

Transportation Research Board

Air Quality & GHG Mitigation Comm. (AMS10), Annual Mtg.

- **Doug Eisinger**, Sonoma Technology, Chair
- **Marianne Hatzopoulou**, U. of Toronto, Research Coord.
- **Alex Bigazzi**, U. of British Columbia, Paper Review Coord.

January 13, 2021

TRB 2021 Annual Meeting: *Launching a
New Century of Mobility and Quality of Life*



TRBAirQualityGHG.org

Introductory poll – let's find out who's here


What is your affiliation?

- Federal Government
- DOT or other State Government
- MPO or local government
- Academia
- Consulting
- Non-profit
- Other

Welcome, Agenda, Meeting Goals

1. Introduction, AMS10 TRB events, and poll
2. Paper review process
3. Invited talks: Randall Field, Jonn Axsen
4. GHG mitigation research needs: brainstorm
5. Summer conference planning for 2021, 2022
6. Questions
7. Volunteer roles and appreciations

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TRANSPORTATION RESEARCH BOARD

2021 Meeting Agenda: Air Quality and GHG Mitigation Committee (AMS 10)
TRB 2020 Spotlight Theme: "Launching a New Century of Mobility and Quality of Life."

Date: Wednesday, January 13, 2021
Time: 12:00 pm to 1:30 pm (U.S. Eastern Time)
Place: Virtual Meeting

- o Doug Eisinger, Sonoma Technology, Committee Chair
- o Marianne Hatzopoulou, Univ. of Toronto, Committee Research Coordinator
- o Alex Bigazzi, Univ. of British Columbia, Paper Review Coordinator

Meeting focus: GHG mitigation research needs, paper review process, 2021-22 mid-year meetings

1. Introductory Poll, meeting goals, other AMS10 events at TRB this year (D. Eisinger, 5 min.)
2. Paper review process, outcomes, team for 2021-2022 (A. Bigazzi, 5 min.)
3. Invited talks
 - o Randall Field, MIT Energy Initiative: "Insights into Future Mobility." (10 min.)
 - o Jonn Axsen, Simon Fraser Univ., "Deep CO₂ mitigation in road transport." (10 min.)
 - o Q&A and discussion (10 min.)
4. GHG mitigation research needs: virtual breakout sessions (M. Hatzopoulou) (35 min.)
 - o Breakout room mechanics with facilitator intros for each group (5 min.)
 - o One breakout session. Break into groups shown below, record outcomes on a Google sheet, one tab per topic, a facilitator for each topic. Focus: "What are the most pressing GHG mitigation research needs?" (20 min.)
 1. Passenger fleet electrification
 2. Freight electrification
 3. Integration across electric power generation and on-road fleet electrification
 4. Co-benefits (GHG, air quality)
 5. Fuels
 6. Behavior-based approaches
 7. Economic tools (e.g., pricing, incentives)
 8. Connected and Autonomous Vehicles (CAVs)
 9. Shared mobility (e.g., Uber/Lyft)
 10. Land-use planning
 11. Lifecycle analysis and embodied GHG emissions
 - o Digest of what was identified, and next steps (M. Hatzopoulou) (10 min.)
5. Summer conference planning for 2021-22; (A. Schilla) (5 min.)
6. Questions? (D. Eisinger, 5 min.)
7. Volunteer roles and appreciation for work in 2020 (D Eisinger & A. Bigazzi, 5 min.)
8. Adjourn (by 1:30 pm, EST)

Transportation and Sustainability Section, Standing Committee on Air Quality and GHG Mitigation (AMS10)
E-mail: doug@sonomatech.com Committee Website: trbairqualityghg.org

12/18/21 ver.

Introduction: New TRB Structure as of 2020

New Structure—Groups and Sections

- **Safety and Operations Group**
 - Pedestrians, Bicycles, Human Factors
 - Operations
 - Safety
- **Data, Planning, and Analysis Group**
 - Data and Data Science
 - Transportation Planning and Analysis
- **Policy and Organization Group**
 - Executive Management Issues
 - Legal Resources
- **Highway Infrastructure Group**
 - Bridges and Structures
 - Construction
 - Roadway Design
- Geology and Geotechnical Engineering
- Materials
- Pavements
- Highway Maintenance
- Infrastructure Management and System Preservation
- **Sustainability and Resilience Group**
 - Transportation and Society
 - Transportation Systems Resilience
 - Transportation and Sustainability
- **Public Transportation Group**
- **Rail Group**
- **Freight Systems Group**
- **Aviation Group**
- **Marine Group**

Sustainability & Resilience Group (AM000)

Transp. & Sustainability Section (AMS00) Committees

1. **Air Quality & GHG Mitigation (AMS10)**
2. Resource Conservation & Recovery (AMS20)
3. **Transportation Energy (AMS30)**
4. **Alt. Transp. Fuels & Tech. (AMS40)**
5. Transp. & Economic Development (AMS50)

Introduction: Air Quality & GHG Mitigation

Core TRB 2021 Annual Meeting Activities

Activity	Date, Day	Time (EST)
1. Measurement & Modeling Subcomm.	Jan 5, Tues	2:00 to 3:30
2. Mitigation & Policy Analysis Subcomm.	Jan 11, Mon	4:00 to 5:30
3. AQ & GHG Mitigation Comm. Mtg.	Jan 13, Wed	12:00 to 1:30
4. Workshop: <i>A Marriage of Convenience</i> , GHG & AQ Management	Jan 21, Thurs	10:00 to 1:00
5. Poster 1: Understanding Mobile Source Emissions & Exposure	Jan 25, Mon	1:00 to 2:30
6. Lectern Session (w/AMS30/40) GHG Reduction: Now and Long-Term	Jan 26, Tues	10:00 to 11:30
7. Poster 2: Advances in Mobile Source Emissions & AQ Modelling	Jan 26, Tues	4:00 to 5:30
8. Poster 3: Strategies to Mitigate Emissions, Improve AQ & Address CC	Jan 29, Fri	2:30 to 4:00

TRB 2021 Annual Meeting Transportation and Sustainability Section Event Matrix:

<http://onlinepubs.trb.org/onlinepubs/dva/CG/TRB2021AMSustainabilitySection.pdf>

Paper Reviews: Alex Bigazzi

AMS10 TRB2021

Paper review summary

Alex Bigazzi, Greg Rowangould, Shams Tanvir, Mohamed Tayarani, Jenny Narvaez, Haobing Liu, Graciela Lubertino, Guohua Song, Hanjiro Ambrose, & Marianne Hatzopoulou

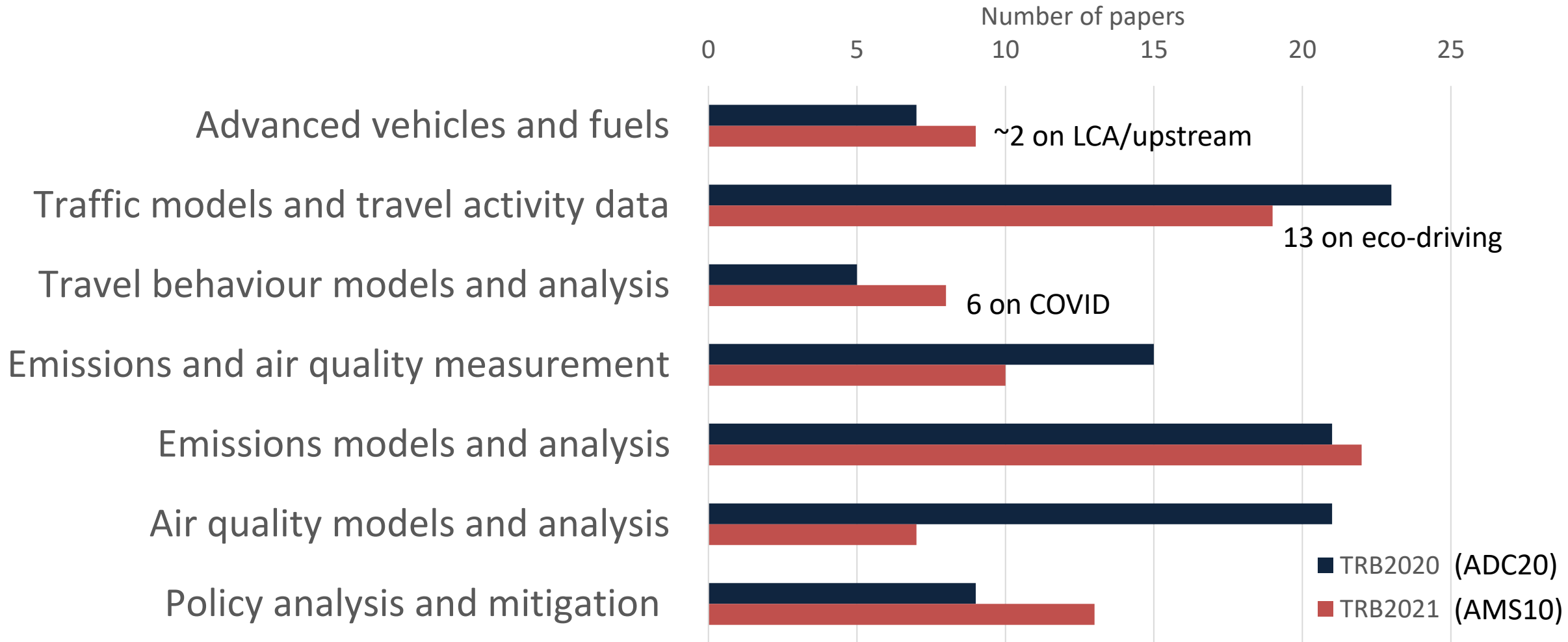


Summary stats

	(ADC20)	(ADC20)	
	TRB2019	TRB2020	TRB2021
Papers reviewed for presentation	128	109	93
Papers reviewed for publication	86	56	40
Total reviews	383	282	262
Reviews/paper	3.0	2.6	2.8
Accepted to present	66	62	53
Forwarded to TRR	17	11	12



Paper topics



Looking ahead in 2021

- Please respond to reviewer poll in ~July with your availability & topic interest for paper reviews for TRB 2022
 - Get on the Friend's listserve if you're not and would like to review
- Greg Rowangould takes over as paper coordinator
 - Contact him if you're interested in volunteering as a paper handler
 - Gregory.Rowangould@uvm.edu

Thank you!



Invited Talks to Jumpstart Our Brainstorm



Randall Field, MIT Energy Initiative

nature
climate change

PERSPECTIVE
<https://doi.org/10.1038/s41558-020-0877-y>
Check for updates

Crafting strong, integrated policy mixes for deep CO₂ mitigation in road transport

Jonn Axsen¹, Patrick Plötz² and Michael Wolinetz³

Transport CO₂ emissions continue to grow globally despite advances in low-carbon technology and goal setting by numerous governments. In this Perspective, we summarize available evidence for the effectiveness of climate policies and policy mixes for road transport relative to 2030 and 2050 mitigation goals implied by the Paris Agreement. Current policy mixes in most countries are not nearly stringent enough. We argue that most regions need a stronger, more integrated policy mix led by stringent regulations and complemented by pricing mechanisms as well as other efforts to reduce vehicle travel.

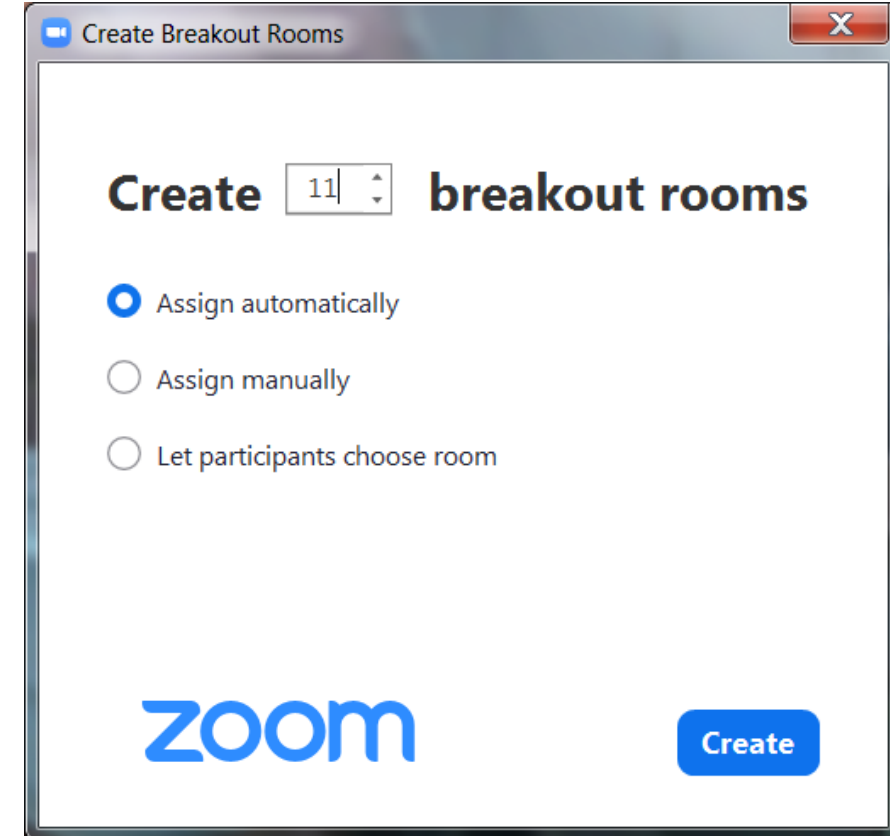
While present transport systems provide numerous benefits, the negative societal impacts are enormous. In particular, the global transportation sector is responsible for almost one-quarter of greenhouse gas (GHG) emissions (mostly CO₂), with about 72% thereof from road transport¹. Despite

The importance and complexity of policy mixes
A single policy instrument (simply referred to as a policy) is not likely to be enough to realistically achieve climate targets. Rather, evidence suggests that an integrative mix of strong policies is needed to induce a low-carbon transition, likely a combination

Jonn Axsen, Simon Fraser University

GHG Mitigation Research Needs: Marianne Hatzopoulou

- Instructions (**5 min.**)
- Breakouts: Google sheet, one tab per topic (**20 min.**)
 1. Passenger fleet electrification
 2. Freight electrification
 3. Electric power generation & on-road fleet electrification
 4. Co-benefits (GHG, air quality)
 5. Fuels
 6. Behavior-based approaches
 7. Economic tools (e.g., pricing, incentives)
 8. Connected and Autonomous Vehicles (CAVs)
 9. Shared mobility (e.g., Uber/Lyft)
 10. Land-use planning
 11. Lifecycle analysis and embodied GHG emissions
- Next steps (**10 min.**)



Summer Conference Planning: Annalisa Schilla

- Summer 2021 meeting:
 - Target timeframe: mid-July, specific date TBD
 - Goal: Promote coordination and collaboration across AMS10, AMS30 (Transportation Energy), and AMS40 (Alternative Transportation Fuels and Technologies)
 - Format: ~1/2 day virtual meeting among 3 committees
 - guest speaker(s) of interest to all 3 committees
 - structured discussions to promote collaboration and coordination across committees, tee up discussions at individual committee meetings, and set the stage for future joint committee events
- Summer 2022:
 - Also virtual, building on summer 2021 event and 2022 annual meeting
- Summer 2023: more extensive in-person event??
- Want to help shape these events? Contact me at annalisa.schilla@arb.ca.gov

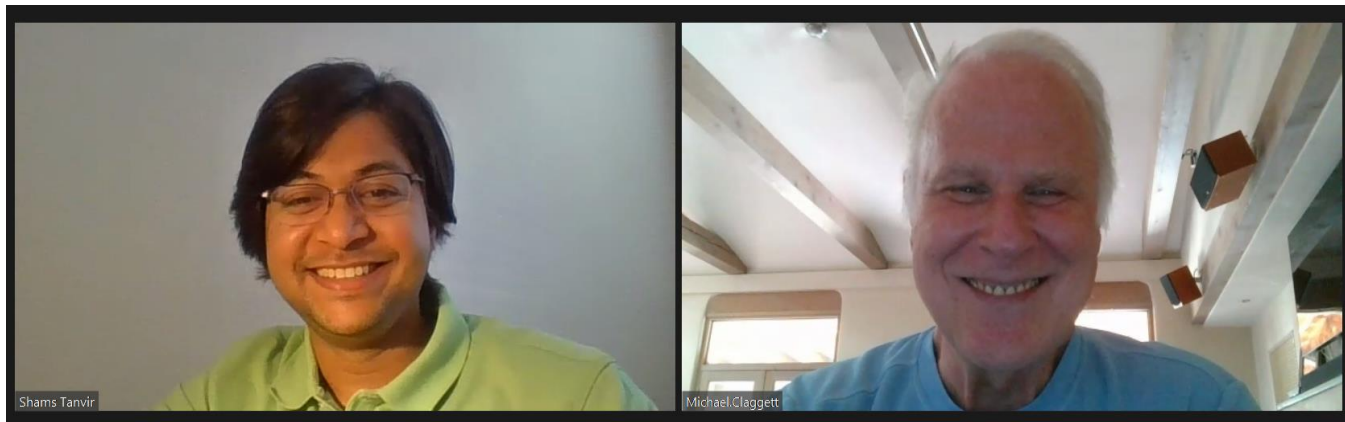
Brief Questions?

Volunteer Roles and Appreciations!

AMS10 Leadership Team

Role or Topic	Leads	Assists
Research	Marianne Hatzopoulou U. of Toronto: CRC	Natalie Liljenwall OR DOT: RNS Lead
Paper Review Task Force	Alex Bigazzi U. of British Columbia: Chair	Greg Rowangould U. of Vermont: Vice Chair
Measurement & Modeling Subcomm.	Ann Xu TX Transp. Inst.: Chair	Kanok Boriboonsomsin U.C. Riverside: Vice Chair
Mitigation & Policy Analysis Subcomm.	John Davies FHWA: Chair	Cindy Copeland Boulder County, CO: Vice Chair
Summer Meeting Task Force	Annalisa Schilla CARB: Chair	Karin Landsberg Wash. State DOT: Vice Chair

Website Team



Shams Tanvir (Cal Poly SLO)

Mike Claggett (FHWA)



<https://www.trbairqualityghg.org>

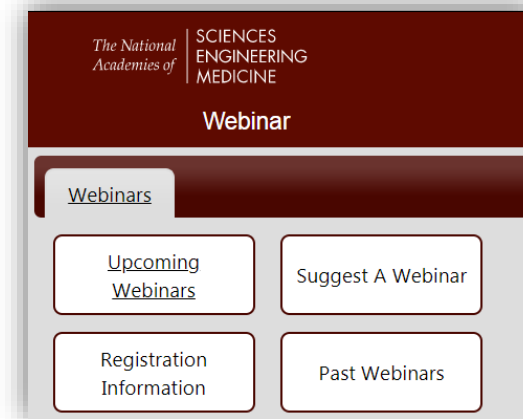
Webinar Team



Jenny Narvaez (NCTCOG)



Sarah Roberts (EPA)



<https://webinar.mytrb.org/Webinars>

Role	Volunteer
Comm. Research Coordinator	Marianne Hatzopoulou , Univ. of Toronto
Research Needs Statements (RNS)	Natalie Liljenwall , Oregon DOT
Paper Review Task Force	Alex Bigazzi , Univ. of British Columbia, Chair; Greg Rowangould , U. of Vermont: Vice Chair
Summer Meeting Task Force	Annalisa Schilla , CARB, Chair; Karin Landsberg , Washington State DOT: Vice Chair
Committee Secretary	Andrew Eilbert , Volpe Center
Measurement & Modeling Subcomm.	Ann Xu , TX Transp. Inst.: Chair, Kanok Boriboonsomsin , U.C. Riverside: Vice Chair
Mitigation & Policy Analysis Subcomm.	John Davies , FHWA: Chair; Cindy Copeland , Boulder County, CO: Vice Chair
Liaisons	<ul style="list-style-type: none"> • Environ. Issues in Aviation Comm. (AV030), AQ Subcomm., Roger Wayson, AECOM • Transp. Energy Comm. (AMS30), David Kall, FHWA • Alt. Transp. Fuels & Technologies Comm. (AMS40), Mike Roberts, FHWA • Joint Subcomm. on Climate Change (AMS10, 30, and 40) Sandeep Sasidharan, Ford • Transp. in Developing Countries Comm. (ABE90), Ivan Racic, ADOT • Health and Transportation Subcomm. (ADD50), Chad Bailey, EPA • Vehicle-Highway Automation Comm. (AHB30), Heng Wei, Univ. of Cincinnati
Listserv management	Jane Lin , Univ. of Illinois, Chicago
Webinar Coordinators	Jenny Narvaez , NCTCOG, Lead; Sarah Roberts , EPA, Assist
Website & Communications	Shams Tanvir , Cal Poly San Luis Obispo; Mike Claggett , FHWA
Website host	Reza Farzaneh , Texas Transportation Institute
Workshop coordinators (2021)	Greg Rowangould , U. of Vermont, Karin Landsberg , WSDOT

Thanks for Attending and Enjoy the Rest of TRB!

Don't Forget Our Upcoming AMS10 Events

Activity	Date, Day	Time (EST)
1. Measurement & Modeling Subcomm.	Jan 5, Tues	2:00 to 3:30
2. Mitigation & Policy Analysis Subcomm.	Jan 11, Mon	4:00 to 5:30
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For more information:

TRBAirQualityGHG.org (website)

Doug Eisinger
Committee Chair
doug@sonomatech.com

Christine Gerencher
TRB Senior Program Officer
cgerencher@nas.edu

Extra Material

Overview

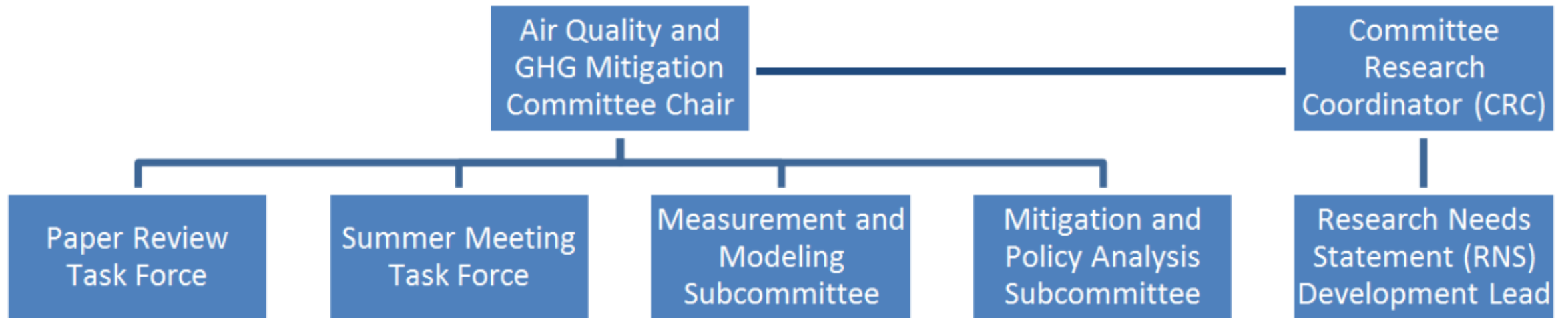
Air Quality & GHG Mitigation Committee **Scope**

Our Committee is concerned with the full range of relationships among transportation, air quality, and **GHG mitigation**, including

- regulatory and policy considerations
- modeling practices
- health effects
- new technologies, and
- transportation management strategies



AMS10 Committee Structure



*

* This subcommittee is co-sponsored by the TRB Committee on Transportation Energy (AMS30).

Committee Members

1	Marcus Alexander	Electric Power Research Institute
2	Hanjiro Ambrose	University of California, Davis
3	Song Bai	Bay Area Air Quality Mgt. District
4	Glynda Bathan	Clean Air Asia
5	Alexander Bigazzi	University of British Columbia
6	Kanok Boriboonsomsin	UC Riverside
7	Cindy Copeland	Boulder County Public Health
8	John Davies	Federal Highway Administration
9	Douglas Eisinger	Sonoma Technology, Inc.
10	H. Christopher Frey	North Carolina State University
11	Zhiming Gao	Oak Ridge National Laboratory
12	Ellen Greenberg	California Department of Transportation
13	Marianne Hatzopoulou	Univ. of Toronto
14	Jingnan Hu	Chinese Research Academy of Env. Sciences
15	Taylor LaBrecque	Maine Department of Transportation
16	Karin Landsberg	Washington State DOT
17	Rick Lattanzio	Congressional Research Service
18	Natalie Liljenwall	Oregon DOT

19	Haobing Liu	University of New Mexico
20	Joacim Lundberg	Lund University, Sweden
21	Victoria Martinez	Federal Highway Administration
22	Ray Minjares	Internat'l Council on Clean Transp.
23	Jenny Narvaez	N. Central TX Council of Governments
24	R. Chris Owen	U.S. EPA
25	Christopher Porter	Cambridge Systematics
26	Christopher Ramig	U.S. EPA
27	Gregory Rowangould	University of Vermont
28	Sandeep Sasidharan	Ford Motor Company
29	Annalisa Schilla	California Air Resources Board
30	Shams Tanvir	UC Riverside
31	Colleen Turner	Maryland DOT
32	Suriya Vallamsundar	Texas A&M Transportation Institute
33	Roger Wayson	AECOM
34	Yanzhi Xu	Texas A&M Transportation Institute
35	John Zamurs	Zamurs and Associates, LLC
36	Ke Zhang	Cornell University