ADC20 MEETING MINUTES

98th Transportation Research Board Annual Meeting Transportation and Air Quality Committee (ADC20) Meeting Wednesday, January 16, 2019; 2:30 – 6:00 PM Marriott Marquis, Independence E (M4) Washington, DC

Attendance

 A full list of attendees has been included as Attachment 1.

Members

Doug Eisinger (Chair), Sonoma Technology, Inc. Marianne Hatzopoulou (Research Coordinator), University of Toronto Alex Bigazzi (Research Vice Co-Chair), University of British Columbia Karin Landsberg (Analysis Vice Chair), Washington State Dept. of Transportation Greg Rowangould (Research Vice Co-Chair), University of New Mexico Ann Xu (Technology & Behavior Subcommittee Chair), Texas A&M Trans. Institute Song Bai, Sonoma Technology, Inc. Matt Barth, University of California-Riverside Kanok Boriboonsomsin, University of California-Riverside Chris Dresser, US Environmental Protection Agency Bob Chamberlin, Resource Systems Group, Inc. Chris Frey, North Carolina State University Ray Minjares, International Council on Clean Transportation Jackie Ploch, Texas Department of Transportation Chris Porter, Cambridge Systematics, Inc. Suriya Vallamsundar, Texas A&M Trans. Institute Roger Wayson, AECOM John Zamurs, Zamurs and Associates

Friends

(see Attachment 1)

2. Agenda

- a. A copy of the agenda has been <u>posted</u> with linked presentations and handouts (original agenda included as Attachment 2)
- 3. General Items for the Record
 - a. Doug Eisinger called the meeting to order as committee chairman and highlighted different items on the agenda
 - i. Spoke of the environmental analysis chain for mobile-source emissions (activity \rightarrow emissions \rightarrow air quality) \rightarrow (exposure \rightarrow health effects) \rightarrow (mitigation)
- 4. Committee Program
 - a. Invited paper

- i. Doug invited a presentation from the author of one of year's top papers submitted to ADC20
 - "<u>Calibration of Motor Vehicle Emission Simulator (MOVES)</u> <u>to Incorporate Truck Platooning</u>," (19-05831), Hani Ramezani (UC-Berkeley/California PATH)
 - Modeled the fuel efficiency impacts of truck platoons by varying driving profiles dependent on speed, acceleration, platoon position, and time gap between vehicles in MOVES
 - Identified two limitations with MOVES:
 - 1. Lower aerodynamic drag coefficient than measured in field testing
 - 2. Drag coefficient does not vary over time
 - Develop two regression models to adjust MOVES estimates:
 - 1. Dynamic drag coefficient over time
 - 2. Variable fuel consumption rate according to platoon position
 - Regression models had high goodness of fit (R²~96%) and improved MOVES results substantially, agreed well with field test data
- b. TRB administrative updates
 - i. Christy Gerencher thanked committee for their paper reviews and gave certificates of appreciation to Alex Bigazzi and Greg Rowangould for paper review coordination
 - ii. Christy reminded attendees that next year's conference will be the 99th Annual Meeting
 - iii. The National Academies of Science, Engineering, and Medicine (NASEM) have cited 64 critical issues for TRB functionality
 - iv. Note that TRB budgets and organization will be changing
 - In 2021, \$2.4 million will come from US DOT collectively instead of \$1.5 million from OST-R and independent contributions by mode
 - Committee reorganization is likely, may be merging, splitting, and acquisitions based on subject matter
- c. Committee business and strategic planning
 - i. Doug opened with having attendees guess the PM2.5 concentration in the meeting room using a low-cost air quality sensor
 - Huan Liu (Tsinghua Univ.) won—guessed roughly 2 μg/m³
 - ii. Doug mentioned upcoming air quality conferences, including one co-sponsored on ports by TRB and the Air & Waste Management Association (A&WMA)
 - iii. David Kall (FHWA) gave a brief recap of the 2018 summer meeting, thanked the session facilitators, and had compiled a meeting report with the other organizers

- Doug recognized David, Shams Tanvir (NC State), and Chris Porter for helping facilitate ADC20's SWOT (strengths, weaknesses, opportunities, and threats) discussion and writing up the meeting report document (the <u>committee's</u> <u>strategic plan</u> has since been published in TR News)
- iv. TRB is currently planning a joint 2020 summer meeting in Denver for all the committees related to the environment
 - Recruiting volunteers and coordinators to lead sessions and other activities at this summer meeting
- v. Subcommittee reports (agendas are Attachment 3 and 4)
 - <u>Analysis</u> [ADC20(1), Monday, 10:15am to noon] Karin Landsberg reported out for Jenny Narvaez
 - a. Updates from FHWA air quality team
 - b. Presentation on optimal land use development through minimized traffic
 - c. Pooled fund study review
 - d. Recent project-level air quality, greenhouse gas, and energy analysis findings
 - <u>Technology & Behavior</u> [ADC20(2), Tuesday, 7:30 to 9:30pm] – Ann Xu
 - a. Invited presentations
 - 1. Transformational technology effects on land use and transportation
 - 2. Environmental impacts of connected and automated vehicles
 - 3. Showcasing performance measures on health-centric mobility
 - b. Roundtable discussion on future research
- d. Papers
 - i. Matt Barth reported that the committee reviewed 128 papers for TRB2019, but the paper acceptance rate was lower than in past years due to quality issues
 - TRB is trying to implement a plagiarism checker
 - ii. In some cases, ADC20 reviewers did not have enough technical expertise—declined to review
 - iii. Alex and Greg reached out to other committees for help reviewing certain papers but did not have much luck securing other reviewers outside of ADC20
 - iv. Need to ensure math-heavy papers are not skipped and instead reassigned accordingly
- e. Reports from the field: recent insights from committee members & friends
 - i. Activity: <u>Truck Drive Cycles & Operating Mode</u>, Chris Porter
 - NCHRP 08-101 final report to be published soon
 - Will include drayage truck drive cycles for various port scenarios and settings

- ii. Emissions: <u>Recent Insights from Beijing Emissions</u>, Huan Liu
 - Dynamic gridded emission inventories with GPS big data
 - New method estimates emissions may be 2-10 times greater than with the old method
- iii. Air Quality (measurements): <u>Low-Cost Air Sensors & California</u> <u>Fires</u>, Doug Eisinger
 - Marin County using PurpleAir PM2.5 sensors to determine Bay Area school closures
 - Sensors well-correlated to government reference monitors but may be as much as 2.5 times greater
- iv. Exposure: <u>Near-Road Modeling vs. Monitoring & Health and</u> <u>Transportation Data Hub</u>, Suriya Vallamsundar & Ann Xu
 - Near-road PM2.5 measurement & modeling by TxDOT
 - New data repository being developed by Center for Advancing Research in Transportation Emissions, Energy, and Health (CARTEEH), <u>www.carteehdata.org</u>
- v. Health Impacts: <u>Global Health Impacts of the Transportation</u> <u>Sector</u>, Ray Minjares
 - Ambient PM2.5 and ozone mortalities attributable to vehicle and engine emissions for 2010 and 2015
 - Showed results by trade bloc and country, China and India account for approximately half of deaths
 - Displayed spatially for top 100 urban regions, high attribution in Europe, large number of deaths in Asia
- f. Committee sessions, workshops, website, and webinars
 - i. Doug recommended consulting his earlier email for information on ADC20 sessions and workshops as well as the conference agenda
 - <u>New Paradigm for Managing Emissions from</u> <u>Transportation Sources</u> (Workshop 1015, Sunday 9am to noon)
 - Determinants of Near-Road Air Quality and New Trends in Particulate Matter Hot Spot Analysis (Session 1105, Monday, 8 to 9:45am)
 - <u>Current Issues in Transportation and Air Quality</u> (Poster Session 1431, Tuesday, 8 to 10:15am)
 - <u>Evolution of Travel: Shifts in Vehicles</u>, <u>Driving</u>, <u>and</u> <u>Emissions</u> (Session 1454, Tuesday, 10:15am to noon)
 - ii. Doug mentioned that relevant documents, agendas, and presentations will be posted on the committee website as available
 - iii. Kevin Black (FHWA) noted that TRB will have two air quality webinar opportunities this year, anyone interested in leading one should contact him
- g. Case studies

2019

- i. <u>Denver's \$1M Bloomberg Grant: Low-Cost Air Sensors, Smart</u> <u>Cities, and Near-Road Pollution</u>, Michael Ogletree (City & County of Denver)
 - Sensor Program
 - Motivated by high asthma rates in city public schools
 - Partnership with Lunar Outpost to build custom air quality sensors
 - Partnership with TD Environmental to design a custom AQ data platform
 - Documentation of measurement methodology and algorithms to be published
 - Sensor data collected will be open-source
 - Smart Cities
 - Second round of sensors to be integrated into roadside traffic signal units, data communication and power via ethernet, prototype in testing
 - Multiple agencies collaborating over four portfolios
 - Enterprise Data Management (EDM) Ecosystem allows integration of air quality sensor data with traffic speed and counts
 - Promotes data privacy and security
 - Plans to deploy three sensors at schools and ten colocated sensors at traffic signals
- ii. <u>TNCs and Congestion in San Francisco</u>, Joe Castiglione (SF County Transportation Authority)
 - Do TNCs affect congestion?
 - Initial analysis based on level-of-service and vehicle miles traveled found that some additional congestion resulted from ride-hailing trips, but it varied temporally and spatially
 - Secondary analysis utilized data from INRIX, TNCs, and the city to create more granular dataset to specifically identify when and where TNC traffic leads to congestion
 - With the granular data, analysis team was able to produce performance metrics for average speed, delay, and miles travelled by time of the day, day of the week, and city district
 - Tried to attribute changes in congestion to TNCs, road network, employment, and population changes
- iii. <u>TNC License Cap in New York City</u>, Dawn Miller (NYC Taxi & Limousine Commission)
 - TNC apps entered City in 2012
 - Of one million for-hire vehicle (FHV) trips per day, roughly 3/4th use apps
 - Mayor De Blasio's FHV licensing pause legislation fails in 2015

2019

- Bill was based on 4-month study showing 2012-2015 declining speeds (~12%) in the central business district (CBD)
- City council proposes one-year study for further research and data collection
- Legislation to pause new FHV license passes in 2018
 - Cites that 96% of app drivers earning less than minimum wage
 - $\circ~$ Eight taxi drivers committed suicide due to troubled finances in 2018
 - \circ Shows ~22% speed decreases over 2012-2017 span
- Mayor Cuomo recently commissioned study looking into congestion pricing for all vehicles operating in NYC
 - Better data needed for modal usage rates, vehicle occupancy, road capacity, curb space, and damaged infrastructure (i.e. potholes, faded lane markings, missing signs)
- h. <u>Committee research priorities</u>
 - i. Alex Bigazzi, Greg Rowangould, and Marianne Hatzopoulou described new objective to draft research need statements (RNS)
 - ii. Research subcommittee has compiled the top ten ideas in a list based on ADC20 activities in 2018
 - Four highlighted ideas
 - a. Uncertainty in emissions and air quality analyses
 - b. Emissions and air quality impacts of transformative transportation technologies, such as connectivity, automation, electric, and shared vehicles
 - c. Internalization of environmental externalities of good movements, such as port container fees, highway tolls, and real-time congestion pricing
 - d. Impacts of e-commerce and the internet-of-things (IoT) on freight and emissions
 - Other ideas generated at 2018 summer meeting
 - In the interest of time, Doug chose to solicit feedback and hold voting by email in the week following the conference rather than in real time via a smart phone poll
- 5. Other Business
 - a. General TRB business was addressed earlier in the meeting
 - b. Information sharing from other committees
 - i. Tim Sturtz (Ramboll) noted there will be a few upcoming marine webinars dealing with environmental impacts through AW030
 - ii. Roger Wayson mentioned that AV030 will release some relevant ACRP reports soon
 - c. Conference announcements and other items

2019

- i. Doug again announced the <u>A&WMA Freight & Environment: Ports</u> <u>of Entry</u> Conference, Newark, NJ, October 23-24, 2019
- ii. John Zumars highlighted that FHWA's <u>It All Adds Up to Cleaner</u> <u>Air</u> program for creating free marketing materials
- iii. Call for TRB's <u>9th International Visualization in Transportation</u> <u>Symposium</u>, Washington, DC, November 5-6, 2019
- d. Meeting was adjourned at roughly 5:55pm

ATTACHMENT 1: 2019 LIST OF ATTENDEES

Name	Organization	Email	Phone
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Key = ADC20 Members, Young Professionals (35 years or younger)

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TRANSPORTATION RESEARCH BOARD

2019 Meeting Agenda: Transportation & Air Quality Committee (ADC20)

TRB Spotlight Theme: "Transportation for a Smart, Sustainable, and Equitable Future."

Date: Wednesday, January 16, 2019

Time: 2:30 to 6:00 pm

- Place: Independence E (M4), Marriott Marquis
 - o **Doug Eisinger**, Sonoma Technology, Committee Chair
 - **Marianne Hatzopoulou**, Univ. of Toronto, Committee Research Coordinator (CRC)

Meeting focus: ADC20 strategic planning, travel activity changes and air quality implications

- 1. Introductions, handouts, meeting format/goals, past meeting minutes (Doug, 10 minutes)
- 2. Presentation: one of this year's top papers (10 minutes)
 - Hani Ramezani, U.C. Berkeley, "Calibration of Motor Vehicle Emission Simulator (MOVES) to Incorporate Effect of Truck Platooning" (paper #19-05831).

3. Committee Strategic Planning

- o 2018 Summer Meeting Final Report: David Kall (FHWA) (5 min.)
- o 2019 priority research needs: survey, SWOT, summer meeting digests: Marianne (5 min.)

4. Upcoming conferences: Doug (5 min.)

- o Oct. 2019 ADC20 co-sponsored AWMA Conference, Freight & Environment, Newark NJ
- Summer 2020 ADC20 mid-year conference (recruiting now for planning committee)

5. Subcommittee Reports:

- Analysis: Jenny Narvaez (NCTCOG) (5 min.)
- Technology and Behavior: Ann Xu (TTI) (5 min.)
- Reports From the Field: Recent Insights from Committee Members and Friends 5 minutes, 1-2 ppt slides per person (35 minutes total):
 - Activity: Chris Porter (Cambridge Systematics), Truck Drive Cycles & Operating Modes
 - Emissions: Huan Liu (Tsinghua University), Recent Insights on Beijing Emissions
 - Air quality (modeling): Chris Owen (EPA), Upcoming AERMOD Updates for Transp. Use
 - Air quality (measurements): Doug Eisinger, Low-Cost Air Sensors and California Fires
 - Exposure: Suriya Vallamsundar & Ann Xu (TTI), Health and Transportation Data Hub
 - Health Impacts: Ray Minjares (ICCT), Global Health Impacts of the Transport Sector
 - o Mitigation: Victoria Martinez (FHWA), Vegetative Buffers for Near Road Mitigation

10 minute meeting break

- 7. Website management update; Mike Claggett (FHWA) (5 min.)
 - Status of current website
 - Planned updates
- 8. Report on sessions and workshops sponsored by ADC20 this year (Doug, 5 min.)
- 9. TRB webinar report: Kevin Black (FHWA) (5 min.)
- 10. Case Study 1, Denver: Michael Ogletree (City & County of Denver) (15 min.)
 - Denver's \$1M Bloomberg Grant: Low-Cost Air Sensors, Smart Cities, & Near-Road Pollution
- 11. Case Study 2, San Francisco: Joe Castiglione (SF County Transp. Authority) (15 min.) TNCs and Congestion in San Francisco
- 12. Case Study 3, New York City: Dawn Miller (NYC Taxi & Limousine Commission) (15 min.) • TNC License Cap in NYC
- 13. Case studies discussion: Research Needs & Other Implications, Denver, SF, NYC (10 min.)
- 14. Research subcommittee report: Marianne, Alex Bigazzi (Univ. of British Columbia), Greg Rowangould (Univ. of New Mexico): 20 minutes
 - 2018 paper review process results
 - Expansion of subcommittee membership and research needs statement development
 - o 2019 Call for Papers
 - Topics and discussion
 - Interactive poll to get feedback (*meeting attendees via smart phone*)
- 15. TRB info sharing; Christy Gerencher (Sr. Program Officer, TRB) (5 min.)
- 16. Information sharing about related TRB committees and/or other items (all, 10 min.)
 - Announcements from the committee
 - \circ Announcements from the audience
- 17. Review of ADC20 volunteer roles and appreciations for work in 2018 (Doug, 5 min.)
- 18. Adjourn (by 6:00 pm)

ADC20 agenda (p. 2) 12/11/18 draft version

Transportation & Air Quality Committee (ADC20) of TRB

2019 Meeting Agenda

Regional and Project-Level Air Quality Innovations and Resources

Date:Monday January 14, 2019Time:10:15 to noonPlace:Independence F (M4), Marriott Marquis, meeting room

Jenny Narvaez, North Central Texas Council of Governments (Chair)

Karin Landsberg, Washington State Department of Transportation (Vice Chair)

Meeting Focus

- Near road data network
- Policy, national, technical, and project-level air quality updates
- Research needs identification and funding.

Agenda

- 1. Introductions, handouts, meeting format and goals (10 minutes)
- 2. Presentations (60 minutes) (15 minutes per speaker)
 - i. FHWA Update (Cecilia Ho, Federal Highway Administration)
 - ii. Minimizing Vehicular Traffic Via Optimized Land Use Development for a Sustainable and Equitable Future **(Babu Veeregowda,** HNTB Corporation)
 - iii. Near-Road Pooled Fund (Song Bai, Sonoma Technologies)
 - iv. Review of Recent Project-Level Air Quality, Greenhouse Gas, and Energy Analysis Findings (**Karin Landsberg**, Washington State Department of Transportation)
- 3. Research Needs (10 minutes)
- 4. Next steps and Appreciation for Volunteer Support (5 minutes)
- 5. Adjourn

Updated Jan 8, 2018

Transportation Research Board

Transportation and Air Quality Committee (ADC20)

Technology and Behavior Subcommittee Meeting

Tue Jan 15, 2019 7:30pm – 9:30pm

Independence A (M4), Marriott Marquis

Chair: Yanzhi (Ann) Xu, Ph.D., Texas A&M Transportation Institute

Vice Chair: Kanok Boriboonsomsin, Ph.D., University of California at Riverside

Agenda

7:30 – 7:40: Welcome and Introductions

7:40 - 8:40: Presentations

- 7:40 8:00: NCHRP 09-117 Impact of Transformational Technologies on Land Use and Transportation, by Jackie Ploch, Texas Department of Transportation
- 8:00 8:20: Overview of Volpe's Efforts on Connected and Automated Vehicle Research for the Intelligent Transportation Systems Joint Program Office, by Andrew Eilbert, Volpe Center
- 8:20 8:40: Health-Centric Mobility, by Mina Sartipi, University of Tennessee, Chattanooga

8:40 – 9:10: Round Table Discussion: Impact of Transformational Technologies on Air Quality and Health

9:10 – 9:30: Participant Announcement, Next Steps, and Adjourn