

# **Kanok Boriboonsomsin, Ph.D., P.E.**

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## **EDUCATION**

2001 – 2004	Ph.D., Transportation Engineering University of Mississippi, Oxford, Mississippi
1999 – 2001	M.Eng., Infrastructure Engineering Asian Institute of Technology, Bangkok, Thailand
1995 – 1999	B.Eng., Civil Engineering Chulalongkorn University, Bangkok, Thailand

## **APPOINTMENTS**

2018 – Present	Research Engineer College of Engineering-Center for Environmental Research and Technology University of California, Riverside, CA
2012 – Present	Assistant, Associate, and Full Adjunct Professor Department of Chemical and Environmental Engineering University of California, Riverside, CA
2012 – 2018	Associate Research Engineer College of Engineering-Center for Environmental Research and Technology University of California, Riverside, CA
2007 – 2012	Assistant Research Engineer College of Engineering-Center for Environmental Research and Technology University of California, Riverside, CA
2005 – 2007	Postdoctoral Scholar College of Engineering-Center for Environmental Research and Technology University of California, Riverside, CA
2004 – 2005	Visiting Assistant Professor Department of Civil Engineering Ohio Northern University, Ada, OH

## **PROFESSIONAL LICENSES**

2008 – Present	Professional Traffic Engineer, State of California
2008 – Present	Professional Civil Engineer, State of Michigan

**PROFESSIONAL SOCIETIES**

2020 – Present	Member, Society of Automotive Engineers (SAE International)
2019 – Present	Member, Intelligent Transportation Society of California (ITSCA)
2015 – Present	Member, Institute of Electrical and Electronics Engineers (IEEE)
2015 – Present	Member, IEEE Intelligent Transportation Systems Society (ITSS)
2004 – Present	Member, Transportation Research Board (TRB)
2004 – Present	Member, Institute of Transportation Engineers (ITE)

**HONORS, AWARDS, AND SCHOLARSHIPS**

April 2020	2019 Vincent Bendix Automotive Electronics Engineering Award SAE International
January 2013	Excellent service as a paper review co-chair Transportation and Air Quality Committee, Transportation Research Board
February 2007	2006 Pyke Johnson Award Nominee Transportation and Air Quality Committee, Transportation Research Board
May 2006	Honorable mention 2005 National P3 Design Competition for Sustainability, U.S. EPA
March 2005	Best Paper Award 2005 International Symposium on Pavement Recycling
May 2004	The National Dean's List
April 2004	Chi Epsilon National Civil Engineering Honor Society
Spring 2004	Dissertation fellowship University of Mississippi
Summer 2003	Summer research fellowship University of Mississippi
July 2003	Graduate student scholarship Air & Waste Management Association, Mississippi Chapter
March 2003	Phi Kappa Phi Honor Society
March 2002	Runner-up award 2002 Graduate Student Paper Competition, ITE Southern District
September 1999	Academic scholarship Asian Institute of Technology

## RESEARCH INTERESTS

- Sustainable transportation
- Transportation modeling
- Traffic simulation
- Traffic operations
- Intelligent transportation systems
- Connected and automated vehicles
- Vehicle energy and emissions modeling
- Vehicle activity analysis

## CONTRACTS AND GRANTS

- G1. Principal Investigator. "Data Collection for Clean Mobility in Schools Pilot Project." California Air Resources Board (through subcontract with El Monte Union High School District); \$270,000; Oct 2020 – Mar 2023.
- G2. Principal Investigator (with P. Hao as Co-PI). "Evaluating System-Level Impacts of Innovative Truck Routing Strategies." Pacific Southwest Region University Transportation Center; \$99,958; Aug 2020 – Aug 2021.
- G3. Co-Principal Investigator (with T. Durbin as PI). "Heavy-Duty Vehicle Testing and Data Analysis." Eastern Research Group; \$22,928; Jul 2020 – Jun 2021.
- G4. Co-Principal Investigator (with T. Durbin as PI and K. Johnson as Co-PI). "Collection and Analysis of Agricultural Equipment Activity Data." California Air Resources Board; \$400,000; Jun 2020 – May 2023.
- G5. Principal Investigator (with M. Barth, T. Durbin, and A. Raju as Co-PI). "Volvo Low Impact Green Heavy Transport Solutions (LIGHTS)." Volvo Truck Corporation; \$526,072; Oct 2019 – Jun 2021.
- G6. Co-Principal Investigator (with T. Durbin as PI and K. Johnson and W. Miller as Co-PI). "Data Collection and Analysis under the California Air Resources Board Zero-and-Near-Zero Emissions Freight Facility Grant." Tetra Tech, Inc.; \$200,000; Sep 2019 – Apr 2021.
- G7. Principal Investigator (with G. Wu as Co-PI). "Hybridization and full electrification potential in off-road applications." California Air Resources Board; \$350,000; Mar 2019 – Feb 2021.
- G8. Principal Investigator (with P. Hao and G. Wu as Co-PI). "Alternative HOV Lane Operational Strategies for Congestion Mitigation in California." California Department of Transportation; \$400,000; Feb 2019 – Sep 2021.
- G9. Co-Principal Investigator (with K. Johnson as PI and T. Durbin as Co-PI). "POLB LCTF + AQIP Off-road Equipment data monitoring." Tetra Tech, Inc.; \$200,000; Jan 2019 – Apr 2021.
- G10. Principal Investigator (with M. Barth and P. Hao as Co-PI). "Connected Eco-Driving for Heavy Duty Conventional and Plug-In Hybrid Electric Trucks." Volvo Truck Corporation; \$940,000; Jan 2018 – Jun 2021.
- G11. Co-Principal Investigator (with M. Barth as PI and K. Esterling and S. Ramakrishnan as Co-PI). "Climate Change Research for the California Strategic Growth Council." California Strategic Growth Council (through subcontract with University of California at Davis); \$358,126; Oct 2018 – Mar 2021.
- G12. Co-Principal Investigator (with P. Hao as PI). "Update CalEnviroScreen's Traffic Density Indicator." California Office of Environmental Health Hazard Assessment; \$367,137; Jun 2018 – Dec 2020.
- G13. Principal Investigator (with M. Barth and K. Johnson as Co-PI). "Geofencing as a Strategy to Lower Emissions in Disadvantaged Communities." California Air Resources Board; \$300,224; Jan 2018 – Dec 2020.

- G14. Co-Principal Investigator (with G. Wu as PI and M. Barth as Co-PI). "Evaluating Connected Vehicle Applications in a Mixed Traffic Environment using a Digital Twin Approach." Toyota Infotechnology Center; \$49,999; Oct 2018 – Sep 2019.
- G15. Principal Investigator (with H. Jung as Co-PI). "Cold Start Emission Impacts of Blended Plug-In Hybrids." Eastern Research Group; \$15,000; Jun 2018 – Jun 2020.
- G16. Co-Principal Investigator (with P. Hao as PI and G. Wu and M. Barth as Co-PI). "Nissan Connectivity Benchmark." Nissan Motor Company; \$40,000; Mar 2018 – Dec 2019.
- G17. Co-Principal Investigator (with T. Durbin as PI and K. Johnson as Co-PI). "Activity Data of Off-Road Engines in Construction." California Air Resources Board; \$200,000; Feb 2018 – Jan 2020.
- G18. Principal Investigator (with M. Barth as Co-PI). "Connected Emission Reduction Technologies for Freight Vehicles." Pacific Southwest Region University Transportation Center; \$99,496; Jan 2018 – Dec 2018.
- G19. Co-Principal Investigator (with G. Wu as PI and M. Barth as Co-PI). "Traffic Jam Prevention Application Effectiveness Analysis." Honda Motor Company; \$41,720; Jan 2018 – Mar 2018.
- G20. Principal Investigator. "Las Vegas License Plate Survey." Eastern Research Group; \$93,000; Sep 2017 – Dec 2017.
- G21. Principal Investigator (with M. Barth as Co-PI). "Development and Application of Environmentally-Friendly Intelligent Transportation System Freight Strategies." South Coast Air Quality Management District; \$543,000 (including \$236,500 subcontract for University of Southern California); Aug 2017 – Aug 2020.
- G22. Principal Investigator (with M. Barth as Co-PI). "Port of Los Angeles Drayage Efficiency Project." California Energy Commission (through subcontract with Productivity Apex, Inc.); \$359,855; Jan 2017 – May 2019.
- G23. Co-Principal Investigator (with M. Barth as PI and G. Wu as Co-PI). "An Innovative Vehicle-Powertrain Eco-Operation System for Efficient Plug-in Hybrid Electric Buses." Advanced Research Projects Agency – Energy; \$1,993,035 (including \$675,000 subcontract for US Hybrid); Mar 2017 – Mar 2020.
- G24. Principal Investigator (with M. Barth as Co-PI). "Center for Advancing Research in Transportation Emissions, Energy and Health." U.S. Department of Transportation (through subcontract with Texas Transportation Institute); \$1,051,650; Nov 2016 – Sep 2022.
- G25. Co-Principal Investigator (with G. Wu as PI and M. Barth as Co-PI). "CAV Applications Effectiveness Analysis." Honda R&D; \$277,008; Nov 2016 – Oct 2017.
- G26. Co-Principal Investigator (with M. Barth as PI and G. Wu as Co-PI). "Technical Support for Connected Vehicle Pilot Deployment." California Department of Transportation (through subcontract with University of California at Berkeley); \$150,000; Jul 2016 – Jun 2019.
- G27. Principal Investigator (with M. Barth as Co-PI). "Enhanced Truck Data Collection & Analysis for Emissions Modeling." Transportation Research Board (through subcontract with Cambridge Systematics, Inc.); \$76,219; Jun 2015 – Jun 2017.
- G28. Co-Principal Investigator (with G. Scora as PI and M. Barth as Co-PI). "Innovative Transportation System Solutions for NOx Reductions in Heavy Duty Fleets." South Coast Air Quality Management District; \$79,980; Dec 2015 – May 2017.

- G29. Principal Investigator. "Biking in Fresh Air: Consideration of Exposure to Traffic-Related Air Pollution in Bicycle Route Planning." National Center for Sustainable Transportation; \$92,800; Dec 2015 – Jan 2017.
- G30. Co-Principal Investigator (with M. Barth as PI and G. Wu as Co-PI). "V2X Connected Vehicle Early Deployment Application Analysis." Honda Motor Company; \$145,153; Jul 2015 – Jun 2016.
- G31. Co-Principal Investigator (with M. Todd as PI). "Evaluation of Equipment Production and Procurement Practices." California Department of Transportation; \$225,429; May 2015 – Mar 2017.
- G32. Co-Principal Investigator (with G. Scora as PI). "Fleet Replacement Model Evaluation and Refinement." California Department of Transportation; \$228,253; Apr 2015 – Mar 2017.
- G33. Co-Principal Investigator (with K. Johnson as PI and T. Durbin and G. Karavalakis as Co-PI). "Collection of Tractor-Trailer Activity Data." California Air Resources Board; \$488,560; Apr 2015 – Apr 2017.
- G34. Principal Investigator (with G. Wu as Co-PI). "Evaluating Alternative Design of Geometric Configuration for HOV Facilities in California." California Department of Transportation; \$245,757; Jan 2015 – Jun 2018.
- G35. Co-Principal Investigator (with M. Barth as PI and G. Wu as Co-PI). "Fundamental Research in Freeway Lateral Maneuvers." Leidos, Inc.; \$95,432; Oct 2014 – Dec 2015.
- G36. Principal Investigator (with M. Barth as Co-PI). "Environmentally-Friendly Driving Feedback Systems Research & Development for Heavy-Duty Trucks." National Center for Sustainable Transportation; \$136,000; Oct 2014 – Sep 2015.
- G37. Co-Principal Investigator (with T. Durbin as PI and K. Johnson as Co-PI). "National deployment of portable emissions and activity measurement systems in support of the development and improvement of mobile source emission factors and emission inventories." U.S. Environmental Protection Agency (through subcontract with Eastern Research Group, Inc.); \$178,072; May 2012 – Jan 2017.
- G38. Principal Investigator (with K. Johnson as Co-PI). "Collection of Activity Data from On-Road Heavy-Duty Diesel Vehicles." California Air Resources Board; \$323,715; Feb 2014 – Jan 2017.
- G39. Co-Principal Investigator (with M. Barth as PI). "Extending Eco-Approach Research to Actuated Traffic Signals." Federal Highway Administration; \$299,985; Jul 2013 – Sep 2014.
- G40. Co-Principal Investigator (with M. Barth as PI). "ECO-Driving Technology and Behavior Research for Heavy-Duty Trucks." University of California Transportation Center; \$145,413; Jul 2012 – Jun 2014.
- G41. Co-Principal Investigator (with M. Barth as PI). "Development and evaluation of ECO-ITS technology to support off-cycle CO2 reductions." Nissan Motor Company; \$304,796; Apr 2012 – Mar 2016.
- G42. Principal Investigator (with M. Barth and G. Wu as Co-PI). "Reducing uncertainty in modeling vehicle emissions at high speed in California." California Department of Transportation; \$199,999; Jul 2012 – Jun 2013.
- G43. Co-Principal Investigator (with M. Barth as PI). "Near-Term Transportation Energy and Climate Change Strategies." California Department of Transportation (through subcontract with University of California Berkeley); \$10,000; Aug 2011 – Jul 2014.
- G44. Principal Investigator (with M. Barth and G. Wu as Co-PI). "Air Quality: The Effectiveness of Managed Lanes in California." California Department of Transportation; \$200,000; May 2012 – Apr 2014.

- G45. Co-Principal Investigator (with M. Barth as PI). "Identification and evaluation of transformative environmental applications and strategies." U.S. Department of Transportation (through subcontract with Booz Allen Hamilton, Inc.); \$810,000; Nov 2011 – Oct 2014.
- G46. Co-Principal Investigator (with M. Barth as PI). "Next generation environmentally friendly driving feedback systems research and development." U.S. Department of Energy; \$1,210,235 (plus \$665,472 in-kind contribution from various research partners); Oct 2011 – Sep 2014.
- G47. Principal Investigator. "Real-time energy/emission estimation and management system for heavy-duty trucks." U.S. Department of Transportation (through subcontract with Calmar Telematics); \$15,967; Feb 2011 – Jun 2011.
- G48. Principal Investigator. "Development and evaluation of intelligent energy management strategies for plug-in hybrid electric vehicles." University of California Transportation Center; \$72,020; Jan 2011 – Mar 2012.
- G49. Co-Principal Investigator (with M. Barth as PI). "ECO-ITS: ITS applications to improve environmental performance." U.S. Department of Transportation; \$40,000; Oct 2010 – Sep 2011.
- G50. Co-Principal Investigator (with M. Barth as PI). "Advanced traffic signal control algorithms." Federal Highway Administration (through subcontract with University of California Berkeley); \$72,698; Aug 2010 – Jun 2012.
- G51. Principal Investigator (with M. Barth as Co-PI). "Improving vehicle fleet, activity, and emissions data for on-road mobile sources emissions inventories." Federal Highway Administration; \$340,000 (plus \$140,000 in-kind contribution from California Air Resources Board and another \$370,000 from Calmar Telematics); Nov 2009 – Apr 2011.
- G52. Principal Investigator. "Eco-driving: pilot evaluation of behavior changes in U.S. drivers." University of California Transportation Center; \$53,620; Oct 2008 – Sep 2009.
- G53. Principal Investigator (with M. Barth as Co-PI). "High occupancy vehicle (HOV) system analysis tools: District 8 HOV facility performance analysis." California Department of Transportation; \$272,496; Dec 2008 – Nov 2012.
- G54. Principal Investigator (with M. Barth as Co-PI). "Improving greenhouse gas emissions inventory estimation of heavy-duty trucks." Federal Highway Administration; \$99,260 (plus \$25,000 matching fund from California Air Resources Board); Sep 2008 – Sep 2009.
- G55. Principal Investigator (with M. Barth as Co-PI). "Development of TRANSIMS synthetic population data for Riverside County." County of Riverside, California; \$160,000; Jan 2008 – Nov 2009.
- G56. Co-Principal Investigator (with F. Reza as PI). "High albedo and environment-friendly concrete for smart growth and sustainable development." U.S. Environmental Protection Agency; \$10,000; Oct 2005 – May 2006.
- G57. Co-Principal Investigator (with F. Reza as PI and S. Bazlamit as Co-PI). "Development of a composite pavement performance index." Ohio Department of Transportation; \$10,085; Sep 2004 – Aug 2005.
- G58. Principal Investigator. "Enhancing civil engineering curriculum with geographic information system technology." Ohio Northern University; \$5,000; Dec 2004 – May 2005.

## PUBLICATION AND PRESENTATIONS

### Journal Articles

- J1. Hao, P., **Boriboonsomsin, K.**, Wang, C., Wu, G., and Barth, M. (2021). "Connected eco-approach and departure system for diesel trucks." *SAE International Journal of Commercial Vehicles*, accepted January 7.
- J2. Tanvir, S., Un-Noor, F., **Boriboonsomsin, K.**, and Gao, Z. (2020). "Feasibility of operating heavy-duty battery electric truck fleet in drayage application." *Transportation Research Record*, <https://doi.org/10.1177/0361198120957325>.
- J3. Wang, Z., Liao, X., Wang, C., Oswald, D., Wu, G., **Boriboonsomsin, K.**, Barth, M., Han, K., Kim, B. and Tiwari, P. (2020). "Driver behavior modeling using game engine and real vehicle: a learning-based approach." *IEEE Transactions on Intelligent Vehicles*, DOI: 10.1109/TIV.2020.2991948.
- J4. Luo, J., **Boriboonsomsin, K.**, and Barth, M. (2020). "Consideration of exposure to traffic-related air pollution in bicycle route planning." *Journal of Transport & Health*, 16, 1-10.
- J5. Wang, Z., Wu, G., **Boriboonsomsin, K.**, Barth, M., Han, K., Kim, B., and Tiwari, P. (2019). "Cooperative ramp merging system: agent-based modeling and simulation using game engine." *SAE International Journal of Connected and Automated Vehicles*, 2(2), 115-128.
- J6. Scora, G., **Boriboonsomsin, K.**, Durbin, T., Johnson, K., Yoon, S., Collins, J., and Dai, Z. (2019). "Variability in real-world activity patterns of heavy-duty vehicles by vocation." *Transportation Research Record*, 2673(9).
- J7. Luo, J., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2019). "Developing an aerial-image-based approach for sidewalk digitalization." *Transportation Research Record*, 2673(8), 499-507.
- J8. Collier, S., Ruehl, C., Yoon, S., **Boriboonsomsin, K.**, Durbin, T., Scora, G., Johnson, K., and Herner, J. (2019). "Impact of heavy-duty diesel truck activity on fuel consumption and its implication on the reduction of greenhouse gas emissions." *Transportation Research Record*, 2673(3), 125-135.
- J9. Tian, D., Wu, G., Wang, C., **Boriboonsomsin, K.**, Barth, M., Rajab, S., and Bai, S. (2019). "An innovative framework to evaluate the performance of connected vehicle applications: from the perspective of speed variation-based entropy." *IEEE Intelligent Transportation Systems Magazine*, DOI: 10.1109/MITS.2019.2907678.
- J10. Shan, X., Hao, P., Chen, X. **Boriboonsomsin, K.**, Wu, G., and Barth, M. (2019). "Vehicle energy/ emissions estimation based on vehicle trajectory reconstruction using sparse mobile sensor data." *IEEE Transactions on Intelligent Transportation Systems*, 20(2), 716-726.
- J11. Qi, X., Luo, Y., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2019). "Deep reinforcement learning enabled self-learning control for PHEV energy efficient driving." *Transportation Research Part C*, 99, 67-81.
- J12. Tan, Y., Henderick, P., Yoon, S., Herner, J., Montes, T., **Boriboonsomsin, K.**, Johnson, K., Scora, G., Sandez, D., and Durbin, T. (2019). "On-board sensor-based NOx emissions from heavy-duty diesel vehicles." *Environmental Science & Technology*, 53(9), 5504-5511.
- J13. Gao, Z., LaClair, T., Ou, S., Huff, S., Wu, G., Hao, P., **Boriboonsomsin, K.**, and Barth, M. (2019). "Evaluation of electric vehicle component performance over eco-driving cycles." *Energy*, 172, 823-839.

- J14. Hao, P., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2019). "Eco-approach and departure application for actuated signals in real-world traffic." *IEEE Transactions on Intelligent Transportation Systems*, 20(1), 30-40.
- J15. Ye, F., Hao, P., Qi, X., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2019). "Prediction-based eco-approach and departure strategy for connected vehicles in congested urban traffic." *IEEE Transactions on Intelligent Transportation Systems*, 20(4), 1378-1389.
- J16. Tian, D, Wu, G., Hao, P., **Boriboonsomsin, K.**, and Barth, M. (2019). "Connected vehicle based lane selection assistance system." *IEEE Transactions on Intelligent Transportation Systems*, 20(7), 2630-2643.
- J17. Shan, X., Hao, P., **Boriboonsomsin, K.**, Wu, G., Barth, M., and Chen, X. (2018). "Partially limited access control design for special-use freeway lanes." *Transportation Research Part A*, 118, 25-37.
- J18. Luo, J., **Boriboonsomsin, K.**, and Barth, M. (2018). "Reducing pedestrians' inhalation of traffic-related air pollution through route choices: Case study in California suburb." *Journal of Transport & Health*, 10, 111-123.
- J19. Qi, X., Wang, P., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2018). "Connected cooperative eco-driving system considering human driver error." *IEEE Transactions on Intelligent Transportation Systems*, 19(8), 2721-2733.
- J20. **Boriboonsomsin, K.**, Durbin, T., Scora, G., Johnson, K., Sandez, D., Vu, A., Jiang, Y., Burnette, A., Yoon, S., Collins, J., Dai, Z., Fulper, C., Kishan, S., Sabisch, M., and Jackson, D. (2018). "Real-world exhaust temperature profiles of on-road heavy-duty diesel vehicles equipped with selective catalytic reduction." *Science of the Total Environment*, 634, 909-921.
- J21. **Boriboonsomsin, K.**, Durbin, T., Scora, G., Johnson, K., Sandez, D., Vu, A., Jiang, Y., Burnette, A., Yoon, S., Collins, J., Dai, Z., Fulper, C., Kishan, S., Sabisch, M., and Jackson, D. (2018). "Real-world exhaust temperature and engine load distributions of on-road heavy-duty diesel vehicles in various vocations." *Data in Brief*, 18, 1520-1543.
- J22. Tian, D, Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2018). "Performance measurement evaluation framework and co-benefit/tradeoff analysis for connected and automated vehicle applications: a survey." *IEEE Intelligent Transportation Systems Magazine*, 10(3), 110-122.
- J23. Yang, Q., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2018). "A novel arterial travel time distribution estimation model and its application to energy/emissions estimation." *Journal of Intelligent Transportation Systems*, 22(4), 325-337.
- J24. Qi, X., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2018). "Data-driven decomposition analysis and estimation of link-level electric vehicle energy consumption under real-world traffic conditions." *Transportation Research Part D*, 64, 36-52.
- J25. Altan O., Wu, G., Barth, M., **Boriboonsomsin, K.**, and Stark, J. (2017). "GlidePath: Eco-Friendly Automated Approach and Departure at Signalized Intersections." *IEEE Transactions on Intelligent Vehicles*, 2(4), 266-277.
- J26. Qi, X., Wu, G., Hao, P., **Boriboonsomsin, K.**, and Barth, M. (2017). "Integrated connected eco-driving system for PHEVs with co-optimization of vehicle dynamics and powertrain operations." *IEEE Transactions on Intelligent Vehicles*, 2(1), 2-13.

- J27. Li, W., Wu, G., **Boriboonsomsin, K.**, Barth, M., Rajab, S., Bai, S., and Zhang, Y. (2017). "Development and evaluation of high speed differential warning application using vehicle-to-vehicle communication." *Transportation Research Record*, 2621, 81-91.
- J28. Qi, X., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2016). "Development and evaluation of an evolutionary algorithm-based on-line energy management system for plug-in hybrid electric vehicles." *IEEE Transactions on Intelligent Transportation Systems*, 18(8), 2181-2191.
- J29. Hao, P., **Boriboonsomsin, K.**, Wu, G., and Barth, M. (2016). "Modal activity based stochastic model for estimating vehicle trajectories from sparse mobile sensor data." *IEEE Transactions on Intelligent Transportation Systems*, 18(3), 701-711.
- J30. Jin, Q., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2016). "Power-based optimal longitudinal control for a connected eco-driving system." *IEEE Transactions on Intelligent Transportation Systems*, 17(10), 2900-2910.
- J31. Qi, X., Wu, G., **Boriboonsomsin, K.**, Barth, M., and Gonder, J. (2016). "A data-driven reinforcement learning-based real-time energy management system for plug-in hybrid electric vehicles with charging opportunities." *Transportation Research Record*, 2572, 1-8, DOI: 10.3141/2572-01.
- J32. Qi, X., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2016). "Empirical study of lane-changing characteristics on high-occupancy vehicle facilities with different types of access control based on aerial survey data." *Journal of Transportation Engineering*, 142(1).
- J33. Barth, M., Wu, G., and **Boriboonsomsin, K.** (2015). "Intelligent transportation systems and greenhouse gas reductions." *Current Sustainable/Renewable Energy Reports*, Special Issue on Transportation Sustainability, 2(3), 90-97, <http://dx.doi.org/10.1007/s40518-015-0032-y>.
- J34. Scora, G., **Boriboonsomsin, K.**, and Barth, M. (2015). "Value of eco-friendly route choice for heavy-duty trucks." *Research in Transportation Economics*, 52, 3-14.
- J35. Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2015). "Comparative analysis of empirical capacities between freeways with different types of high-occupancy vehicle access control." *Transportation Research Record*, 2484, 149-158.
- J36. **Boriboonsomsin, K.**, Wu, G., Hao, P., and Barth, M. (2015). "Fusion of vehicle weight and activity data for improved vehicle emission modeling." *Transportation Research Record*, 2503, 153-162.
- J37. **Boriboonsomsin, K.**, Dean, J., and Barth, M. (2014). "Examination of attributes and value of ecologically friendly route choices." *Transportation Research Record*, 2427, 13-25.
- J38. Wu, G., Xia, H., **Boriboonsomsin, K.**, and Barth, M. (2014). "Supplementary benefits from partial vehicle automation in an eco-approach/departure application at signalized intersections." *Transportation Research Record*, 2424, 66-75.
- J39. Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2014). "Development and evaluation of intelligent energy management strategy for plug-in hybrid electric vehicle." *IEEE Transactions on Intelligent Transportation Systems*, 15(3), 1091-1100.
- J40. Du, Y., Wu, G., **Boriboonsomsin, K.**, and Chan, C.-Y. (2013). "Empirical study on lane changing behavior along different types of high-occupancy vehicle facilities in California." *Transportation Research Record*, 2396, 143-150.

- J41. Xia, H., **Boriboonsomsin, K.**, and Barth, M. (2013). "Dynamic ECO-driving for signalized arterial corridors and its indirect network-wide energy/emissions benefits." *Journal of Intelligent Transportation Systems*, 17(1), 31-41.
- J42. **Boriboonsomsin, K.**, Barth, M., Zhu, W., and Vu, A. (2012). "Eco-routing navigation system based on multi-source historical and real-time traffic information." *IEEE Transactions on Intelligent Transportation Systems*, 13(4), 1694-1704.
- J43. **Boriboonsomsin, K.**, Sheckler, R., and Barth, M. (2012). "Generating heavy-duty truck activity data inputs for MOVES based on large-scale truck telematics data." *Transportation Research Record*, 2270, 49-58.
- J44. **Boriboonsomsin, K.**, Zhu, W., and Barth, M. (2011). "A statistical approach to estimating truck traffic speed and its application to emission inventory modeling." *Transportation Research Record*, 2233, 110-119.
- J45. Wu, G., Du, Y., Jang, K., Chan, C.-Y., and **Boriboonsomsin, K.** (2011). "Preliminary evaluation of operational performance between different types of HOV facilities in California: Continuous-access vs. limited-access." *Transportation Research Record*, 2229, 93-101.
- J46. **Boriboonsomsin, K.**, Scora, G., and Barth, M. (2010). "Analysis of heavy-duty diesel truck activity and fuel economy based on electronic control module data." *Transportation Research Record*, 2191, 23-33.
- J47. Wu, G., **Boriboonsomsin, K.**, Zhang, W.-B., Li, M., and Barth, M. (2010). "Energy and emission benefit comparison between stationary and in-vehicle advanced driving alert systems." *Transportation Research Record*, 2189, 98-106.
- J48. Zhu, W., **Boriboonsomsin, K.**, and Barth, M. (2010). "Defining a freeway mobility index for roadway navigation." *Journal of Intelligent Transportation Systems*, 14(1), 37-50.
- J49. **Boriboonsomsin, K.**, Barth, M., and Xu, H. (2009). "Improvements to on-road mobile emissions modeling of freeways with high-occupancy vehicle facilities." *Transportation Research Record*, 2123, 109-118.
- J50. **Boriboonsomsin, K.** and Barth, M. (2009). "Impacts of road grade on fuel consumption and carbon dioxide emissions evidenced by use of advanced navigation systems." *Transportation Research Record*, 2139, 21-30.
- J51. Barth, M. and **Boriboonsomsin, K.** (2009). "Energy and emissions impacts of a freeway-based dynamic eco-driving system." *Transportation Research Part D*, 14(6), 400-410.
- J52. Li, M., **Boriboonsomsin, K.**, Wu, G., Zhang, W.-B., and Barth, M. (2009). "Traffic energy and emission reductions at signalized intersections: a study of the benefits of advanced driver information." *International Journal of Intelligent Transportation Systems Research*, 7(1), 49-58.
- J53. Barth, M. and **Boriboonsomsin, K.** (2008). "Real-world carbon dioxide impacts of traffic congestion." *Transportation Research Record*, 2058, 163-171.
- J54. **Boriboonsomsin, K.** and Barth, M. (2008). "Impacts of freeway high-occupancy vehicle lane configuration on vehicle emissions." *Transportation Research Part D*, 13(2), 112-125.
- J55. Reza, F., **Boriboonsomsin, K.**, and Bazlamit, S. (2007). "The development of a pavement quality index for the Ohio Department of Transportation." *International Journal of Pavements*, 6(1), 1-12.

- J56. **Boriboonsomsin, K.** and Barth, M. (2007). "Evaluating air quality benefits of freeway high occupancy vehicle lanes in Southern California." *Transportation Research Record*, 2011, 137-147.
- J57. **Boriboonsomsin, K.** and Reza, F. (2007). "Mix design and benefit evaluation of high solar reflectance concrete for pavements." *Transportation Research Record*, 2011, 11-20.
- J58. **Boriboonsomsin, K.** and Uddin, W. (2006). "Simplified methodology to estimate emissions from mobile sources for ambient air quality assessment." *Journal of Transportation Engineering*, 132(10), 817-828.
- J59. Uddin, W., **Boriboonsomsin, K.**, and Garza, S. (2005). "Transportation related environmental impacts and societal costs for life-cycle analysis of costs and benefits." *International Journal of Pavements*, 4(1-2), 92-104.

#### **Conference Proceedings (Full Paper Reviewed)**

- C1. Zhao, Z., Wu, G., **Boriboonsomsin, K.**, and Kailas, A. (2021). "Vehicle dispatching and scheduling algorithms for battery electric heavy-duty truck fleets considering en-route opportunity charging." *Accepted for presentation at the 8th IEEE Conference on Technologies for Sustainability*, April 22-24.
- C2. Un-Noor, F., Scora, G., Wu, G., **Boriboonsomsin, K.**, Perugu, H., Collier, S., and Yoon, S. (2021). "Operational feasibility assessment of battery electric construction equipment based on in-use activity data." *Accepted for presentation at the 100th Annual Meeting of the Transportation Research Board*.
- C3. Luo, J., **Boriboonsomsin, K.**, Wallerstein, B., Wang, C., and Barth, M. (2021). "Vehicle routing to reduce human inhalation of traffic-related air pollutants." *Accepted for presentation at the 100th Annual Meeting of the Transportation Research Board*.
- C4. Wei, Z., Hao, P., **Boriboonsomsin, K.**, and Barth, M. (2021). "Developing an adaptive connected eco-driving strategy for actuated signals." *Accepted for presentation at the 100th Annual Meeting of the Transportation Research Board*.
- C5. Wu, G., Brown, D., Zhao, Z., Hao, P., Todd, M., **Boriboonsomsin, K.**, Barth, M., Gao, Z., and LaClair, T. (2020). "Dyno-in-the-loop: an innovative hardware-in-the-loop development and testing platform for emerging mobility technologies." *Proceedings of the 2020 SAE World Congress*, Detroit, MI, April 21-23.
- C6. McCaffery, C., Zhu, H., Scora, G., **Boriboonsomsin, K.**, Karavalakis, G., Johnson, K., Durbin, T. (2020). "In-use emissions testing and fuel usage profile of on-road heavy-duty vehicles: in-use PEMS test results." *Proceedings of the 2020 SAE World Congress*, Detroit, MI, April 21-23.
- C7. Ye, F., Hao, P., Wu, G., Esaid, D., **Boriboonsomsin, K.**, Barth, M., Gao, Z., and LaClair, T. (2020). "Deep learning-based queue-aware eco-approach and departure system for plug-in hybrid electric bus at signalized intersections: a simulation study." *Proceedings of the 2020 SAE World Congress*, Detroit, MI, April 21-23.
- C8. Li, W., Wu, G., Yao, D., Zhang, Y., **Boriboonsomsin, K.**, and Barth (2020). "Stated acceptance and behavioral responses of drivers towards innovative connected vehicle applications." *Presented at the 99th Annual Meeting of the Transportation Research Board*, Washington, DC, January 12-16.
- C9. Liao, X., Oswald, D., Wang, Z., Wu, G., **Boriboonsomsin, K.**, Barth, M., Han, K., Kim, B. and Tiwari, P. (2020). "Cooperative ramp merging with vehicle-to-cloud communications: a field experiment." *Presented at the 99th Annual Meeting of the Transportation Research Board*, Washington, DC, January 12-16.

- C10. Ye, F., Hao, P., Wu, G., **Boriboonsomsin, K.**, Gao, Z., LaClair, T., and Barth, M. (2020). "Dynamic queue prediction at signalized intersections with fusing sensory information and connected vehicles." *Presented at the 99th Annual Meeting of the Transportation Research Board*, Washington, DC, January 12-16.
- C11. Esaid, D., Hao, P., Wu, G., Ye, F., **Boriboonsomsin, K.**, and Barth, M. (2020). "A machine learning approach to real time trajectory optimization at connected signalized intersections." *Presented at the 99th Annual Meeting of the Transportation Research Board*, Washington, DC, January 12-16.
- C12. Tanvir, S., Un-Noor, F., **Boriboonsomsin, K.**, and Gao, Z. (2020). "Feasibility of operating heavy-duty battery electric truck fleet in drayage application." *Presented at the 99th Annual Meeting of the Transportation Research Board*, Washington, DC, January 12-16.
- C13. Wang, Z., Liao, X., Wang, C., Wu, G., **Boriboonsomsin, K.**, Barth, M., Han, K., Kim, B. and Tiwari, P. (2020). "Driver behavior modeling using game engine: a learning-based approach." *Presented at the 99th Annual Meeting of the Transportation Research Board*, Washington, DC, January 12-16.
- C14. Kailas, A., Amar, P., **Boriboonsomsin, K.**, Wang, Z., Hsu, Y.-P., Vu, A., Caballero, F., Hao, P., Wu, G., Garmon, E., Tangula, S., and Barth, M. (2020). "Early findings from field trials of Eco-Drive for heavy-duty trucks." *Presented at the 99th Annual Meeting of the Transportation Research Board*, Washington, DC, January 12-16.
- C15. Wang, Z., Hsu, Y.-P., Vu, A., Caballero, F., Hao, P., Wu, G., **Boriboonsomsin, K.**, Barth, M., Kailas, A., Amar, P., Garmon, E., and Tangula, S. (2019). "Early findings from field trials of heavy-duty truck connected eco-driving system." *Proceedings of the 22nd International IEEE Conference on Intelligent Transportation Systems*, Auckland, New Zealand, October 27-30.
- C16. Ye, F., Hao, P., Wu, G., Esaid, D., **Boriboonsomsin, K.**, and Barth, M. (2019). "An advanced simulation framework of an integrated vehicle-powertrain eco-operation system for electric buses." *Proceedings of the 2019 Intelligent Vehicles Symposium*, Paris, France, June 9-12.
- C17. Jayasena, S., Pravinongvuth, S., and **Boriboonsomsin, K.** (2019). "Applicability of microscopic traffic simulation to quantify the impacts of continuous access and limited access high occupancy vehicle lanes on a highly congested arterial." *Proceedings of the 98th Annual Meeting of the Transportation Research Board*, Washington, DC, January 13-17.
- C18. Tian, D., Wu, G., **Boriboonsomsin, K.**, Barth, M., Rajab, S., and Bai, S. (2019). "Connected vehicle-enabled cooperative smart lane selection application." *Proceedings of the 98th Annual Meeting of the Transportation Research Board*, Washington, DC, January 13-17.
- C19. Hao, P., **Boriboonsomsin, K.**, Wu, G., Gao, Z., LaClair, T., and Barth, M. (2019). "Deeply integrated vehicle dynamic and powertrain operation for efficient plug-in hybrid electric bus." *Proceedings of the 98th Annual Meeting of the Transportation Research Board*, Washington, DC, January 13-17.
- C20. Wu, G., Hao, P., Wang, Z., **Boriboonsomsin, K.**, and Barth, M. (2019). "Eco-approach and departure along signalized corridors." *Proceedings of the 98th Annual Meeting of the Transportation Research Board*, Washington, DC, January 13-17.
- C21. Moretti, A., Luo, J., Wu, G., Feenstra, B., **Boriboonsomsin, K.**, and Barth, M. (2019). "Understanding air quality data, traffic, and weather parameters collected from near-road stations." *Proceedings of the 98th Annual Meeting of the Transportation Research Board*, Washington, DC, January 13-17.

- C22. Scora, G., **Boriboonsomsin, K.**, Durbin, T., Johnson, K., Yoon, S., Collins, J., and Dai, Z. (2019). "Variability in real-world activity patterns of heavy-duty vehicles by vocation." *Proceedings of the 98th Annual Meeting of the Transportation Research Board*, Washington, DC, January 13-17.
- C23. Luo, J., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2019). "Developing an aerial-image-based approach for sidewalk digitalization." *Proceedings of the 98th Annual Meeting of the Transportation Research Board*, Washington, DC, January 13-17.
- C24. Collier, S., Ruehl, C., Yoon, S., **Boriboonsomsin, K.**, Durbin, T., Scora, G., Johnson, K., and Herner, J. (2019). "Impact of heavy-duty diesel truck activity on fuel consumption and its implication on the reduction of greenhouse gas emissions." *Proceedings of the 98th Annual Meeting of the Transportation Research Board*, Washington, DC, January 13-17.
- C25. Ye, F., Wu, G., **Boriboonsomsin, K.**, Barth, M., Rajab, S., and Bai, S. (2018). "Development and evaluation of lane hazard prediction application for connected and automated vehicles." *Proceedings of the 21st International IEEE Conference on Intelligent Transportation Systems*, Maui, HI, November 4-7.
- C26. Williams, N., Wu, G., **Boriboonsomsin, K.**, Barth, M., Rajab, S., and Bai, S. (2018). "Anticipatory lane change warning using vehicle-to-vehicle communications." *Proceedings of the 21st International IEEE Conference on Intelligent Transportation Systems*, Maui, HI, November 4-7.
- C27. Luo, J., Barth, M., and **Boriboonsomsin, K.** (2018). "Vehicle routing to mitigate human exposure to traffic-related air pollutants." *Proceedings of the 21st International IEEE Conference on Intelligent Transportation Systems*, Maui, HI, November 4-7.
- C28. Hao, P., **Boriboonsomsin, K.**, Wang, C., Wu, G., and Barth, M. (2018). "Connected eco-approach and departure system for diesel trucks." *Proceedings of the 97th Annual Meeting of the Transportation Research Board*, Washington, DC, January 7-11.
- C29. Luo, J., **Boriboonsomsin, K.**, and Barth, M. (2018). "Consideration of exposure to traffic-related air pollution in bicycle route planning." *Proceedings of the 97th Annual Meeting of the Transportation Research Board*, Washington, DC, January 7-11.
- C30. Shan, X., Hao, P., Chen, X., **Boriboonsomsin, K.**, Wu, G., and Barth, M. (2019). "Vehicle energy/ emissions estimation based on vehicle trajectory reconstruction using sparse mobile sensor data." *Proceedings of the 97th Annual Meeting of the Transportation Research Board*, Washington, DC, January 7-11.
- C31. Hao, P., Wang, C., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2017). "Evaluating the environmental impact of traffic congestion based on sparse mobile crowd-sourced data." *Proceedings of the 2017 IEEE Conference on Technologies for Sustainability*, Phoenix, AZ, November 12-14.
- C32. Hao, P., Wang, Z., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2017). "Intra-platoon vehicle sequence optimization for eco-cooperative adaptive cruise control." *Proceedings of the 20th International IEEE Conference on Intelligent Transportation Systems*, Yokohama, Japan, October 16-19.
- C33. Qi, X., Wang, P., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2017). "Energy and mobility benefits from connected eco-driving for electric vehicles." *Proceedings of the 20th International IEEE Conference on Intelligent Transportation Systems*, Yokohama, Japan, October 16-19.
- C34. Tian, D., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2017). "A co-benefit and tradeoff evaluation framework for connected and automated vehicle application." *Proceedings of the 2017 Intelligent Vehicles Symposium*, Redondo Beach, CA, June 11-14.

- C35. Qi, X., Luo, Y., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2017). "Deep reinforcement learning-based vehicle energy efficiency autonomous learning system." *Proceedings of the 2017 Intelligent Vehicles Symposium*, Redondo Beach, CA, June 11-14.
- C36. Wang, Z., Wu, G., Hao, P., **Boriboonsomsin, K.**, and Barth, M. (2017). "Developing a platoon-wide eco-cooperative adaptive cruise control system." *Proceedings of the 2017 Intelligent Vehicles Symposium*, Redondo Beach, CA, June 11-14.
- C37. Wu, G., Qi, X., Kari, D., and **Boriboonsomsin, K.** (2017). "Development of agent-based on-line adaptive signal control framework using connected vehicle technology." *Proceedings of the inaugural World Transport Convention*, Beijing, China, June 4-6.
- C38. Wu, G., Pham, L., Hao, P., Jung, H., and **Boriboonsomsin, K.** (2017). "Prediction of real-time particulate matter concentrations on highways using traffic information and emission model." *Proceedings of the 96<sup>th</sup> Annual Meeting of the Transportation Research Board*, Washington, DC, January 8-12.
- C39. Hao, P., Ma, R., Shan, X., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2017). "Evaluating configurations of managed lane access control using multi-commodity link-node cell transmission model." *Proceedings of the 96<sup>th</sup> Annual Meeting of the Transportation Research Board*, Washington, DC, January 8-12.
- C40. Hao, P., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2017). "Eco-approach and departure application for actuated signals in real-world traffic." *Proceedings of the 96<sup>th</sup> Annual Meeting of the Transportation Research Board*, Washington, DC, January 8-12.
- C41. Ye, F., Hao, P., Qi, X., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2017). "Prediction-based eco-approach and departure strategy in congested urban traffic." *Proceedings of the 96<sup>th</sup> Annual Meeting of the Transportation Research Board*, Washington, DC, January 8-12.
- C42. Li, W., Wu, G., **Boriboonsomsin, K.**, Barth, M., Rajab, S., Bai, S., and Zhang, Y. (2017). "Development and evaluation of high speed differential warning application using vehicle-to-vehicle communication." *Proceedings of the 96<sup>th</sup> Annual Meeting of the Transportation Research Board*, Washington, DC, January 8-12.
- C43. Shan, X., Hao, P., **Boriboonsomsin, K.**, Wu, G., Barth, M., and Chen, X. (2017). "Partially limited access design methodology for freeway high occupancy vehicle lanes." *Proceedings of the 96<sup>th</sup> Annual Meeting of the Transportation Research Board*, Washington, DC, January 8-12.
- C44. Luo, J., **Boriboonsomsin, K.**, and Barth, M. (2017). "Assessing traffic-related primary fine particle exposure for Southern California residents and the environmental inequality implications." *Proceedings of the 96<sup>th</sup> Annual Meeting of the Transportation Research Board*, Washington, DC, January 8-12.
- C45. Shan, X., Hao, P., Chen, X., **Boriboonsomsin, K.**, Wu, G., and Barth, M. (2016). "Probabilistic model for vehicle trajectories reconstruction using sparse mobile sensor data on freeways." *Proceedings of the 19<sup>th</sup> International IEEE Conference on Intelligent Transportation Systems*, Rio de Janeiro, Brazil, November 1-4.
- C46. Ye, F., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2016). "A hybrid approach to estimating electric vehicle energy consumption for eco-driving applications." *Proceedings of the 19<sup>th</sup> International IEEE Conference on Intelligent Transportation Systems*, Rio de Janeiro, Brazil, November 1-4.

- C47. Tian, D., Li, W., Wu, G., **Boriboonsomsin, K.**, Barth, M., Rajab, S., and Bai, S. (2016). "Evaluating the Effectiveness of V2V-based Lane Speed Monitoring Application: A Simulation Study." *Proceedings of the 9<sup>th</sup> International IEEE Conference on Intelligent Transportation Systems*, Rio de Janeiro, Brazil, November 1-4.
- C48. Qi, X., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2016). "Intelligent On-Line Energy Management System for Plug-in Hybrid Electric Vehicles based on Evolutionary Algorithm." *Proceedings of the 2016 Genetic and Evolutionary Computation Conference*, Denver, CO, July 20-24.
- C49. Jin, Q., **Boriboonsomsin, K.**, and Barth, M. (2016). "Energy and Emissions Benefits of a Real-Time Driving Speed Advisory System for Heavy-Duty Trucks." *Proceedings of the 95<sup>th</sup> Annual Meeting of the Transportation Research Board*, Washington, DC, January 10-14.
- C50. Hao, P, Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2016). "Modal Activity-Based Vehicle Energy/Emissions Estimation Using Sparse Mobile Sensor Data." *Proceedings of the 95<sup>th</sup> Annual Meeting of the Transportation Research Board*, Washington, DC, January 10-14.
- C51. Williams, N., **Boriboonsomsin, K.**, Wu, G., and Barth, M. (2016). "Environmental and Mobility Impacts of Large-Scale Adoption of Eco-Driving: An Urban Arterial Case." *Proceedings of the 95<sup>th</sup> Annual Meeting of the Transportation Research Board*, Washington, DC, January 10-14.
- C52. Qi, X., Wu, G., **Boriboonsomsin, K.**, Barth, M., and Gonder, J. (2016). "A Data-Driven Reinforcement Learning-Based Real-Time Energy Management System for Plug-in Hybrid Electric Vehicles with Charging Opportunities." *Proceedings of the 95<sup>th</sup> Annual Meeting of the Transportation Research Board*, Washington, DC, January 10-14.
- C53. Hao, P., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2015). "Preliminary evaluation of field testing on eco-approach and departure application for actuated signals." *Proceedings of the 4<sup>th</sup> International Conference on Connected Vehicles & Expo*, Shenzhen, China, October 19-23.
- C54. Wu, G., Kari, D., Qi, X., **Boriboonsomsin, K.**, and Barth, M. (2015). "Developing and evaluating an eco-speed harmonization strategy for connected vehicles." *Proceedings of the 4<sup>th</sup> International Conference on Connected Vehicles & Expo*, Shenzhen, China, October 19-23.
- C55. Qi, X., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2015). "A Novel Blended Real-time Energy Management Strategy for Plug-in Hybrid Electric Vehicle Commute Trips." *Proceedings of the 18<sup>th</sup> International IEEE Conference on Intelligent Transportation Systems*, the Canary Islands, Spain, September 15-18.
- C56. Hao, P., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2015). "Developing a Framework of Eco-Approach and Departure Application for Actuated Signal Control." *Proceedings of the 2015 Intelligent Vehicles Symposium*, Seoul, South Korea, June 28 – Jul 1.
- C57. Qi, X., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2015). "Evolutionary Algorithm Based On-Line PHEV Energy Management System with Self-Adaptive SOC Control." *Proceedings of the 2015 Intelligent Vehicles Symposium*, Seoul, South Korea, June 28 – Jul 1.
- C58. **Boriboonsomsin, K.**, Wu, G., Hao, P., and Barth, M. (2015). "Fusion of Vehicle Weight and Activity Data for Improved Vehicle Emission Modeling." *Proceedings of the 94<sup>th</sup> Annual Meeting of the Transportation Research Board*, Washington, DC, January 11-15.

- C59. Wu, G., **Boriboonsomsin, K.**, Barth, M., and Tadi, R. (2015). "Comparative Analysis of Empirical Capacities between Freeways with Different Types of High-Occupancy Vehicle Access Control." *Proceedings of the 94<sup>th</sup> Annual Meeting of the Transportation Research Board*, Washington, DC, January 11-15.
- C60. Qi, X., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2015). "Comparative Study of Lane Changing Characteristics on Different Types of HOV Facilities Using Smoothed Aerial Photo Data." *Proceedings of the 94<sup>th</sup> Annual Meeting of the Transportation Research Board*, Washington, DC, January 11-15.
- C61. Hao, P., **Boriboonsomsin, K.**, Wu, G., and Barth, M. (2014). "Probabilistic model for estimating vehicle trajectories using sparse mobile sensor data." *Proceedings of the 17<sup>th</sup> International IEEE Conference on Intelligent Transportation Systems*, Qingdao, China, October 8-11.
- C62. Qi, X., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2014). "An on-line energy management strategy for plug-in hybrid electric vehicles using an estimation distribution algorithm." *Proceedings of the 17<sup>th</sup> International IEEE Conference on Intelligent Transportation Systems*, Qingdao, China, October 8-11.
- C63. **Boriboonsomsin, K.** and Barth, M. (2014). "Context-sensitive eco-driving scores." *Proceedings of the 21<sup>st</sup> World Congress on Intelligent Transportation Systems*, Detroit, MI, September 7-11.
- C64. Jin, Q., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2014). "Improving traffic operations using real-time optimal lane selection with connected vehicle technology." *Proceedings of the 2014 Intelligent Vehicles Symposium*, Dearborn, MI, June 8-11.
- C65. **Boriboonsomsin, K.**, Dean, J., and Barth, M. (2014). "An examination of the attributes and value of eco-friendly route choices." *Proceedings of the 93<sup>rd</sup> Annual Meeting of the Transportation Research Board*, Washington, DC, January 12-16.
- C66. Wu, G., Xia, H., **Boriboonsomsin, K.**, and Barth, M. (2014). "Supplementary benefits from partial vehicle automation in an eco-approach/departure application at signalized intersections." *Proceedings of the 93<sup>rd</sup> Annual Meeting of the Transportation Research Board*, Washington, DC, January 12-16.
- C67. Barth, M., **Boriboonsomsin, K.**, and Wu, G. (2013). "The potential role of vehicle automation in reducing traffic-related energy and emissions." *Proceedings of the 2<sup>nd</sup> International Conference on Connected Vehicles & Expo*, Las Vegas, NV, December 2-7.
- C68. Xia, H., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2013). "Development and evaluation of an enhanced eco-approach traffic signal application for connected vehicles." *Proceedings of the 16<sup>th</sup> International IEEE Conference on Intelligent Transportation Systems*, The Hague, Netherlands, October 6-9.
- C69. Jin, Q., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2013). "Platoon-based multi-agent intersection management for connected vehicles." *Proceedings of the 16<sup>th</sup> International IEEE Conference on Intelligent Transportation Systems*, The Hague, Netherlands, October 6-9.
- C70. Yang, Q., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2013). "Arterial roadway travel time distribution estimation and vehicle movement classification using a modified Gaussian mixture model." *Proceedings of the 16<sup>th</sup> International IEEE Conference on Intelligent Transportation Systems*, The Hague, Netherlands, October 6-9.
- C71. Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2013). "Development and evaluation of intelligent energy management strategy for plug-in hybrid electric vehicle." *Proceedings of the 92<sup>nd</sup> Annual Meeting of the Transportation Research Board*, Washington, DC, January 13-17.

- C72. Barth, M., **Boriboonsomsin, K.**, Todd, M., Ishisaka, T., and Williams, N. (2013). "A generalized methodology for establishing CO2 off-cycle credits as part of light-duty vehicle greenhouse gas emission standards." *Proceedings of the 92<sup>nd</sup> Annual Meeting of the Transportation Research Board*, Washington, DC, January 13-17.
- C73. Scora, G., **Boriboonsomsin, K.**, and Barth, M. (2013). "Eco-friendly navigation system development for heavy-duty trucks." *Proceedings of the 92<sup>nd</sup> Annual Meeting of the Transportation Research Board*, Washington, DC, January 13-17.
- C74. Martin, E., **Boriboonsomsin, K.**, Chan, N., Williams, N., Shaheen, S., and Barth, M. (2013). "Dynamic eco-driving in northern California: A study of survey and vehicle operations data from an eco-driving feedback device." *Proceedings of the 92<sup>nd</sup> Annual Meeting of the Transportation Research Board*, Washington, DC, January 13-17.
- C75. Du, Y., Wu, G., **Boriboonsomsin, K.**, and Chan, C.-Y. (2013). "Empirical study on lane changing behavior along different types of high-occupancy vehicle facilities in California." *Proceedings of the 92<sup>nd</sup> Annual Meeting of the Transportation Research Board*, Washington, DC, January 13-17.
- C76. Jin, Q., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2012). "Multi-agent intersection management for connected vehicles using an optimal scheduling approach." *Proceedings of the 1<sup>st</sup> International Conference on Connected Vehicles & Expo*, Beijing, China, December 12-16.
- C77. Wu, G., **Boriboonsomsin, K.**, Zhang, L., and Barth, M. (2012). "Simulation-based benefit evaluation of dynamic lane grouping strategies at isolated intersections." *Proceedings of the 15<sup>th</sup> International IEEE Conference on Intelligent Transportation Systems*, Anchorage, AK, September 16-19.
- C78. Xia, H., **Boriboonsomsin, K.**, Schweizer, F., Winckler, A., Zhou, K., Zhang, W.-B., and Barth, M. (2012). "Field operational testing of ECO-approach technology at a fixed-time signalized intersection." *Proceedings of the 15<sup>th</sup> International IEEE Conference on Intelligent Transportation Systems*, Anchorage, AK, September 16-19.
- C79. Jin, Q., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2012). "Advanced intersection management for connected vehicles using a multi-agent systems approach." *Proceedings of the 2012 Intelligent Vehicles Symposium*, Alcalá de Henares, Spain, June 3-7.
- C80. **Boriboonsomsin, K.**, Sheckler, R., and Barth, M. (2012). "Generating heavy-duty truck activity data inputs for MOVES based on large-scale truck telematics data." *Proceedings of the 91<sup>st</sup> Annual Meeting of the Transportation Research Board*, Washington, DC, January 22-26.
- C81. Tadi, R., **Boriboonsomsin, K.**, and Barth, M. (2011). "Role of high occupancy vehicle (HOV) lanes in combating congestion and emissions – California case study." *Proceedings of the 1<sup>st</sup> Conference of Transportation Research Group of India*, Bangalore, India, December 7-10.
- C82. Yang, Q., **Boriboonsomsin, K.**, and Barth, M. (2011). "Arterial roadway energy/emissions estimation using modal-based trajectory reconstruction." *Proceedings of the 14<sup>th</sup> International IEEE Conference on Intelligent Transportation Systems*, Washington, DC, October 5-7.
- C83. Xia, H., **Boriboonsomsin, K.**, and Barth, M. (2011). "Indirect network-wide energy/emissions benefits from dynamic ECO-driving on signalized corridors." *Proceedings of the 14<sup>th</sup> International IEEE Conference on Intelligent Transportation Systems*, Washington, DC, October 5-7.

- C84. Barth, M., Mandava, S., **Boriboonsomsin, K.**, and Xia, H. (2011). "Dynamic ECO-driving for arterial corridors." *Proceedings of the 1<sup>st</sup> IEEE Forum on Integrated and Sustainable Transportation Systems*, Vienna, Austria, June 29 – July 1.
- C85. **Boriboonsomsin, K.**, Wu, G., Scora, G., and Barth, M. (2011). "Impacts of goods movement pricing on traffic congestion and air pollution: A case study of the ports of Los Angeles and Long Beach." *Proceedings of the 52<sup>nd</sup> Annual Transportation Research Forum*, Long Beach, CA, March 10-12.
- C86. **Boriboonsomsin, K.**, Vu, A., and Barth, M. (2011). "Evaluation of driving behavior and attitude towards eco-driving: A Southern California case study." *Proceedings of the 90<sup>th</sup> Annual Meeting of the Transportation Research Board*, Washington, DC, January 23-27.
- C87. **Boriboonsomsin, K.**, Zhu, W., and Barth, M. (2011). "A statistical approach to estimating truck traffic speed and its application to emission inventory modeling." *Proceedings of the 90<sup>th</sup> Annual Meeting of the Transportation Research Board*, Washington, DC, January 23-27.
- C88. Wu, G., Du, Y., Jang, K., Chan, C.-Y., and **Boriboonsomsin, K.** (2011). "Preliminary evaluation of operational performance between different types of HOV facilities in California: Continuous-access vs. limited-access." *Proceedings of the 90<sup>th</sup> Annual Meeting of the Transportation Research Board*, Washington, DC, January 23-27.
- C89. Vu, A., **Boriboonsomsin, K.**, and Barth, M. (2010). "Vehicle parameterization and tracking from traffic videos." *Proceedings of the 13<sup>rd</sup> International IEEE Conference on Intelligent Transportation Systems*, Madeira Island, Portugal, September 19-22.
- C90. Boskovich, S., **Boriboonsomsin, K.**, and Barth, M. (2010). "A developmental framework towards dynamic incident rerouting using vehicle-to-vehicle communication and multi-agent systems." *Proceedings of the 13<sup>rd</sup> International IEEE Conference on Intelligent Transportation Systems*, Madeira Island, Portugal, September 19-22.
- C91. **Boriboonsomsin, K.**, Barth, M., Zhu, W., and Vu, A. (2010). "ECO-routing navigation system based on multi-source historical and real-time traffic information." *Proceedings of the 13<sup>th</sup> International IEEE Conference on Intelligent Transportation Systems*, in Workshop on Emergent Cooperative Technologies in Intelligent Transportation Systems, Madeira Island, Portugal, September 19-22.
- C92. **Boriboonsomsin, K.**, Scora, G., and Barth, M. (2010). "Analysis of heavy-duty diesel truck activity and fuel economy based on electronic control module data." *Proceedings of the 89<sup>th</sup> Annual Meeting of the Transportation Research Board (DVD)*, Washington, DC, January 10-14.
- C93. Zhu, W., **Boriboonsomsin, K.**, and Barth, M. (2010). "Estimating truck traffic speed from single-loop detector data." *Proceedings of the 89<sup>th</sup> Annual Meeting of the Transportation Research Board (DVD)*, Washington, DC, January 10-14.
- C94. Scora, G., **Boriboonsomsin, K.**, and Barth, M. (2010). "Effects of operational variability on heavy-duty truck greenhouse gas emissions." *Proceedings of the 89<sup>th</sup> Annual Meeting of the Transportation Research Board (DVD)*, Washington, DC, January 10-14.
- C95. Wu, G., **Boriboonsomsin, K.**, Zhang, W.-B., Li, M., and Barth, M. (2010). "Energy and emission benefit comparison between stationary and in-vehicle advanced driving alert systems." *Proceedings of the 89<sup>th</sup> Annual Meeting of the Transportation Research Board (DVD)*, Washington, DC, January 10-14.

- C96. Mandava, S., **Boriboonsomsin, K.**, Barth, M. (2009). "Arterial velocity planning based on traffic signal information under light traffic conditions." *Proceedings of the 12<sup>th</sup> International IEEE Conference on Intelligent Transportation Systems*, St. Louis, MO, October 3-7.
- C97. Barth, M. and **Boriboonsomsin, K.** (2009). "Environmentally beneficial intelligent transportation systems." *Proceedings of the 12th IFAC Symposium on Control in Transportation Systems*, Redondo Beach, CA, September 2-4.
- C98. **Boriboonsomsin, K.**, Barth, M., and Xu, H. (2009). "Improvements to on-road mobile emissions modeling of freeways with high-occupancy vehicle facilities." *Proceedings of the 88th Annual Meeting of the Transportation Research Board (DVD)*, Washington, DC, January 11-15.
- C99. **Boriboonsomsin, K.** and Barth, M. (2009). "Fuel and CO<sub>2</sub> impacts from advanced navigation systems that account for road grade." *Proceedings of the 88th Annual Meeting of the Transportation Research Board (DVD)*, Washington, DC, January 11-15.
- C100. Zhu, W., **Boriboonsomsin, K.**, and Barth, M. (2008). "Mobility index-based navigation for mandatory re-routing scenarios." *Proceedings of the 11<sup>th</sup> International IEEE Conference on Intelligent Transportation Systems*, Beijing, China, October 12-15.
- C101. Zhu, W., **Boriboonsomsin, K.**, and Barth, M. (2008). "A new methodology for processing time-varying traffic data in multiple states." *Proceedings of the 11<sup>th</sup> International IEEE Conference on Intelligent Transportation Systems*, Beijing, China, October 12-15.
- C102. Barth, M. and **Boriboonsomsin, K.** (2008). "Real-world carbon dioxide impacts of traffic congestion." *Proceedings of the 87<sup>th</sup> Annual Meeting of the Transportation Research Board (DVD)*, Washington, DC, January 13-17.
- C103. **Boriboonsomsin, K.** and Barth, M. (2008). "Impacts of freeway high-occupancy vehicle lane configuration on vehicle emissions." *Proceedings of the 87<sup>th</sup> Annual Meeting of the Transportation Research Board (DVD)*, Washington, DC, January 13-17.
- C104. Servin, O., **Boriboonsomsin, K.**, and Barth, M. (2008). "A preliminary design of speed control strategies in dynamic intelligent speed adaptation system for freeways." *Proceedings of the 87<sup>th</sup> Annual Meeting of the Transportation Research Board (DVD)*, Washington, DC, January 13-17.
- C105. **Boriboonsomsin, K.**, Servin, O., and Barth, M. (2007). "Selection of control speeds in dynamic intelligent speed adaptation system: a preliminary analysis." *Proceedings of the 14<sup>th</sup> International Conference – Road Safety on Four Continents (CD-ROM)*, Bangkok, Thailand, November 14-16.
- C106. Barth, M., **Boriboonsomsin, K.**, and Vu, A. (2007). "Environmental-friendly navigation." *Proceedings of the 10<sup>th</sup> International IEEE Conference on Intelligent Transportation Systems (CD-ROM)*, Seattle, WA, September 30 – October 3.
- C107. Zhu, W., **Boriboonsomsin, K.**, and Barth, M. (2007). "Microscopic analysis of traffic flow quality." *Proceedings of the 10<sup>th</sup> International IEEE Conference on Intelligent Transportation Systems (CD-ROM)*, Seattle, WA, September 30 – October 3.
- C108. **Boriboonsomsin, K.** and Barth, M. (2007). "Evaluating air quality benefits of freeway high occupancy vehicle lanes in Southern California." *Proceedings of the 86<sup>th</sup> Annual Meeting of the Transportation Research Board (CD-ROM)*, Washington, DC, January 21-25.

- C109. **Boriboonsomsin, K.** and Reza, F. (2007). "Mix design and benefit evaluation of high solar reflectance concrete for pavements." *Proceedings of the 86<sup>th</sup> Annual Meeting of the Transportation Research Board (CD-ROM)*, Washington, DC, January 21-25.
- C110. Servin, O., **Boriboonsomsin, K.**, and Barth, M. (2006). "An energy and emission impact evaluation of intelligent speed adaptation." *Proceedings of the 9<sup>th</sup> International IEEE Conference on Intelligent Transportation Systems (CD-ROM)*, Toronto, Canada, September 17-20.
- C111. **Boriboonsomsin, K.** and Uddin, W. (2006). "A consideration of heat-island effect in ground-level ozone forecasting model and its application in rural areas of Northern Mississippi." *Proceedings of the 85<sup>th</sup> Annual Meeting of the Transportation Research Board (CD-ROM)*, Washington, DC, January 22-26.
- C112. Reza, F., **Boriboonsomsin, K.**, and Bazlamit, S. (2006). "Development of a pavement quality index for the State of Ohio." *Proceedings of the 85<sup>th</sup> Annual Meeting of the Transportation Research Board (CD-ROM)*, Washington, DC, January 22-26.
- C113. Reza, F., Bazlamit, S., and **Boriboonsomsin, K.** (2005). "Composite performance index for concrete pavement." *Proceedings of the 6<sup>th</sup> International Congress on Global Construction: Ultimate Concrete Opportunities*, Dundee, UK, July 5-7.
- C114. Uddin, W., **Boriboonsomsin, K.**, and Garza, S. (2005). "Transportation related environmental impacts and societal costs for life-cycle analysis of costs and benefits." **First Paper Award**, *Proceedings of the 2005 International Symposium on Pavement Recycling*, São Paulo, Brazil, March 14-16.
- C115. Uddin, W. and **Boriboonsomsin, K.** (2005). "Air quality management using vehicle emission modeling and spatial technologies." *Proceedings of the Environment 2005: International Conference on Sustainable Transportation in Developing Countries*, Abu Dhabi, UAE, January 30 – February 2.
- C116. **Boriboonsomsin, K.** and Uddin, W. (2005). "Tropospheric ozone modeling considering vehicle emissions and point & aviation sources, validation, and implementation in rural areas." *Proceedings of the 84<sup>th</sup> Annual Meeting of the Transportation Research Board (CD-ROM)*, Washington, DC, January 9-13.
- C117. Uddin, W., Garza, S., and **Boriboonsomsin, K.** (2003). "A 3D-FE simulation study of the effects of nonlinear material properties on pavement structural response analysis and design." *Proceedings of the 3<sup>rd</sup> International Symposium on Maintenance and Rehabilitation of Pavements and Technological Control*, Guimarães, Portugal, July 7-10.
- C118. Uddin, W. and **Boriboonsomsin, K.** (2003). "A synthesis study and GIS database for bridge cathodic protection projects." *Proceedings of the 82<sup>nd</sup> Annual Meeting of the Transportation Research Board (CD-ROM)*, Washington, DC, January 12-16.
- C119. Garza, S. and **Boriboonsomsin, K.** (2002). "Impact of traffic volume change on air quality." **Runner-up Award**, *Southern District ITE 2002 Graduate Student Paper Competition*, March.
- C120. **Boriboonsomsin, K.** and Herabat, P. (2001). "Suggested performance measures for traffic sign structures." *Proceedings of the 7<sup>th</sup> National Convention on Civil Engineering*, Bangkok, Thailand, May 17-18.

#### **Conference Papers/Posters (Abstract Reviewed)**

- A1. Wang, Z., Liao, X., Wang, C., Wu, G., **Boriboonsomsin, K.**, Barth, M., Han, K., Kim, B., and Tiwari, P. (2019). "Human factor modeling of driver speed assistance using game engine: A learning-based approach." *Automated Vehicle Symposium 2019*, Orlando, FL, July 15-18.

- A2. **Boriboonsomsin, K.**, Vu, A., Porter, C., and Koupal, J. (2019). "Analysis of hotelling activity of long-haul trucks based on truck telemetry data." 29th CRC Real-World Vehicle Emissions Workshop, Long Beach, CA, March 10-13.
- A3. Scora, G., Koupal, J., **Boriboonsomsin, K.**, Jung, H., Li, C., Kishan, S., Magbuhat, S., Pournazeri, S., Long, J., Maaluof, S., Karim, J., Sardar, S., Hu, S., Hu, S., and Swanson, J. (2019). "Preliminary analysis of start activity patterns and start emissions from selected plug-in hybrid electric vehicles." 29th CRC Real-World Vehicle Emissions Workshop, Long Beach, CA, March 10-13.
- A4. Scora, G., **Boriboonsomsin, K.**, Vu, A., and Barth, M. (2019). "Effects of route selection on NOx emissions from heavy-duty diesel trucks." 29th CRC Real-World Vehicle Emissions Workshop, Long Beach, CA, March 10-13.
- A5. Durbin, T., Johnson, K., **Boriboonsomsin, K.**, Scora, G., Villela, M., Gomez, D., Tan, Y., and Yoon, S. (2019). "Activity data of off-road engines in construction." 29th CRC Real-World Vehicle Emissions Workshop, Long Beach, CA, March 10-13.
- A6. Sonntag, D., Brakora, J., Fulper, C., Brzezinski, D., Verma, A., Ballare, S., Kotz, A., Kelly, K., **Boriboonsomsin, K.**, Scora, G., Johnson, K., and Durbin, T. (2019). "Updating MOVES with instrumented heavy-duty truck activity data." 29th CRC Real-World Vehicle Emissions Workshop, Long Beach, CA, March 10-13.
- A7. **Boriboonsomsin, K.**, Luo, J., Wang, C., and Barth, M. (2019). "Use of connected vehicle technology to reduce human exposure to traffic-related air pollutants." 1st Transportation, Air Quality, and Health Symposium, Austin, TX, February 18-20.
- A8. Luo, J., Moretti, A., Wu, G., Feenstra, B., **Boriboonsomsin, K.**, and Barth, M. (2019). "Performance evaluation of low-cost air quality sensors at near-road air quality monitoring stations." 1st Transportation, Air Quality, and Health Symposium, Austin, TX, February 18-20.
- A9. Luo, J., **Boriboonsomsin, K.**, and Barth, M. (2019). "Consideration of exposure to traffic-related air pollution in bicycle route planning." 1st Transportation, Air Quality, and Health Symposium, Austin, TX, February 18-20.
- A10. Moretti, A., Luo, J., Wu, G., Feenstra, B., **Boriboonsomsin, K.**, and Barth, M. (2019). "Understanding air quality data, traffic, and weather parameters collected from near-road stations." 1st Transportation, Air Quality, and Health Symposium, Austin, TX, February 18-20.
- A11. Wang, C., Hao, P., **Boriboonsomsin, K.**, Gao, Z., and Barth, M. (2019). "Developing a mesoscopic energy consumption model for battery electric trucks based on real world driving data." 1st Transportation, Air Quality, and Health Symposium, Austin, TX, February 18-20.
- A12. Williams, N., Wu, G., **Boriboonsomsin, K.**, Barth, M., Rajab, S., and Bai, S. (2018). "Anticipatory model for safer automated lane changes." Automated Vehicle Symposium 2018, San Francisco, CA, July 9-12.
- A13. Ye, F., Wu, G., **Boriboonsomsin, K.**, Barth, M., Rajab, S., and Bai, S. (2018). "Traffic abnormality prediction application for connected automated vehicles in a mixed traffic environment." Automated Vehicle Symposium 2018, San Francisco, CA, July 9-12.
- A14. Tan, Y., Collins, J., Yoon, S., Herner, J., Henerick, P., Montes, T., Ham, W., Hu, S., **Boriboonsomsin, K.**, Johnson, K., Scora, G., Sandez, D., and Durbin, T. (2018). "NOx emission estimates from the activity data of on-road heavy-duty diesel vehicles." 28th CRC Real-World Vehicle Emissions Workshop, Garden Grove, CA, March 18-21.

- A15. **Boriboonsomsin, K.**, Durbin, T., Scora, G., Johnson, K., Sandez, D., Vu, A., Jiang, Y., Burnette, A., Yoon, S., Collins, J., Dai, Z., Fulper, C., Kishan, S., Sabisch, M., and Jackson, D. (2018). "Real-world engine load and exhaust temperature profiles of on-road heavy-duty diesel vehicles equipped with selective catalytic reduction." 28th CRC Real-World Vehicle Emissions Workshop, Garden Grove, CA, March 18-21.
- A16. **Boriboonsomsin, K.**, Durbin, T., Scora, G., Johnson, K., Sandez, D., Vu, A., Jiang, Y., Burnette, A., Santos, A., Lemieux, S., Maldonado, H., Collier, S., Collins, J., and Yoon, S. (2018). "Real-world activity of heavy-duty tractors hauling container chassis, flatbed trailer, and tank trailer." 28th CRC Real-World Vehicle Emissions Workshop, Garden Grove, CA, March 18-21.
- A17. Hao, P., Wang, Z., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2017). "Intra-platoon vehicle sequence optimization for eco-cooperative adaptive cruise control." Automated Vehicle Symposium 2017, San Francisco, CA, July 11-13.
- A18. Sabisch, M., Jackson, D., Kishan, S., Fulper, C., Johnson, K., Durbin, T., **Boriboonsomsin, K.**, Scora, G., and Sandez, D. (2017). "Data processing, analysis, and databasing of heavy-duty activity study results." 7<sup>th</sup> International PEMS Conference, Riverside, CA, March 30-31.
- A19. **Boriboonsomsin, K.**, Johnson, K., Scora, G., Sandez, D., Vu, A., Durbin, T., Burnette, A., Yoon, S., Collins, J., Dai, Z., Fulper, C., Kishan, S., and Sabisch, M. (2017). "Idle activity patterns of heavy-duty vehicles in California." 27<sup>th</sup> CRC Real-World Vehicle Emissions Workshop, Long Beach, CA, March 27-29.
- A20. **Boriboonsomsin, K.**, Johnson, K., Scora, G., Sandez, D., Vu, A., Durbin, T., Burnette, A., Yoon, S., Collins, J., Dai, Z., Fulper, C., Kishan, S., and Sabisch, M. (2017). "Engine soak and start activity patterns of heavy-duty vehicles in California." 27<sup>th</sup> CRC Real-World Vehicle Emissions Workshop, Long Beach, CA, March 27-29.
- A21. **Boriboonsomsin, K.**, Johnson, K., Scora, G., Sandez, D., Vu, A., Durbin, T., Burnette, A., Yoon, S., Collins, J., Dai, Z., Fulper, C., Kishan, S., and Sabisch, M. (2017). "Vocation-specific drive cycles of heavy-duty vehicles in California." 27<sup>th</sup> CRC Real-World Vehicle Emissions Workshop, Long Beach, CA, March 27-29.
- A22. Ye, F., Hao, P., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2016). "Eco-approach and departure strategy in traffic under mixed connected vehicle environment." Automated Vehicle Symposium 2016, San Francisco, CA, July 19-21.
- A23. Hao, P., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2016). "Field testing and evaluation of eco-approach and departure application for actuated signals." Automated Vehicle Symposium 2016, San Francisco, CA, July 19-21.
- A24. Wu, G., Hao, P., Kari, D., **Boriboonsomsin, K.**, and Barth, M. (2016). "Developing an eco-cooperative adaptive cruise control system." Automated Vehicle Symposium 2016, San Francisco, CA, July 19-21.
- A25. Luo, J., **Boriboonsomsin, K.**, and Barth, M. (2016). "Potential for Reducing Pedestrian's Exposure to Traffic-Related Air Pollution through Route Choice Decision." 2<sup>nd</sup> International Conference on Transport & Health, San Jose, CA, June 13-15.
- A26. Wu, G., **Boriboonsomsin, K.**, Hao, P., Barth, M., Tadi, R., and Shan, X. (2016). "Analysis and development on freeways with different types of high-occupancy vehicle access control." 15th International Conference on Managed Lanes, Miami, FL, May 4-6.
- A27. Scora, G., **Boriboonsomsin, K.**, Johnson, K., Yoon, S., and Jaw, K. (2016). "Vocation-specific activity patterns and temperature effects of on-road heavy-duty diesel vehicles in California." 6<sup>th</sup> International PEMS Conference, Riverside, CA, March 17-18.

- A28. **Boriboonsomsin, K.**, Johnson, K., Scora, G., Yoon, S., and Jaw, K. (2016). "Vocation-specific activity patterns of on-road heavy-duty diesel vehicles in California." *26<sup>th</sup> CRC Real-World Vehicle Emissions Workshop*, Newport Beach, CA, March 14-16.
- A29. **Boriboonsomsin, K.**, Scora, G., Karavalakis, G., Durbin, T., and Johnson, K. (2016). "Modeling emissions from light-duty vehicles traveling at high speeds in California." *26<sup>th</sup> CRC Real-World Vehicle Emissions Workshop*, Newport Beach, CA, March 14-16.
- A30. Roth, P., Espinosa, C., Vu, D., **Boriboonsomsin, K.**, Durbin, T., Asa-Awuku, A., and Karavalakis, G. (2016). "Particulate emissions from light-duty vehicles operating at low and high speeds representative for California highways." *26<sup>th</sup> CRC Real-World Vehicle Emissions Workshop*, Newport Beach, CA, March 14-16.
- A31. Tian, D., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2016). "The Vehicle-to-Vehicle Communication Technology Application on Freeway Scenario." *2016 UCCONNECT Student Conference*, Riverside, CA, February 11-12.
- A32. Wu, G., Barth, M., **Boriboonsomsin, K.**, and Altan, O. (2015). "GlidePath: Eco-friendly automated approach/departure at signalized intersections." *Automated Vehicle Symposium 2015*, Ann Arbor, MI, July 20-24.
- A33. Hao, P. and **Boriboonsomsin, K.** (2014). "Probabilistic model for estimating vehicle trajectories using sparse mobile sensor data." *20<sup>th</sup> UCTC Student Conference*, Pomona, CA, April 17-18.
- A34. Luo, J. and **Boriboonsomsin, K.** (2014). "Traffic Emission Pollutant Responsive Walkability Evaluation." *20<sup>th</sup> UCTC Student Conference*, Pomona, CA, April 17-18.
- A35. Wu, G., Jin, Q., and **Boriboonsomsin, K.** (2014). "Improve traffic operation at signalized intersections using four quadrant connection roadways." *The Transportation Research Board's 2014 Alternative Intersections & Interchanges Symposium*, Salt Lake City UT, July 20-23.
- A36. Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2013). "Fusion of truck weight and activity data for improved estimation of emissions due to goods movement." *Sustainable Goods Movement: Maintaining the Environment, Economy and Equity*, Palm Desert, CA, November 21-22.
- A37. **Boriboonsomsin, K.**, Xia, H., Wu, G., and Barth, M. (2013). "Supplementary benefits from partial automation in energy and environment-focused connected vehicle applications." *The Transportation Research Board's 2<sup>nd</sup> Annual Workshop on Road Vehicle Automation*, Stanford, CA, July 16-19.
- A38. Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2013). "Development and evaluation of intelligent energy management strategy for plug-in hybrid electric vehicle." *19<sup>th</sup> UCTC Student Conference*, Los Angeles, CA, February 28 – March 2.
- A39. Jin, Q., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2013). "Advanced intersection management for connected vehicles using optimal scheduling approach." *19<sup>th</sup> UCTC Student Conference*, Los Angeles, CA, February 28 – March 2.
- A40. Jarak, N. and **Boriboonsomsin, K.** (2013). "Method for self-constructing/updating vehicle fuel consumption models based on real-time fuel consumption data." *19<sup>th</sup> UCTC Student Conference*, Los Angeles, CA, February 28 – March 2.

- A41. Xia, H., **Boriboonsomsin, K.**, and Wu, G. (2013). "Calibration of traffic microsimulation models for microscopic vehicle emission modeling." *19<sup>th</sup> UCTC Student Conference*, Los Angeles, CA, February 28 – March 2.
- A42. Xia, H., Barth, M., and **Boriboonsomsin, K.** (2012). "Dynamic eco-driving on signalized corridors." *18<sup>th</sup> UCTC Student Conference*, Davis, CA, April 20.
- A43. Jin, Q., Barth, M., and **Boriboonsomsin, K.** (2012). "Advanced intersection management for connected vehicles using a multi-agent systems approach." *18<sup>th</sup> UCTC Student Conference*, Davis, CA, April 20.
- A44. Nelson, J., **Boriboonsomsin, K.**, and Barth, M. (2010). "A comparison of vehicle usage patterns of residents in New Urbanism communities and conventional communities." *16<sup>th</sup> UCTC Student Conference*, Irvine, CA, April 1-2.
- A45. Scora, G., **Boriboonsomsin, K.**, and Barth, M. (2010). "The effects of operational variability on heavy-duty truck greenhouse gas emissions." *16<sup>th</sup> UCTC Student Conference*, Irvine, CA, April 1-2.
- A46. Scora, G., **Boriboonsomsin, K.**, and Barth, M. (2009). "The importance of road grade and vehicle speed on heavy-duty truck fuel economy and emissions." *19<sup>th</sup> CRC On-Road Vehicle Emissions Workshop*, San Diego, CA, March 23-25.
- A47. Barth, M., **Boriboonsomsin, K.**, Zhu, W., Vu, A., Gerdes, A., Lee, C., and Rosario, D. (2008). "Environmental-friendly navigation: technology description and field operational testing plan." *15<sup>th</sup> World Congress on Intelligent Transportation Systems*, New York City, NY, November 16-20.
- A48. Wu, G., Zhang, W.-B., Li, M., Barth, M., **Boriboonsomsin, K.**, Lee, C., Gerdes, A., and Rosario, D. (2008). "Traffic emission reduction at signalized intersections: a simulation study of benefits of advanced driver information." *15<sup>th</sup> World Congress on Intelligent Transportation Systems*, New York City, NY, November 16-20.
- A49. Zhu, W., **Boriboonsomsin, K.**, and Barth, M. (2008). "Mobility index-based navigation for mandatory re-routing scenarios." *2<sup>nd</sup> Annual California University Transportation Centers – PATH Conference*, Los Angeles, CA, November 6-7.
- A50. **Boriboonsomsin, K.** and Barth, M. (2007). "A simple screening tool for evaluating walkability/bikability of travel routes to schools." *4<sup>th</sup> Asian Regional Conference on Safe Communities*, Bangkok, Thailand, November 22-24.
- A51. Barth, M., **Boriboonsomsin, K.** and Vu, A. (2007). "Environmentally-friendly navigation." *1<sup>st</sup> Annual California University Transportation Centers – PATH Conference*, Berkeley, CA, October 29-31.
- A52. **Boriboonsomsin, K.**, Barth, M., and Scora, G. (2007). "Estimating the emissions inventory of high-occupancy vehicle facilities." *17<sup>th</sup> CRC On-Road Vehicle Emissions Workshop*, San Diego, CA, March 26-28.
- A53. **Boriboonsomsin, K.** (2006). "Integrated transportation/emissions modeling: a microscopic approach." *Citilabs International User Conference*, Palm Springs, CA, November 5.
- A54. **Boriboonsomsin, K.** and Uddin, W. (2005). "Ground-level ozone forecasting model considering precursor emissions and heat-island effect." *NOAA/EPA Golden Jubilee Symposium on Air Quality Modeling and Its Application*, Durham, NC, September 20-21.

- A55. **Boriboonsomsin, K.** and Uddin, W. (2005). "Pavement surface type and vector map extraction using modern spaceborne remote sensing and spatial technologies." *Pavement Performance Data Analysis Forum*, Washington, DC, January 8.
- A56. **Boriboonsomsin, K.** and Uddin, W. (2004). "A Methodology for trend analysis of land development and commercial/residential growth in rural cities in Mississippi." *6<sup>th</sup> Annual Memphis Areas Engineering and Sciences Conference*, Memphis, TN, May 12.

### **Book Chapters**

- B1. Tanvir, S., Hao, P., and **Boriboonsomsin, K.** (2020). "Emerging transportation technologies and implications for traffic-related emissions, air pollution exposure, and health." *Traffic-Related Air Pollution*, ISBN 978-0-12-818122-5, Elsevier, H. Khreis, M. J. Nieuwenhuijsen, J. Zietsman, and T. Ramani (Eds.), 511-530.
- B2. Qi, X., Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2019). "Data-driven energy efficient driving control in connected vehicle environment." *Data-Driven Solutions to Transportation Problems*, ISBN 978-0-12-817026-7, Elsevier, Y. Wang and Z. Zeng (Eds.), 11-50.
- B3. Reza, F. and **Boriboonsomsin, K.** (2015). "Pavements made of concrete with high solar reflectance." *Eco-efficient Materials for Mitigating Building Cooling Needs*, ISBN 9781782423805, Elsevier, F. Pacheco-Torgal, J. A. Labrincha, L. F. Cabeza, and C. G. Grandqvist (Eds.), 37-62.
- B4. **Boriboonsomsin, K.** (2014). "Emissions modeling." *Encyclopedia of Transportation*, ISBN 9781452267791, SAGE Publications, Inc, M. Garrett (Ed.), 491-493.
- B5. Barth, M., **Boriboonsomsin, K.**, and Wu, G. (2014). "Vehicle automation and its potential impacts on energy and emissions." *Road Vehicle Automation*, ISBN 978-3-319-05990-7, Springer, G. Meyer and S. Beiker (Eds.), 103-112.
- B6. Songchitrukka, P., **Boriboonsomsin, K.**, and Barth, M. (2009). "Impact of rising fuel prices on prevailing traffic speed on freeway in Houston, Texas." *Transportation Land Use, Planning, and Air Quality*, ISBN 978-0-7844-1059-2, American Society of Civil Engineers, S. Pulugurtha, R. O'Loughlin, and S. Hallmark (Eds.), 31-40.
- B7. **Boriboonsomsin, K.** and Barth, M. (2008). "A microscopic approach to modeling air quality impacts of HOV lane conversion." *Transportation Land Use, Planning, and Air Quality*, ISBN 978-0-7844-0960-2, American Society of Civil Engineers, S. Pulugurtha, R. O'Loughlin, S. Hallmark (Eds.), 338-344.

### **Research Project Reports**

- R1. **Boriboonsomsin, K.**, Luo, J., Tanvir, S., Wallerstein, B., Scora, G., Johnson, K., and Barth, M. (2020). Geofencing as a Strategy to Lower Emissions in Disadvantaged Communities. Final report to California Air Resources Board, December, 80 pp.
- R2. Luo, J., Hao, P., and **Boriboonsomsin, K.** (2020). An Analytical Framework for Evaluating Community-Level Benefits and Impacts of Statewide Policies to Reduce Greenhouse Gas Emissions from Mobile Sources. Final report to California Office of Environmental Health Hazard Assessment, December, 39 pp.
- R3. **Boriboonsomsin, K.**, Luo, J., Wang, C., and Barth, M. (2019). Connected Emission Control Technologies for Freight Vehicles. Final report to Pacific Southwest Region 9 University Transportation Center, September, 35 pp.

- R4. Wu, G., Ye, F., Hao, P., Esaid, D., **Boriboonsomsin, K.**, and Barth, M. (2019). Deep Learning–based Eco-Driving System for Battery Electric Vehicles. Final report to National Center for Sustainable Transportation, May, 37 pp.
- R5. Scora, G., **Boriboonsomsin, K.**, and Barth, M. (2019). Heavy-Duty Truck Routing System for Minimizing NOx Emissions. Final report to South Coast Air Quality Management District, January, 38 pp.
- R6. Koupal, J., **Boriboonsomsin, K.**, and Scora, G. (2019). Cold Start Emission Impact of Blended Plug-In Hybrids. Interim report for Tasks 1&2 to California Air Resources Board, January, 45 pp.
- R7. Porter, C., Grose, T., Koupal, J., **Boriboonsomsin, K.**, Noel, G., and Eilbert, A. (2018). NCHRP 08-101: Enhanced Truck Data Collection and Analysis for Emissions Modeling. Final report to National Cooperative Highway Research Program, Transportation Research Board, National Research Council, November, 62 pp.
- R8. Porter, C., Grose, T., Koupal, J., **Boriboonsomsin, K.**, Noel, G., and Eilbert, A. (2018). Guide to Truck Activity Data for Emissions Modeling. Final report to National Cooperative Highway Research Program, Transportation Research Board, National Research Council, November, 246 pp.
- R9. **Boriboonsomsin, K.**, Wu, G., Hao, P., and Shan, X. (2018). Evaluating Alternative Design of Geometric Configuration for High- Occupancy Vehicle Facilities in California. Final report to California Department of Transportation, September, 71 pp.
- R10. **Boriboonsomsin, K.** (2018). 2017 Las Vegas License Plate Survey. Final report to Eastern Research Group, Inc., April, 45 pp.
- R11. Durbin, T., **Boriboonsomsin, K.**, Scora, G., Sandez, D., Vu, A., Johnson, K., Yu, J., Ventura, L., and Burnette, A. (2018). Collection of Tractor-Trailer Activity Data. Final report to California Air Resources Board, March, 112 pp.
- R12. **Boriboonsomsin, K.**, Johnson, K., Scora, G., Sandez, D., Vu, A., Durbin, T., Yu, J., and Burnette, A. (2017). Collection of Activity Data from On-Road Heavy-Duty Diesel Vehicles. Final report to California Air Resources Board, May, 177 pp.
- R13. **Boriboonsomsin, K.** and Luo, J. (2017). Biking in Fresh Air: Consideration of Exposure to Traffic-Related Air Pollution in Bicycle Route Planning. Research Report from the National Center for Sustainable Transportation, March, 77 pp.
- R14. Tian, D., Wu, G., **Boriboonsomsin, K.** and Barth, M. (2017). A Co-Benefit and Tradeoff Evaluation Analysis Framework for Connected Vehicle Applications. Research Report from the National Center for Sustainable Transportation, March, 40 pp.
- R15. Wu, G., Tian, D., Li, W., **Boriboonsomsin, K.**, and Barth, M. (2016). V2X Connected Vehicle Early Deployment Application Analysis. Final report to Honda R&D America, September, 85 pp.
- R16. Wu, G., Qi, X., Barth, M., and **Boriboonsomsin, K.** (2016). Advanced Energy Management Strategy Development for Plug-in Hybrid Electric Vehicles. Research Report from the National Center for Sustainable Transportation, May, 46 pp.
- R17. **Boriboonsomsin, K.**, Vu, A., and Barth, M. (2016). Environmentally Friendly Driving Feedback Systems Research and Development for Heavy Duty Trucks. Research Report from the National Center for Sustainable Transportation, March, 78 pp.

- R18. Barth, M., Wu, G., and **Boriboonsomsin, K.** (2015). Intelligent Transportation Systems for Improving Traffic Energy Efficiency and Reducing GHG Emissions from Roadways. White paper from the National Center for Sustainable Transportation, November, 19 pp.
- R19. Luo, J. and **Boriboonsomsin, K.** (2015). Modeling of traffic-related primary fine particle concentration in Southern California and its application in environmental inequality studies. Task report for the Virtual Co-Laboratory for Policy Analysis in the Greater Los Angeles Region Project, UC Multi Campus Research Initiative, September, 45 pp.
- R20. **Boriboonsomsin, K.** (2015). Reducing the Carbon Footprint of Freight Movement through Eco-Driving Programs for Heavy-Duty Trucks. White paper from the National Center for Sustainable Transportation, June, 18 pp.
- R21. Barth, M. and **Boriboonsomsin, K.** (2015). Next Generation Environmentally-Friendly Driving Feedback Systems Research and Development. Final report to Department of Energy, June, 108 pp.
- R22. Yelchuru, B., Fitzgerald, S., Murari, S., Barth, M., Wu, G., Kari, D., Xia, H., Singuluri, S., and **Boriboonsomsin, K.** (2014). AERIS: Applications for the Environment and Real-Time Information Synthesis - Eco-Lanes Operational Scenario Modeling Report. Final report to U.S. Department of Transportation, December, 129 pp.
- R23. Wu, G., Barth, M., and **Boriboonsomsin, K.** (2014). Eco-Routing Navigation System for Electric Vehicles. Final report to California Energy Commission, August, 38 pp.
- R24. Yelchuru, B., Fitzgerald, S., Murari, S., Barth, M., Waller, T., Dixit, V., Wu, G., Xia, H., Singuluri, S., Duell, M., **Boriboonsomsin, K.**, He, S., Wijayarathna, K., and Mao, T. (2014). AERIS: Applications for the Environment and Real-Time Information Synthesis - Eco-Signal Operations Operational Scenario Modeling Report. Final report to U.S. Department of Transportation, May, 241 pp.
- R25. **Boriboonsomsin, K.**, Scora, G., and Barth, M. (2014). Reducing uncertainty in modeling vehicle emissions at high speed in California. Final report to California Department of Transportation, May, 52 pp.
- R26. **Boriboonsomsin, K.**, Scora, G., Wu, G., and Barth, M. (2014). Deployment of prior HOV lanes research results in developing analysis tools for new managed lanes projects. Final report to California Department of Transportation, May, 49 pp.
- R27. Luo, J. and **Boriboonsomsin, K.** (2014). Neighborhood Traffic and Air Pollution Modeling. Task report for the New Urbanism in Action – Creating Walkability Plans for Riverside Neighborhoods Project, California Department of Transportation, June, 26 pp.
- R28. Luo, J. and **Boriboonsomsin, K.** (2014). Modeling Near-Road Concentration of Primary PM<sub>2.5</sub> based on TRAN-LA's Model Outputs. Task report for the Virtual Co-Laboratory for Policy Analysis in the Greater Los Angeles Region Project, UC Multi Campus Research Initiative, May, 22 pp.
- R29. Russell, R. and **Boriboonsomsin, K.** (2014). Analysis of high cube warehouse trip data. Technical memorandum to South Coast Air Quality Management District, August 7, 4 pp.
- R30. Finson, R., Shaheen, S., Panganiban, J., Matz, M., Galczynski, M., Barth, M., and **Boriboonsomsin, K.** (2013). Near-Term Transportation Energy and Climate Change Strategies: Interregional Transportation Related Greenhouse Gas Emissions Reduction Strategies. Final report to California Department of Transportation, 230 pp.

- R31. Russell, R. and **Boriboonsomsin, K.** (2013). Analysis of business survey data. Technical memorandum to South Coast Air Quality Management District, October 17, 5 pp.
- R32. **Boriboonsomsin, K.** and Barth, M. (2013). Next generation environmentally-friendly driving feedback systems research and development. Year 2 report to the Department of Energy, October, 30 pp.
- R33. Yelchuru, B., Barth, M., **Boriboonsomsin, K.**, Murari, S., Singuluri, S., Pendyala, R., and Fitzgerald, S. (2013). AERIS: Applications for the Environment and Real-Time Information Synthesis - Eco-Signal Operations Transformative Concept Analysis Plan. Final report to U.S. Department of Transportation, April, 107 pp.
- R34. Yelchuru, B., Barth, M., **Boriboonsomsin, K.**, Murari, S., Singuluri, S., Pendyala, R., and Fitzgerald, S. (2013). AERIS: Applications for the Environment and Real-Time Information Synthesis - Dynamic Eco-Lanes Transformative Concept Analysis Plan. Final report to U.S. Department of Transportation, April, 127 pp.
- R35. Yelchuru, B., Barth, M., **Boriboonsomsin, K.**, Murari, S., Singuluri, S., Pendyala, R., and Fitzgerald, S. (2013). AERIS: Applications for the Environment and Real-Time Information Synthesis – Dynamic Low Emissions Zones Transformative Concept Analysis Plan. Final report to U.S. Department of Transportation, April, 113 pp.
- R36. Barth, M., **Boriboonsomsin, K.**, Todd, M., Ishizaka, T., and Williams, N. (2013). Research, development, and evaluation of ECO-ITS technology to support off-cycle CO2 reductions. Year 2 report to Nissan Motor Company, April, 59 pp.
- R37. Scora, G. and **Boriboonsomsin, K.** (2012). Building energy use: data review. Task report for the Virtual Co-Laboratory for Policy Analysis in the Greater Los Angeles Region Project, UC Multi Campus Research Initiative, October, 24 pp.
- R38. Scora, G. and **Boriboonsomsin, K.** (2012). Vehicle fuel use and emission factors. Task report for the Virtual Co-Laboratory for Policy Analysis in the Greater Los Angeles Region Project, UC Multi Campus Research Initiative, October, 22 pp.
- R39. Barth, M., Wu, G., Xia, H., Jin, Q., and **Boriboonsomsin, K.** (2012). AERIS Field Study Application: Eco-Approach to Signalized Intersections. Final report to U.S. Department of Transportation, September, 37 pp.
- R40. Barth, M., **Boriboonsomsin, K.**, Todd, M., Ishizaka, T., and Williams, N. (2012). Research, development, and evaluation of ECO-ITS technology to support off-cycle CO2 reductions. Year 1 report to Nissan Motor Company, April, 53 pp.
- R41. **Boriboonsomsin, K.** and Durbin, T. (2012). Identification and evaluation of heavy-duty vehicle activity datasets. Technical memorandum to the U.S. Environmental Protection Agency, May, 20 pp.
- R42. **Boriboonsomsin, K.** and Barth, M. (2012). Next generation environmentally-friendly driving feedback systems research and development. Year 1 report to the Department of Energy, October, 43 pp.
- R43. Scora, G., **Boriboonsomsin, K.**, and Barth, M. (2012). Eco-friendly navigation system development for heavy-duty trucks. Final report to the University of California Transportation Center, June, 32 pp.
- R44. Wu, G., **Boriboonsomsin, K.**, and Barth, M. (2012). Development and evaluation of intelligent energy management strategies for plug-in hybrid electric vehicles. Final report to the University of California Transportation Center, April, 27 pp.

- R45. **Boriboonsomsin, K.**, Wu, G., and Barth, M. (2012). "High occupancy vehicle (HOV) system analysis tools - District 8 HOV facility performance analysis." Final report to the California Department of Transportation, November, 201 pp.
- R46. **Boriboonsomsin, K.**, Wu, G., and Barth, M. (2011). "High occupancy vehicle (HOV) system analysis tools - District 8 HOV facility performance analysis." Interim report to the California Department of Transportation, November, 136 pp.
- R47. **Boriboonsomsin, K.**, Scora, G., Wu, G., and Barth, M. (2011). "Improving vehicle fleet, activity, and emissions data for on-road mobile sources emissions inventories." Final report to the Federal Highway Administration, September, 165 pp.
- R48. Barth, M. and **Boriboonsomsin, K.** (2011). "ECO-ITS: Intelligent transportation system applications to improve environmental performance." Final report to the U.S. Department of Transportation, August, 39 pp.
- R49. **Boriboonsomsin, K.**, Vu, A., and Dean, J. (2011). "Calculation of GHG emissions from UCR commuting." Technical memorandum to UCR Campus Sustainability Coordinator, June 15, 9 pp.
- R50. **Boriboonsomsin, K.**, Sheckler, R., and Barth, M. (2011). "Research on intelligent transportation system application to improve environmental performance." Final report to the U.S. Department of Transportation, May, 47 pp.
- R51. Skabardonis, A., Shladover, S., Zhang, W.-B., Zhang, L., Li, J.-Q., Zhou, K. Barth, M., **Boriboonsomsin, K.**, Winckler, A., Liccardo, D., Argote, J., Christofa, E., Xuan, Y. (2011). "Advanced traffic control signal algorithms." Interim report to the Federal Highway Administration, March, 119 pp.
- R52. Barth, M., **Boriboonsomsin, K.**, Wu, G., Scora, G., and Todd, M. (2010). "Congestion and air quality evaluation of goods movement pricing." Final report to the Federal Highway Administration, September, 50 pp.
- R53. Li, M., **Boriboonsomsin, K.**, Kohut, N., Wu, G., Song, M. K., Vu, A., Misener, J., Zhang, W.-B., Barth, M., Hedrick, J. K., and Borrelli, F. (2010). "Audi 'Clean Air, A Viable Planet' Research Initiative." Final report to Volkswagen Group of America, May, 77 pp.
- R54. Allison, J. E., Johnson, M. Barth, M., McLaughlin, J., **Boriboonsomsin, K.**, and Medina, X. (2010). "The hope of New Urbanism: Energy conservation and sustainability through urban design." Final report to The John Randolph and Dora Haynes Foundation, July.
- R55. **Boriboonsomsin, K.**, Vu, A., and Barth, M. (2010). "Eco-Driving: Pilot evaluation of driving behavior changes among U.S. drivers." Working paper to the University of California Transportation Center, February, 17 pp.
- R56. **Boriboonsomsin, K.**, Zhu, W., Scora, G., and Barth, M. (2009). "Improving greenhouse gas emissions inventory estimation of heavy-duty trucks." Final report to the Federal Highway Administration, November, 70 pp.
- R57. Barth, M., **Boriboonsomsin, K.**, and Scora, G. (2009). "Evaluation and validation of CO2 estimates of EMFAC and OFFROAD through vehicle activity analysis." Final report to the California Air Resources Board, November, 120 pp.

- R58. **Boriboonsomsin, K.** and Barth, M. (2009). "Implementation and evaluation of adaptive transit signal priority along El Camino Real – energy and emission evaluation." Technical report to the California Partners for Advanced Transit and Highways, May, 10 pp.
- R59. **Boriboonsomsin, K.** and Barth, M. (2009). "Development of TRANSIMS synthetic population data for Riverside County." Final report to the Transportation and Land Management Agency, County of Riverside, March, 70 pp.
- R60. **Boriboonsomsin, K.** and Barth, M. (2009). "Development of advanced ECO-driving strategies: Phase II research." Final report to Nissan Technical Center North America, Inc., March, 61 pp.
- R61. Barth, M., **Boriboonsomsin, K.**, and Scora, G. (2008). "Evaluation and validation of CO2 estimates of EMFAC and OFFROAD through vehicle activity analysis: Phase II - industry and other agencies survey." Technical report to the California Air Resources Board, January, 69 pp.
- R62. **Boriboonsomsin, K.** and Barth, M. (2008). "Paints and Architectural Coatings Environmental Study (PACES) – Task 3: Coating application activity analysis." Phase I final report to the National Paint & Coatings Association, September, 40 pp.
- R63. Barth, M., **Boriboonsomsin, K.**, Vu, A., and Scora, G. (2008). "Development of advanced ECO-driving strategies Phase I." Final report to Nissan Technical Center North America, Inc., March, 38 pp.
- R64. Barth, M., **Boriboonsomsin, K.**, and Scora, G. (2007). "Evaluation and validation of CO2 estimates of EMFAC and OFFROAD through vehicle activity analysis: Phase I – literature and data review." Technical report to the California Air Resources Board, November, 42 pp.
- R65. Barth, M., Zhu, W., **Boriboonsomsin, K.**, and Ordonez, L. (2007). "Analysis of GPS-based data for light-duty vehicles." *Contract No. 04-327 UCR*, Final report to the California Air Resources Board, January, 211 pp.
- R66. **Boriboonsomsin, K.** and Barth, M. (2006). "Modeling the effectiveness of HOV lanes at improving air quality." *Contract No. RTA 65A0196*, Final report to the California Department of Transportation, December, 122 pp.
- R67. **Boriboonsomsin, K.** and Barth, M. (2006). "Evaluating air quality benefits of proposed network improvements on Interstate 10 in the Coachella Valley." Final report to the Coachella Valley Association of Governments, August, 25 pp.
- R68. **Boriboonsomsin, K.** and Barth, M. (2006). "Evaluating air quality benefits of proposed network improvements on Interstate 10 in the Coachella Valley." Final report to the Environmental Research Institute, University of California, Riverside, July, 26 pp.
- R69. Reza, F. and **Boriboonsomsin, K.** (2006). "High albedo and environment-friendly concrete for smart growth and sustainable development." Final report to the U.S. Environmental Protection Agency, *Report No. SU832477*, April, 42 pp.
- R70. Reza, F., **Boriboonsomsin, K.**, and Bazlamit, S. (2005). "Development of a composite pavement performance index." Final report to the Ohio Department of Transportation, *Report No. ST/SS/05-001*, September, 92 pp.
- R71. Uddin, W., **Boriboonsomsin, K.**, and Garza, S. (2004). "NCRST-E air quality project: air quality modeling, analysis, and implementation in northern Mississippi." *Report No. UM-CAIT/2004-01*, Final report to U.S. DOT Research and Special Program Administration, June, 169 pp.

- R72. Uddin, W. and **Boriboonsomsin, K.** (2002). "A synthesis study and GIS database for bridge cathodic protection projects." *Report No. UM-CAIT/2002-01*, Final report to Innovative Business Solutions inc., July, 36 pp.

### Others

- O1. **Boriboonsomsin, K.** and Luo, J. (2017). "Exposure to traffic-related air pollution is rarely considered when planning bicycle routes but it should be." Policy brief from the National Center for Sustainable Transportation, November, 2 pp.
- O2. **Boriboonsomsin, K.** (2017). "Activity patterns of heavy-duty vehicles and their implications on energy use and emissions." Policy brief from the University of California Institute of Transportation Studies, April, 2 pp.
- O3. Barth, M., Wu, G., and **Boriboonsomsin, K.** (2016). "Intelligent transportation systems show promise in reducing energy consumption and greenhouse gas emissions." Policy brief from the National Center for Sustainable Transportation, March, 2 pp.
- O4. **Boriboonsomsin, K.** (2015). "Reducing the carbon footprint of heavy-duty trucks through eco-driving." Policy brief from the National Center for Sustainable Transportation, June, 2 pp.
- O5. **Boriboonsomsin, K.**, Wu, G. and Barth, M. (2016). "Going the extra mile: Intelligent energy management of plug-in hybrid electric vehicles." *ACCESS Magazine*, 48, 2-7.
- O6. Barth, M. and **Boriboonsomsin, K.** (2012). "Traffic congestion and greenhouse gas emissions (translated to Chinese by Ling, S.)." *Urban Transport of China*, 10(1), 89-94.
- O7. Barth, M. and **Boriboonsomsin, K.** (2010). "Intelligent transportation systems as a way to reduce greenhouse gas emissions." *UCTC Policy Brief*, Issue 2010-03.
- O8. Barth, M. and **Boriboonsomsin, K.** (2010). "Traffic congestion and greenhouse gases." *TR News*, Issue 268, May, p. 26.
- O9. Barth, M. and **Boriboonsomsin, K.** (2009). "Traffic congestion and greenhouse gases." *ACCESS Magazine*, 35, 2-9.

### Invited Presentations

- P1. **Boriboonsomsin, K.** (2021). "Geofencing as a Strategy to Lower Emissions in Disadvantaged Communities." Presented at *California Air Resources Board Research Seminar*, virtual, January 15.
- P2. **Boriboonsomsin, K.** (2020). "Field Implementation of Internet of Vehicle Application for Improving Energy Efficiency of Heavy-Duty Vehicles." Presented at *2020 IEEE Intelligent Vehicles Symposium's Workshop on Internet of Things in Intelligent Transportation Systems: Opportunities and Challenges*, virtual, October 30.
- P3. **Boriboonsomsin, K.** and Kailas, A. (2020). "Demonstrating Eco-Drive in Real-World Environments." Presented at *ITE Southern California and ITS California Joint Webinar on Connected Vehicle Applications*, virtual, June 17.
- P4. **Boriboonsomsin, K.** (2020). "Cellular-Based Connected Eco-Driving System for Heavy Vehicles." Presented at *SAE International's WCX Digital Summit*, virtual, May 27.

- P5. **Boriboonsomsin, K.** (2020). "Eco-Friendly Intelligent Transportation System Strategies for Sustainable Freight Movement." Presented at *Capitol Hill Briefing: Emerging Research in Freight Efficiency and Sustainability*, Washington, DC, January 14.
- P6. **Boriboonsomsin, K.** (2019). "Connected Vehicle Routing for Reducing Human Exposure to Traffic-Related Air Pollution." Presented at *Workshop on Connected and Automated Vehicles for Energy Efficiency and Environmental Impact (e3CAV)*, Rueil-Malmaison, France, September 30.
- P7. **Boriboonsomsin, K.** (2018). "Variability in Real-World Activity Patterns of Heavy-Duty Vehicles by Vocation." Presented at *Transportation Research Board's Transportation and Air Quality Committee Summer Meeting*, Washington, DC, August 1.
- P8. **Boriboonsomsin, K.** (2017). "Real-World Activity Patterns of Heavy-Duty Vehicles and Their Implications on In-Use Emissions." Presented at *Mid-Atlantic Diesel Collaborative Webinar*, virtual, October 20.
- P9. **Boriboonsomsin, K.** (2017). "Real-World Activity Patterns of Heavy-Duty Vehicles and Their Implications on In-Use Emissions." Presented at *California Air Resources Board Research Seminar*, Sacramento, CA, May 31.
- P10. **Boriboonsomsin, K.** (2017). "Research in Support of Transportation Electrification in California: Medium- and Heavy-Duty Vehicles Sector." Presented at *California Energy Commission's IEPR Workshop*, Sacramento, CA, April 27.
- P11. **Boriboonsomsin, K.** (2017). "Heavy-Duty Vehicle Activity Patterns and Their Implications on Energy Use and Emissions." Presented at *University of California Institute of Transportation Studies Policy Forum Series*, Sacramento, CA, March 28.
- P12. **Boriboonsomsin, K.** (2016). "Evaluating Real-World Impacts of Eco-Driving." Presented at *Transportation Transformed: Advancing Eco-Friendly Mobility*, Manhattan, NY, April 7.
- P13. **Boriboonsomsin, K.** (2016). "Reducing the Carbon Footprint of Goods Movement through Eco-Driving." Presented at *Transportation Transformed: Advancing Eco-Friendly Mobility*, Manhattan, NY, April 7.
- P14. **Boriboonsomsin, K.** (2013). "Sustainable transportation and infrastructure development." Invited lecture at Department of Civil Engineering, Chiang Mai University, Chiang Mai, Thailand, August 25.
- P15. **Boriboonsomsin, K.** (2013). "Role of vehicle automation in reducing traffic-related energy and emissions of light-duty vehicles." Presented at *Transportation Research Board's 2<sup>nd</sup> Annual Workshop on Road Vehicle Automation*, Stanford, CA, July 16-19.
- P16. **Boriboonsomsin, K.** (2011). "Reducing Energy Consumption and Emissions Through Congestion Management." Presented at *Transportation - Land Use - Environment Connection*, Lake Arrowhead, CA, October 16-18.
- P17. **Boriboonsomsin, K.** (2010). "Energy and Environmental Impacts of Advanced Signalization Strategies." Presented at *the 3rd Workshop on ITS under the Canada-California Strategic Innovation Partnership (CCSIP)*, Richmond, CA, November 17.
- P18. **Boriboonsomsin, K.** (2010). "Getting there greener: Overview of ECO-ITS research program at University of California, Riverside." Presented at *Intelligent Transportation Society of America Annual Meeting*, Houston, TX, May 3-5.

- P19. **Boriboonsomsin, K.** (2008). "Impacts of freeway high-occupancy vehicle lane configuration on vehicle emissions." Presented at 14<sup>th</sup> Annual University of California Transportation Center Student Conference, Santa Barbara, CA, January 31 – February 2.

## PROFESSIONAL ACTIVITIES

### Journal Manuscript Reviews

Energies	2010 <sup>a</sup> (1 <sup>b</sup> )
Environmental Science & Technology	2010 (1), 2009 (1)
European Journal of Operational Research	2012 (1)
IEEE Transactions on Intelligent Transportation Systems	2017 (3), 2016 (2), 2015 (3), 2014 (1), 2013 (1), 2011 (3), 2010 (4)
IEEE Transactions on Intelligent Vehicles	2016 (1)
IET Intelligent Transport Systems	2015 (1)
International Journal of Sustainable Transportation	2013 (1), 2008 (1)
Journal of Intelligent Transportation Systems	2017 (1), 2012 (1)
Journal of Planning Literature	2012 (1)
Journal of Transportation Engineering	2013 (1), 2011 (1)
SAE International	2014 (1)
Simulation Modelling Practice and Theory	2012 (1)
The Open Transportation Journal	2009 (1)
Transport Policy	2012 (1)
Transportation	2013 (1)
Transportation Letters	2015 (1), 2014 (1)
Transportation Research Part A: Policy and Practice	2008 (1), 2007 (1)
Transportation Research Part B: Methodological	2010 (1)
Transportation Research Part C: Emerging Technologies	2016 (2), 2014 (2), 2013 (1), 2012 (1)
Transportation Research Part D: Transport and Environment	2017 (1), 2016 (3), 2014 (2)

<sup>a</sup> Year of review, <sup>b</sup> Number of manuscripts

### Conference Paper Reviews

Annual Meeting of the Transportation Research Board	2017 <sup>a</sup> (8 <sup>b</sup> ), 2016 (8), 2015 (11), 2014 (3), 2013 (7), 2012 (4), 2011 (9), 2010 (5), 2009 (5), 2008 (6), 2007 (7), 2006 (5)
COTA International Conference for Transportation Professionals	2017 (2)
Eastern Asia Society for Transportation Studies Conference	2005 (2)
International Conference of Chinese Transportation Professionals	2011 (3)
International Conference on Automotive Engineering	2014 (1)
International Conference on Maintenance and Rehabilitation of Pavements and Technological Control	2009 (5)
International Conference on Transport Infrastructures	2010 (2)
International IEEE Conference on Intelligent Transportation Systems	2016 (1), 2015 (4), 2013 (4), 2011 (1), 2010 (3), 2009 (3), 2008 (3)
IEEE Forum on Integrated and Sustainable Transportation Systems	2011 (7)
IEEE Intelligent Vehicles Symposium	2016 (3), 2015 (2), 2014 (1), 2012 (1), 2011 (1)

IEEE International Conference on Communications	2010 (1)
Transportation, Land Use, Planning, and Air Quality Conference	2007 (1)
World Congress of the International Federation of Automatic Control	2014 (1), 2010 (2)

<sup>a</sup> Year of review, <sup>b</sup> Number of papers

### **Research Proposal and Project Reviews**

Advanced Research Projects Agency - Energy: TRANSNET Final Program Review	2018 <sup>a</sup> (6 <sup>b</sup> )
Department of Energy Vehicle Technology Office Annual Merit Review	2019 (6)
METRANS University Transportation Center	2015 (1)
National Center for Sustainable Transportation	2020 (6), 2019 (2), 2016 (1), 2014 (1)
National Institute for Transportation & Communities	2017 (1), 2016 (3), 2015 (3), 2012 (7)
National Science Foundation	2017 (1), 2012 (1), 2010 (17)
New Zealand Ministry of Science and Innovation	2012 (2)
Oregon Transportation Research & Education Consortium	2013 (1), 2012 (7), 2009 (1), 2007 (1)
University of California Transportation Center	2012 (2), 2011 (5)

<sup>a</sup> Year of review, <sup>b</sup> Number of proposals

### **Editorships**

2011 – Present Associate editor, *IEEE Intelligent Transportation System Magazine*

2008 – 2012 Editorial board member, *The Open Transportation Journal*

### **Committees**

2020 – Present Vice Chair, Measurement and Modeling Subcommittee  
Air Quality and Greenhouse Gas Mitigation Committee  
Transportation Research Board

2020 – Present Member, Air Quality and Greenhouse Gas Mitigation Committee  
Transportation Research Board

2017 – 2020 Vice Chair, Subcommittee on Technology and Behavior  
Transportation and Air Quality Committee  
Transportation Research Board

2016 – Present Member, Executive Committee  
Center for Advancing Research in Transportation Emissions, Energy and Health

2012 – 2014 Member, Transportation Working Group  
Chancellor's Committee on Sustainability  
University of California, Riverside

2008 – 2020 Member, Transportation and Air Quality Committee  
Transportation Research Board

2008 – 2011 Member, Technical Advisory Committee  
Truck Trip Generation Study

National Association of Industrial and Office Properties

- 2008 – 2011      Member, Technical Advisory Committee  
 Research and Development of Logistics and Transport Management Application  
 The Federation of Thai Industries
- 2007 – Present      Member, Academic Committee  
 College of Engineering-Center for Environmental Research and Technology  
 University of California, Riverside

### **Conferences and Workshops**

- January 2018      Co-organizer, Workshop on “Fresh Air from Future Freight Transportation: Smart, Sustainable, and Sensible” at *the 97<sup>th</sup> Annual Meeting of the Transportation Research Board*, Washington, DC
- January 2017      Co-organizer, Workshop on “Sustainable Road Freight Transport: Opportunities to Understand, Model, and Address the Challenge of Truck Energy and Emissions” at *the 96<sup>th</sup> Annual Meeting of the Transportation Research Board*, Washington, DC
- June 2011      Co-organizer, Workshop on “Roles of Intelligent Transportation System Technology on Improving Efficiency of Transportation and Logistics Systems” Expressway Authority of Thailand. Bangkok, Thailand
- June 2010      Organizing committee member, *2010 IEEE Intelligent Vehicles Symposium*, San Diego, CA

### **Others**

- August 2015      Peer reviewer for the U.S. Environmental Protection Agency on the draft report “Population and Activity of On-road Vehicles in MOVES2014”
- February 2015      Invited participant, CRC Air Quality Modeling Research Needs Workshop, Atlanta, February 9-10
- 2010 – 2012      Paper review co-chair, Transportation and Air Quality Committee  
 Transportation Research Board
- August 2009      Peer reviewer for the U.S. Environmental Protection Agency on the report “Draft MOVES2009 highway vehicle population and activity data”
- 2004 – 2005      Advisor for Ohio Northern University team  
 Ohio Student Asphalt Mixture Design Competition
- December 2004      Instructor of Engineering Pathways Project for middle school students  
 Ohio Northern University
- 2003 – 2004      Graduate student senator of Department of Civil Engineering  
 University of Mississippi
- March 2004      Judge in 16<sup>th</sup> Annual Region VII Science and Engineering Fair  
 University of Mississippi

March 2003 Judge in 15<sup>th</sup> Annual Region VII Science and Engineering Fair  
University of Mississippi

March 2002 Judge in 14<sup>th</sup> Annual Region VII Science and Engineering Fair  
University of Mississippi

## TEACHING

2008 – Present Invited Lecturer  
Department of Electrical Engineering, University of California, Riverside  
EE246: Intelligent Transportation Systems

Aug 2004 – Apr 2005 Visiting Assistant Professor  
Department of Civil Engineering, Ohio Northern University  
CE351: Transportation Systems and Highway Engineering  
CE352: Traffic Engineering  
CE353: Pavement Engineering  
CE415: CE Senior Design Project  
CE471: Urban and Transportation Planning  
CE203: Surveying

Aug 2004 – Apr 2005 Instructor  
Department of Civil Engineering, University of Mississippi  
ENGR207: Engineering Graphics

Jan 2002 – May 2004 Graduate Teaching Assistant  
Department of Civil Engineering, University of Mississippi  
CE481: Transportation Engineering  
CE315: Civil Engineering Materials  
CE417: Construction Engineering and Management  
ENGR207: Engineering Graphics  
CE455: Senior Design I  
CE456: Senior Design II