. Chiarulli](#), Indiana University of Pennsylvania
[Meghan Pace](#), Indiana University of Pennsylvania
Making the Static Dynamic: Using Everyday Technology to Engage the Public (P13-6321)
[Hope E. Luhman](#), Louis Berger
In the Shadow of Lake Champlain Bridge: Challenges and Successes in Preserving 9,000 Years of

Vermont History Within a Construction Site (P13-6390)

[Jeannine Russell](#), Vermont Agency of Transportation

Over the River and Through the Woods: Data Recovery Excavations at Baum Pumping Station Road Site (36AR0539) (P13-6394)

[Richard White](#), AD Marble & Company

GIS-Based Expert Systems Model for Predicting Habitat Suitability of Blackside Dace in Southeastern Kentucky (13-5059)

[Benjamin L. Blandford](#), University of Kentucky

[John Ripy](#), University of Kentucky

[Theodore H. Grossardt](#), Kentucky Transportation Cabinet

Archaeological Data Recovery Excavation at Scudder Falls Bridge in New Jersey and Pennsylvania (P13-6474)

[Alan Tabachnick](#), Dovetail Cultural Resource Group

Third Time's the Charm: Well Construction at Houston-LeCompt Site Within Route 301 Corridor, New Castle County, Delaware (P13-6475)

[Kerri Barile](#), Dovetail Cultural Resource Group

U.S. Route 301 Archaeology Blog (P13-6478)

[David S. Clarke](#), Delaware Department of Transportation

Fuel Economy Impacts of Manual, Conventional Cruise Control, and Predictive Eco-Cruise-Control Driving (13-0407)

[Sangjun Park](#), Chosun University, South Korea

[Hesham Rakha](#), Virginia Polytechnic Institute and State University

[Kyoungho Ahn](#), Virginia Polytechnic Institute and State University

[Kevin Moran](#), NAVTEQ

Virginia Tech Comprehensive Power-Based Fuel Consumption Model: Model Validation and Calibration Considerations (13-0461)

[Sangjun Park](#), Chosun University, South Korea

[Hesham Rakha](#), Virginia Polytechnic Institute and State University

[Kyoungho Ahn](#), Virginia Polytechnic Institute and State University

[Kevin Moran](#), NAVTEQ

Fuel Consumption and Vehicle Emission Models for Evaluating Environmental Impacts of Electronic Toll Collection System in Beijing (13-0845)

[Jiancheng Weng](#), Beijing University of Technology, China

[Lili Liu](#), Beijing University of Technology, China

[Mengjia Wang](#), Beijing Sutong Technology Co. Ltd., China

[Jian Rong](#), Beijing University of Technology, China

Quantifying Effects of Land Use and Socioeconomics on Generation of Traffic Emissions and Individual Exposure to Air Pollution (13-1184)

[Timothy M.N. Sider](#), McGill University, Canada

[Ahsan Alam](#), McGill University, Canada

[Muhammad Zukari](#), McGill University, Canada

[Hussam Dugum](#), McGill University, Canada

[Nathan Goldstein](#), McGill University, Canada

[Naveen Eluru](#), University of Central Florida

[Marianne Hatzopoulou](#), McGill University, Canada

Emissions and Built Form: Analysis of Six Canadian Cities (13-1498)

[Taha Hossein Rashidi](#), University of New South Wales, Australia

[Erin Toop](#), Neptis Foundation

[Xudong Liu](#), McMaster University, Canada

- [Pavlos Kanaroglou](#), McMaster University, Canada
Method for Measuring the Ratio of In-Vehicle to Near-Vehicle Exposure Concentrations of Airborne Fine Particles (13-1581)
[Wan Jiao](#), North Carolina State University, Raleigh
[H. Christopher Frey](#), North Carolina State University
- Marginal Costs of Freeway Traffic Congestion with On-Road Pollution Exposure Externality** (13-1609)
[Alexander York Bigazzi](#), Portland State University
[Miguel Figliozzi](#), Portland State University
- Spatial Transferability Analysis of the Regional Automobile-Specific Household-Level Carbon Dioxide (CO₂) Emissions Models** (13-1645)
[Saidi Siuhi](#), Abu Dhabi University, United Arab Emirates
[Judith L. Mwakalonge](#), South Carolina State University
[Judy A. Perkins](#), Prairie View A&M University
- Modeling Air Quality Impacts of Feedstock Transportation for Cellulosic Biofuel Production in Tennessee** (13-1650)
[Tun-Hsiang Edward Yu](#), University of Tennessee, Knoxville
[James A. Larson](#), University of Tennessee, Knoxville
[Burton C. English](#), University of Tennessee, Knoxville
[Joshua S. Fu](#), University of Tennessee, Knoxville
[Daniel De La Torre Ugarte](#), University of Tennessee, Knoxville
[Jeongran Yun](#), University of Tennessee, Knoxville
[Jimmy Calcagno](#), University of Tennessee, Knoxville
[Bradly Wilson](#), University of Tennessee, Knoxville
- Coherent Approach for Modeling and Nowcasting Hourly Near-Road Black Carbon Concentrations in Seattle, Washington** (13-1792)
[Runze Yu](#), University of Washington
[Xiaoyue \(Cathy\) Liu](#), University of Utah
[Yinhai Wang](#), University of Washington
- Feasibility Study of Fuel Consumption Prediction Model by Integrating Vehicle-Specific Power and Controller Area Network Bus Technology** (13-2201)
[Yizheng Wu](#), Beijing Jiaotong University, China
[Lei Yu](#), Texas Southern University
[Guohua Song](#), Beijing Jiaotong University, China
[Long Xu](#), Beijing Transportation Research Center, China
- Influence of Ventilation Mode and Out-Vehicle Pollution on In-Vehicle PM_{2.5} Concentration** (13-2549)
[Layale Abi-Esber](#), American University of Beirut, Lebanon
[Mutasem El-Fadel](#), American University of Beirut, Lebanon
- Development of Simulated Driving Cycles: Case Study of Waterfront Area in Toronto, Canada** (13-2648)
[Glareh Amirjamshidi](#), University of Toronto, Canada
[Matthew J. Roorda](#), University of Toronto, Canada
- Decarbonization of Toll Plazas: Impact Assessment of Toll Collection System Management** (13-2687)
[Sara Hernandez](#), Universidad Politecnica de Madrid, Spain
[Andres Monzon](#), Universidad Polytecnica de Madrid, Spain
[Natalia Sobrino](#), Universidad Politécnica de Madrid, Spain
- Comparisons of Dcretionary Passenger Vehicle Idling Behavior by Season and Trip Stage with Global Positioning System and Onboard Diagnostic Devices** (13-2766)
[Jonathan R. Dowds](#), University of Vermont
[James Sullivan](#), University of Vermont
[Lisa Aultman-Hall](#), University of Vermont

Better Understanding of Taxi Emissions in Shenzhen, China, Based on Floating-Car Data (13-2977)

[Lin-Jun Yu](#), Chinese Academy of Sciences

[Zhong-Ren Peng](#), University of Florida

[YaLan Liu](#), Institute of Remote Sensing Applications, Chinese Academy of Sciences

Spatiotemporal Analysis of Car Distance and Greenhouse Gases and Effect of Built Environment: Latent Class Regression Analysis (13-2984)

[Seyed Amir Hossein Zahabi](#), McGill University, Canada

[Luis Fernando Miranda-Moreno](#), McGill University, Canada

[Zachary Rupert Patterson](#), Concordia University, Canada

[Philippe Barla](#), University of Laval, Canada

Evaluating Accuracy of Approaches to Integrating Microscopic Traffic Simulators with Emissions Models for Project-Level Emissions Analysis (13-3228)

[Yunjie Zhao](#), State University of New York, Buffalo

[Adel W. Sadek](#), State University of New York, Buffalo

Estimates of Critical Values of Aggressive Acceleration from Viewpoint of Fuel Consumption and Emissions (13-3443)

[Eungcheol Kim](#), University of Incheon, South Korea

[Eunjin Choi](#), University of Incheon, South Korea

Using MOVES to Conduct Greenhouse Gas Inventory for On-Road Mobile Sources in Northern New Jersey Region (13-4015)

[David Kall](#), Cambridge Systematics, Inc.

[David Jackson](#), Cambridge Systematics, Inc.

[Jeffrey Perlman](#), North Jersey Transportation Planning Authority, Inc.

Simplified Emissions Estimation Methodology Based on MOVES to Estimate Vehicle Emissions from Transportation Assignment and Simulation Models (13-4402)

[Eren Erman Ozguven](#), Florida State University

[Kaan Mehmet Ali Ozbay](#), New York University

[Shrisan Iyer](#), New York City Transit Authority

Which Is Greener: Idle or Stop and Restart? Comparing Fuel Use and Emissions for Short Passenger-Car Stops (13-4606)

[Linda Gaines](#), Argonne National Laboratory

[Eric Rask](#), Argonne National Laboratory

[Glenn Keller](#), Argonne National Laboratory

Vehicle Emissions and Near-Road Air Quality Modeling for Shanghai, China: Based on Global Positioning System Data from Taxis and Revised MOVES Emission Inventory (13-4733)

[Haobing Liu](#), Tongji University, China

[Xiaohong Chen](#), Tongji University, China

[Yuqin Wang](#), Tongji University, China

[Shu Han](#), Shanghai DIST Company

Developing Operating Mode Distribution Inputs for MOVES with a Computer Vision-Based Vehicle Data Collector (13-4899)

[Zhuo Yao](#), University of Cincinnati

[Heng Wei](#), University of Cincinnati

[Zhixia Li](#), University of Wisconsin, Madison

[Tao Ma](#), University of Cincinnati

[Hao Liu](#), University of Cincinnati

[Y. Jeffery Yang](#), US EPA

Methodology for Generating Individual Vehicle Speed Profile for Estimating Freeway Emissions (13-5138)

[Jinheoun Choi](#), Korea Transport Institute
[Stephen G. Ritchie](#), University of California, Irvine
[Cheol Oh](#), Hanyang University, South Korea

Evaluation of CO and NO_x Emissions from MOVES and MOBILE6.2 in Southeast Texas Using Source-Oriented CMAQ Model (13-5187)

[Sri Harsha Kota](#), Texas A&M University
[Qi Ying](#), Texas A&M University
[Hongliang Zhang](#), Texas A&M University
[Gunnar W. Schade](#), Texas A&M University

Analytical Model for Vehicle Emissions at Signalized Intersection: Integrating Traffic and Microscopic Emissions Models (13-5208)

[Rooholamin Shabihkhani](#), Rutgers University
[Eric J. Gonzales](#), University of Massachusetts, Amherst

Development and Comparison of Driving and Environmental Impact Characteristics of Different Driver Types (13-5211)

[Heejin Jung](#), Virginia Polytechnic Institute and State University
[Montasir M. Abbas](#), Virginia Polytechnic Institute and State University
[Antoine Hobeika](#), Virginia Polytechnic Institute and State University
[Sanghoon Bae](#), Pukyong National University, South Korea

Method and Case Study for Quantifying Local Emissions Impacts of Transportation Improvement Project Involving Road Realignment and Conversion to Multilane Roundabout (13-5243)

[Abseen Rifa Anya](#), North Carolina State University, Raleigh
[Nagui M. Rouphail](#), North Carolina State University, Raleigh
[H. Christopher Frey](#), North Carolina State University
[Bin Liu](#), North Carolina State University, Raleigh

Comparing Predictions from CAL3QHCR and AERMOD Models for Highway Applications (13-5339)

[Michael Claggett](#), Federal Highway Administration
[Song Bai](#), Sonoma Technology, Inc.

Finding Green System Optimal Routing Policies Through Multiscale Dynamic Path Flow Assignment Model (13-5365)

[Chung-Cheng Lu](#), National Taipei University of Technology, Taiwan
[Xuesong Zhou](#), Arizona State University

Comparative Analysis of U.S. Environmental Protection Agency Operating Mode Distribution Generator with Real-World Operating Mode and Emissions Data (13-0387)

[Robert Chamberlin](#), RSG
[Britt A. Holmen](#), University of Vermont
[Eric Talbot](#), Resource Systems Group, Inc
[Karen M. Sentoff](#), University of Vermont

Sensitivity Test Analysis of MOVES and AERMOD Models (13-1590)

[Suriya Vallamsundar](#), University of Illinois, Chicago
[Jane Jie Lin](#), University of Illinois, Chicago

Incorporating Environmental Measures into a Reliable Freight Routing Model (13-4185)

[Qianfei Li](#), Northwestern University
[Yu Nie](#), Northwestern University
[Suriya Vallamsundar](#), University of Illinois, Chicago
[Jane Jie Lin](#), University of Illinois, Chicago
[Tito Homem-de-Mello](#), University of Illinois, Chicago

Role of Heavy-Duty Freight Vehicles in Reducing Emissions on Congested Freeways with Elastic Travel Demand Functions (13-1607)

[Alexander York Bigazzi](#), Portland State University

[Miguel Figliozzi](#), Portland State University

Quantifying the Greenhouse Gas Emissions of Local Collection- and-Delivery Points for Last-Mile Deliveries (13-2498)

[Liyang Song](#), Beijing Jiaotong University, China

[Tom Cherrett](#), University of Southampton, United Kingdom

[Wei Guan](#), Key Lab of Traffic Engineering, Beijing University of Technology

[Baowen Li](#), Beijing Jiaotong University

Multimodal Freight Transportation Network Design Problem for Reduction of Greenhouse Gas Emissions (13-3484)

[Suhyeon Kim](#), Seoul National University, South Korea

[Minchoul Park](#), Korea Transport Institute

[Chungwon Lee](#), Seoul National University, South Korea

Evaluation of Truck Ban Schemes Using Exact Optimization for Vehicle Routing Problem with Time Windows (13-3498)

[Ali Gul Qureshi](#), Kyoto University, Japan

[Eiichi Taniguchi](#), Kyoto University, Japan

[Tadashi Yamada](#), Kyoto University, Japan

Modeling and Solving Time- and Load-Dependent Vehicle Routing and Scheduling Problem with Environmental Considerations (13-3571)

[Konstantinos N. Androustopoulos](#), Athens University of Economics and Business, Greece

[Konstantinos G. Zografos](#), Lancaster University, United Kingdom

Development and Evaluation of Simplified Version of MOVES for Coupling with Traffic Simulation Model (13-1201)

[H. Christopher Frey](#), North Carolina State University

[Bin Liu](#), North Carolina State University, Raleigh

Simulating Environmental Effects of Isolated and Areawide Traffic Calming Schemes Using Traffic Simulation and Microscopic Emissions Modeling (13-1329)

[Golnaz Ghafghazi](#), McGill University, Canada

[Marianne Hatzopoulou](#), McGill University, Canada

Regional Scale Dispersion Modeling and Analysis of Directly Emitted Fine Particulate Matter from Highway Vehicles Using AERMOD (13-3129)

[Gregory Rowangould](#), University of New Mexico

[Seth Contreras](#), University of California, Irvine

Comparative Analysis of Car-Following Models for Emissions Estimation (13-0460)

[Guohua Song](#), Beijing Jiaotong University, China

[Lei Yu](#), Texas Southern University

[Long Xu](#), Beijing Transportation Research Center, China

Study of Emissions Benefits of Commercial Vehicle Lane Management Strategies (13-1608)

[Alexander York Bigazzi](#), Portland State University

[Miguel Figliozzi](#), Portland State University

Environmentally Conscious Highway Design for Vertical Grades (13-2125)

[Myunghoon Ko](#), Texas A&M Transportation Institute

[Dominique Lord](#), Texas A&M University

[Josias Zietsman](#), Texas A&M Transportation Institute

The Impact of Traffic Signal Timing on Sidewalk-Level Particulate Matter Concentrations (13-4687)

[Courtney Slavin](#), Portland State University

[Miguel Figliozzi](#), Portland State University

Comparison of Microscale Fuel Consumption Models Based on Vehicle-Specific Power and Ln(TAD) for

Light-Duty Vehicles on Urban Roads (13-2211)

[Qi Zhao](#), Beijing Jiaotong University, China

[Lei Yu](#), Texas Southern University

[Guohua Song](#), Beijing Jiaotong University, China

Traffic Microsimulation Approach to Evaluation of Vehicle Emissions on One-Way Versus Two-Way Streets: Case Study in Downtown Houston, Texas (13-2218)

[Jinghui Wang](#), Virginia Polytechnic Institute and State University

[Lei Yu](#), Texas Southern University

[Fengxiang Qiao](#), Texas Southern University

Fuel-Based Signal Optimization Model (13-2488)

[Tsai-Yun Liao](#), National Chiayi University, Taiwan

Historic and Archeological Preservation in Transportation (P13-6908)

[Antony F. Opperman](#), Virginia Department of Transportation

CGW13-004

Sunday, January 13, 2013, 9:00am-12:00pm, Hilton, Lincoln West

Effective Practices to Develop Environmental Research Needs Statements and Funding Opportunities

[Robert O'Loughlin](#), Federal Highway Administration, presiding

This workshop focuses on writing effective environmental and energy research needs statements and details the funding opportunities available for such research. Participants will hear from experts who have successfully developed effective research needs statements leading to funded and implemented research projects. The workshop also will highlight the available research funding programs and provide tips on success in applying for research funds.

Writing Effective Research Statements (P13-5104)

[Sue Sillick](#), Montana Department of Transportation

Research Funding Opportunities (P13-5105)

[Shari M. Schaftlein](#), Federal Highway Administration

[Nanda N. Srinivasan](#), Energy Information Administration

Advancing Research: How It Works and How to Make It Happen (P13-5106)

[Kate Kurgan](#), American Association of State Highway and Transportation Officials

Facilitated Development of Research Problem Statements (P13-5107)

[Carissa Schively Slotterback](#), University of Minnesota

Facilitated Committee Collaboration on Partnership Opportunities (P13-5108)

[Carissa Schively Slotterback](#), University of Minnesota

Wrap-up and Next Steps (P13-5109)

[Robert O'Loughlin](#), Federal Highway Administration

2016 Summer Workshop

See attached PDF "TRB 2016 Summer Workshop Program.pdf"

2015 Summer Workshop

See attached PDF "2015WorkshopAgenda.pdf"

2014 Summer Workshop

See attached PDF "2014WorkshopSchedule.pdf"

2016 ADC60 Annual Work Plan and Accomplishments

TRANSPORTATION RESEARCH BOARD Committee on Resource Conservation & Recovery (ADC60) 2016 Work Plan

Committee Chair and General Membership:

Communications:

- Convene Committee business meetings at the TRB Annual meeting and at the Committee Mid-Year Workshop
- Convene a minimum of four teleconference calls to monitor progress against goals and/or to plan for future events and tasks.
- Issue minutes of business meetings and a summary of task assignments within 30 days of each meeting and post on committee website.

Liaison Activities:

- Attend Annual meetings for related TRB committees and sub-committees and share information about ADC60 activities
- Monitor related TRB committee activities to identify potential subject matter co-interests with ADC60.
- Send notices of ADC60 Committee activities to liaison Committee Chairs for distribution. (Taken to meetings by liaisons)

Business Activities:

- Evaluate refinements to ADC60 mission, scope and structure.
- Prepare a draft of the Committee's 2017 Work Plan for discussion at the Annual Meeting.
- Present summaries of Committee's membership status at the Annual Business Meeting and Mid-Year Workshop
- Use electronic means (e.g. conference calls, webinars, etc.) to encourage broad participation of Members and Friends who are restricted from attending meetings
- Maintain current rosters of committee and "Friends" membership using mytrb.org.
- Invite junior staff from local agencies and consultants as well as students to summer workshops to encourage young member participation. Offer student discounts for summer workshops.

- Confirm current subcommittee goals and membership: Workshop Planning subcommittee, Transportation Infrastructure, Facilities, and Right-of-Ways as Sustainable Resources subcommittee, Environmental Management subcommittee.
- Prepare and submit the Triennial Strategic Plan

Research and Information Exchange:

- Identify the most critical and urgent technology and information needs of interested stakeholders in the major topics covered by the Committee.
- Continue to informally exchange information on best management practices and consider developing links on the Committee website.

Research Coordinator:

- Coordinate the development and/or provide critical review for at least one research needs statement for Committee consideration
- Partner with the Technical Subcommittees to identify, develop and submit at least two (2) Research Needs Statements to TRB. Provide final reviews of all RNSs prior to submission.
- Explore viable research funding mechanisms for committee problem statements and report findings to the Committee
- Understand and communicate research results and research currently being performed:
- Provide links/reviews/summaries of research related to ADC60's strategic goals and mission through presentation at Committee business meetings and by posting on the Committee web site.
- Work with Committee members and Friends to identify opportunities to serve on panels (such as NCHRP & TCRP) that guide and review research funded by these organizations.
- Participate in TRB-sponsored activities for Committee Research Coordinators

Papers and Presentations Coordinator:

- Develop and forward Initial Notice for Call for Papers for 2016 Annual Meeting (complete by May 2015) to potentially include announcements in various services and publications and e-mails to potentially interested agencies and organizations.
- Sponsor and preside (or assign moderators as appropriate) for the Annual Meetings and Summer Workshop
- Develop and distribute "Call for Abstracts" for Summer Workshop (complete by February) and provide reminders to individuals and groups to encourage

participation.

- Coordinate and Monitor Paper Reviews
- Work with the Committee Chair to review all Committee-sponsored Papers and Presentations for opportunities to publish in TRB publications.

Communications Coordinator(s):

- Coordinate electronic communication media, including LinkedIn site, Web page, e-mail distribution lists, etc.
- Continue development and maintenance of the Committee-specific Web site; perform updates on a regular basis to ensure that material is current.
- Support subcommittees and other related TRB committees in communicating committee activities and needs through the web-site and other appropriate means.
- Post updated Members list and add a Friends of the Committee listing on *MyTRB.org*
- Post announcements, agendas and minutes for meetings, workshops, Annual meeting sessions, webinars, etc. on the web site.
- Maintain outreach lists for advertising upcoming meetings and workshops.

Finance Coordinator

- Implement guidelines for acceptable procurement and use of workshop funds, their disbursement and management.
- Provide summary of workshop finances and fund uses at the Summer Workshop and Annual Meeting to include an evaluation of Summer Workshop expenses, receipts, head counts, fees etc. to assist in future workshop planning efforts.

Subcommittees:

Transportation Infrastructure, Facilities, and Right-of-Ways as Sustainable Resources Subcommittee:

- Hold at least one Subcommittee conference call to discuss - at a minimum - research needs and Annual Meeting/Workshop sessions/presentations.
- Assign Liaisons for the Annual Meeting and work to engage other TRB committees and related organizations in sub-committee activities.
- Develop and/or assist in the development of meeting sessions and identification of presenters for the Annual Meeting and Summer Workshop; coordinate with Papers and Presentation Coordinator

Summer Workshop Planning Committee:

- Define roles and responsibilities with workshop host agency
- Coordinate facilities, catering, accommodations, AV equipment and other logistics for the summer workshop
- Update the national outreach list with additional local contacts. Conduct outreach to encourage sponsorship, presentations, posters and attendance.
- Work with the Papers and Presentations Coordinator to put together a workshop agenda.

EMS Subcommittee:

- Hold at least one Subcommittee conference call to discuss - at a minimum - research needs and Annual Meeting/Workshop sessions/presentations.
- Assign Liaisons for the Annual Meeting and work to engage other TRB committees and related organizations in sub-committee activities.
- Develop and/or assist in the development of meeting sessions and identification of presenters for the 2015 Annual Meeting and 2014 Summer Workshop; coordinate with Papers and Presentation Coordinator