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1   Executive Summary

Dr. Washburn's areas of expertise include traffic flow theory, traffic operations analysis, traffic simulation model development, development of traffic analysis and level of service computational methodologies and complementary software tools. Dr. Washburn's primary research efforts are aimed at improving and enhancing the analysis methodologies of the Highway Capacity Manual (HCM). More specifically, Dr. Washburn's current research focus areas include: 1) the development of new methodologies for facility-level performance assessment, 2) the revision and/or enhancement of existing traffic operations analysis methodologies for improved accuracy, 3) the development of planning level operations methodologies, and 4) the determination of applicable performance measures for level of service and the development of models for the assessment of level of service based upon these performance measures.

Dr. Washburn has made significant contributions not only in research, but also in education, particularly with respect to co-authoring a leading textbook and continual enhancement of the classroom and learning experience. Dr. Washburn has also been very active in service at the national level, particularly with respect to significant leadership roles with the TRB Highway Capacity and Quality of Service Committee and the Florida Department of Transportation's Level of Service Task Team. He is also the lead author of the Two-Lane Highway Analysis chapter in the latest edition of the HCM (7th), which is based on the results of NCHRP Project 17-65, for which Dr. Washburn was the principal investigator. Dr. Washburn has also made additional contributions in each of these areas through his software development efforts.

Accomplishments in Research

- PI or Co-PI on research projects totaling approximately $8 million (Sept. 2000-Dec. 2023)
- PI for NCHRP 08-135 project (Rural Highway Quality of Service and Reliability)
- PI for NCHRP 17-65 project (Improved Analysis of Two-Lane Highway Capacity and Operational Performance)
- Co-PI for NCHRP 03-87 project (Proactive Ramp Management Under the Threat of Freeway-Flow Breakdown)
- 55 research reports
- 51 refereed journal publications (1 in review)
- Technology transfer contributions
  - Software products that implement research results and/or state-of-the-practice methodologies:
    - SwashSim: Microscopic traffic simulation program, used for multiple research projects, including NCHRP Project 17-65
    - HCM-CALC: This program implements the uninterrupted-flow analysis methodologies of the HCM 5th, 6th, and 7th editions
    - LOSPLAN: FDOT software tools for planning and preliminary engineering level of service analysis applications
    - FlagSim: Commercial-grade microscopic simulation program for two-lane, two-way roadways with a lane closure under flagging control
  - Led efforts to implement two-lane highway and toll plaza modeling capabilities into the CORSIM traffic microsimulation program

Accomplishments in Service

- Transportation Research Board's Highway Capacity and Quality of Service Committee (ACP40, https://www.hcqstrb.org/)
  - Full committee member (2006-2016)
  - User liaison subcommittee chair (2011-2016), during development of HCM 2016
  - Freeways/multilane highways subcommittee chair (2006-2011), during development of HCM 2010
  - Active with committee since 2001
- FDOT Level of Service Task Team
  - Member (2000-2016)
  - Served as the lead technical expert regarding the HCM analysis methodologies and provide advice and guidance on application of these methodologies and their extensions and derivatives based on FDOT-sponsored research projects
  - Wrote the software (LOSPLAN) that served as one of the standard transportation analysis software packages supported by the FDOT
- University of Florida Parking and Transportation Committee (https://fora.aa.ufl.edu/University/JointCommittees/Parking-And-Transportation-Committee)
  - Chair (June 2022-May 2024)
  - Associate Chair (Fall 2018-May 2022)

Accomplishments in Education

- Co-author of "Principles of Highway Engineering and Traffic Analysis", 7th, 6th, 5th, 4th, and 3rd Editions
  - #1 selling book in its market
  - Over 45,000 copies sold since 2004
  - Adopted by instructors at over 140 different colleges/universities worldwide, including most of the top civil engineering programs
- 1400+ students taught in 49 offerings of 10 different classes between Fall 1999-Fall 2024
- Course evaluations are consistently above average
- Development of software programs to enhance classroom instruction (SwashSim, XXE, Pop Quiz)
- Continuous effort to improve teaching capabilities and classroom experience for students
  - ASEE National Effective Teaching Institute workshop, St. Louis, MO
  - Effective Teaching Workshop (NSF), Gainesville, FL
  - Teaching and Learning in the Engineering Classroom (NSF), Gainesville, FL
  - Transportation Education Conference/NSF teaching workshop, Seattle, WA
  - Transportation Education Conference, Portland, OR
  - ASEE national conferences in San Antonio and New Orleans
  - Implementation of inverted classroom model in TTE 4004 class
  - Implementation of online exams through CANVAS
- Frequently participate in K-12 education outreach activities (e.g., signal lab demonstrations, Gator Computing Camp)

Accomplishments in Student Advising

Graduate Student Committees

Role	Students Graduated
Chairman, Ph.D. committees	7 students graduated
Co-Chair, Ph.D. committees	2 students graduated
Chairman, Masters committees	54 students graduated (18 theses, 5 reports, 31 non-thesis)
Co-Chair, Masters committees	9 students graduated (4 theses, 4 reports, 1 non-thesis)
Member, Ph.D. committees	40 students graduated
Member, Masters committees	26 students graduated

Other Students Supervised
- 14 Graduate Research Assistants from non-CCE departments
- 33 Undergraduate research assistants
- 4 Undergraduate high honors committees
- 12 Summer internship students
- 4 Visiting Ph.D. students

Student Organizations Supervised
- Faculty advisor for ASCE concrete canoe team (Fall 1999-Summer 2006)
- Faculty advisor for ITE Student Chapter (Fall 2003-Summer 2006)

Doctoral Dissertation Advisor/Mentoring Award, UF College of Engineering, 2014-2015.

2 Education

June 1999   Doctor of Philosophy in Civil Engineering, University of Washington

March 1993   Master of Science in Civil Engineering, University of Washington

June 1991   Bachelor of Science in Civil Engineering, University of Washington

3 Professional Background

8/16 – Present **Professor**, Department of Civil and Coastal Engineering, University of Florida

8/05 – 8/16   **Associate Professor**, Department of Civil and Coastal Engineering, University of Florida

8/99 – 8/05   **Assistant Professor**, Department of Civil and Coastal Engineering, University of Florida

3/99 – 6/99   **Transportation Engineer**, Transportation Solutions, Incorporated, Consulting Firm, Redmond, WA

5/97 – 10/97   **Transportation Engineer**, HNTB, Consulting Firm, Bellevue, WA—Half-time Special Consultant for Tacoma Narrows Corridor Traffic Modeling Project

1/94 – 9/95   **Transportation Engineer**, Transportation Solutions, Incorporated

9/92 – 1/94   **Transportation Engineer**, David Evans and Associates, Consulting Firm, Bellevue, WA

4   Professional Registrations and Affiliations

Registered Professional Engineer, Florida State (#67247, 2007)
Registered Professional Engineer, Washington State (#36105, 1999)
Engineer-In-Training Certification, Washington State (#16650, 1991)
Member, American Society of Civil Engineers (1997-present)
Member, American Society for Engineering Education (2012-2019)
Member, Institute of Transportation Engineers, Florida State Section (2000-2010)

5   Research Background

My areas of expertise include traffic flow theory, traffic operations analysis, traffic simulation model development, development of traffic analysis and level of service computational methodologies and complementary software tools. My primary research efforts are aimed at improving and enhancing traffic analysis methods, particularly those contained in the national standard reference document, the Highway Capacity Manual (HCM) (https://nap.nationalacademies.org/catalog/26432/highway-capacity-manual-7th-edition-a-guide-for-multimodal-mobility), as well as developing better software tools for such analysis methods. The HCM is used by transportation engineering professionals throughout the United States, as well as world-wide, and billions of dollars in transportation infrastructure investment decisions are based upon the analysis results from this document. The HCM is developed and maintained by the Highway Capacity and Quality of Service (HCQS) Committee of the Transportation Research Board, a division of the National Research Council.

In general, my research focus areas broadly fall into the following categories: 1) the development of new methodologies for facility-level performance assessment, 2) the revision and/or enhancement of existing traffic operations analysis methodologies for improved accuracy, 3) the development of planning level operations methodologies, and 4) the determination of applicable performance measures for level of service and the development of models for the assessment of level of service based upon these performance measures.

Much of my work on improving and enhancing traffic operations analysis methods was incorporated into the Florida Department of Transportation's (FDOT) adaption of the HCM, the Quality/Level of Service Handbook and the corresponding software tools. Some of my work has also been incorporated into the HCM, such as two-lane highway performance measures, guidance on the use of simulation, rural freeway level of service, and commercial truck performance impacts. Most notably, I am the lead author of the HCM Two-Lane Highway Analysis chapter (Chapter 15) in the latest edition of the HCM (7th), which is based on the results of *National Cooperative Highway Research Program* (NCHRP) Project 17-65, for which I was the principal investigator. I was also the principal investigator for the recently completed NCHRP Project 08-135 (Rural Highway Quality of Service and Reliability) which is focused on enhancing the highway (multilane and two-lane) analysis methods of the HCM.

In support of my research activities, I am very actively involved with the Transportation Research Board's HCQS Committee (ACP40). I have been active with this committee since 2001, and served as an official member of the committee from 2006-2016. I served in significant

leadership roles with the HCQS committee—as chair of the Freeways/Multilane Highways subcommittee (5 years) and as chair of the User Liaison subcommittee (5 years). As chair of the Freeways/Multilane Highways subcommittee, I guided and oversaw that subcommittee's work on material for a major new edition of the HCM (released in March 2011). The freeways/multilane highways subcommittee oversees a very significant amount of material in the HCM, including five different analysis methodologies. I have also played a major role with the two-lane highways subcommittee of the HCQS Committee.

The FDOT maintained a Level of Service (LOS) Task Team for approximately 20 years. I was involved with this team from when I arrived at UF until its end in 2016. The role of this task team was to oversee the implementation of the HCM analysis methodologies within Florida. My role on this team was to serve as the lead technical expert regarding the HCM analysis methodologies, and provide guidance on application of these methodologies and their extensions and derivatives based on FDOT-sponsored research projects. I also developed the software that served as one of the transportation analysis software packages in Florida (LOSPLAN, described in the Software Development section).

In addition to my transportation engineering background, I have a strong background in computer science/computer programming. Having expertise in both of these areas has allowed me to take many of my research projects the additional step of transferring the results into practice through implementation into software tools (https://swash.essie.ufl.edu/software/). I have developed a variety of commercial-level software products, but two of the more high-impact products developed include the FDOT's LOSPLAN software suite and the HCM-CALC software suite. Additionally, I led several efforts to add new capabilities to CORSIM, a microscopic traffic simulation program, and more recently wrote my own microscopic traffic simulation program (see the next section).

6   Teaching Background

With respect to education, I have been active on several fronts. Obviously, the main area is teaching undergraduate and graduate students. At the undergraduate level, my primary teaching interest lies with the Introduction to Transportation Engineering course, which I regularly teach. I am especially passionate about this course since it, at least in the UF curriculum, is the first, and possibly last, opportunity we have to attract undergraduate students to the transportation engineering profession and/or the transportation engineering graduate program. I am further vested in this course given that I co-author a textbook targeting the introductory transportation engineering course. This textbook, "Principles of Highway Engineering and Traffic Analysis" (https://www.wiley.com/en-us/Principles+of+Highway+Engineering+and+Traffic+Analysis%2C+7th+Edition-p-9781119493969), is currently the number one selling book in this market, selling over 45,000 copies since 2004, and is used at over 140 universities in the U.S. and numerous international universities as well. A major reason for this book's large appeal is the innovative pedagogical features it contains.

At the graduate level, my regular course offerings include Traffic Engineering, Freeway Operations and Simulation, and Advanced Traffic Simulation. This latter course focuses on teaching the fundamentals of microscopic simulation and the various models and algorithms that comprise the simulation system. I am currently writing a textbook to support this class. The centerpiece of this class is the SwashSim microscopic simulation program

(https://github.com/swash17/SwashSim), for which I am the primary developer (see Section 8 for more information). I have taught several other courses as well—see Section 10.3 for the full listing.

I am continually considering ways to improve the educational experience for my students. I have long utilized active-learning exercises and peer-facilitated learning exercises in my classes, and have committed to full-scale implementation of the "flipped classroom" concept in the Introduction to Transportation Engineering course. I have found that this approach has led to improved student learning and an enhanced classroom experience. The time I spent in professional consulting also gives me credibility with the students when relating theory to practice, and I consistently receive above-average course evaluations.

In addition to developing software as part of my research efforts, I have developed three software programs for educational purposes. One program, XXE is freely distributed as a complement to chapter 8 of my textbook. Another program is Pop Quiz, which is used for the ITE Traffic Bowl competition. The other is the aforementioned SwashSim, which is focused on improving student learning of traffic simulation principles.

I have served as a faculty advisor to the ASCE Concrete Canoe Team, Institute of Transportation Engineers Student Chapter, and Lego Club. I have advised summer internship students. I have organized and participated in numerous student outreach activities—presentations for UF Gator Computing Camp, UF Engineering Week, and Family Engineering Night (targeted to elementary school students); hosting tours of our traffic signal lab for high school students.

I have experience with teaching practicing engineers through PE exam review sessions, HCM training sessions, and co-authoring of several documents for PE licensure continuing education credits. I also regularly teach the transportation section of the FE review course organized by the Chi Epsilon student chapter at UF.

7 Publications

7.1 Refereed Journal Articles

51. Bian, Zilin, Jafari, Amirhossein, Washburn, Scott S., and Al-Kaisy, Ahmed. *Two-Lane Highways: Guidance for Estimating Speed-Flow Relationships and Free-Flow Speeds from Field Data*. Accepted for publication (November 2024) in Advances in Transportation Studies.

50. Fernando Jose Piva, Washburn, Scott S., and Setti, Jose Reynaldo. *Enhancing the Estimation of Freeway Level-of-Service Thresholds with Travelers' Perceptions*. Accepted for publication (October 2024) in Transportation Research Part A: Policy and Practice. Elsevier Science.

49. Sajid Raza, Ahmed F. Al-Kaisy, Scott S. Washburn, Jorge Andres Barrios, Ana Tsui Moreno, Bastian J. Schroeder. *Influence Area at Signalized and Stop-Control Intersections: Operational Analysis*. Transportation Research Record: Journal of the Transportation Research Board. SAGE Journals. https://doi.org/10.1177/03611981231152457. February 2023.

48. Raza, Sajid, Al-Kaisy, Ahmed, and Washburn Scott S. *Investigation of Roundabout Influence Areas Along Rural and Suburban Corridors*. Advances in Transportation Studies, November 2022 (58). pp. 21-38.

47. Fernando Jose Piva, Setti, Jose Reynaldo, and Washburn, Scott S. *Using Traffic Simulation for Level of Service Traveler Perception Studies*. Vol 34 No 2 (2022). Promet – Traffic & Transportation. DOI: https://doi.org/10.7307/ptt.v34i2.3965

46. Sun, Wei and Washburn, Scott S. *Freeway Network Travel Time Reliability Analysis Methodology and Software Tool Development*. Transportation Research Record: Journal of the Transportation Research Board. SAGE Journals. pp. 1-11 July 2021. DOI: 10.1177/03611981211018469

45. Al-Kaisy, Ahmed, Jafari, A., and Washburn, Scott S. *Investigation of Operational Performance on 2+1 Highways. Advances in Transportation Studies*. Volume LIV, July 2021. pp. 17-32. http://www.atsinternationaljournal.com/index.php/2021-issues/liv-july-2021/1203-investigation-of-operational-performance-on-2-1-highways

44. Jafari, A., Al-Kaisy, Ahmed, and Washburn, Scott S. *Evaluation of the effective length of passing lanes on two-lane highways*. Transportation Letters: The International Journal of Transportation Research. Vol. 12, 2020 - Issue 5, pp. 293-302. DOI: 10.1080/19427867.2019.1586329.

43. Al-Kaisy, A.F., Jafari, A., and S. S. Washburn. *Following Status and Percent Followers on Two-Lane Highways: Empirical Investigation*. Civil Engineering Research Journal (CERJ), 7(3): 555711. DOI:10.19080/CERJ.2019.07.555711, 2019.

42. Jafari, A., Al-Kaisy, Ahmed, and Washburn, Scott S. *Passing Lane Optimum Length on Two-Lane Highways*. Canadian Journal of Civil Engineering, 2018. DOI: 10.1139/cjce-2017-0723.

41. Al-Kaisy, Ahmed, Jafari, Amirhossein, Washburn, Scott S., Luttinen, Tapio, and Dowling, Richard. *Performance Measures on Two-Lane Highways: Survey of Practice*. Research in Transportation Economics. Elsevier. Volume 71 (2018), pp. 61-67. DOI: 10.1016/j.retrec.2018.07.001.

40. Moreno, Ana Tsui, Llorca, Carlos, Washburn, Scott S., Bessa Jr, José Elievam, and Garcia, Alfredo. *Operational Considerations of Passing Zones for Two-Lane Highways: Spanish Case Study.* Traffic & Transportation. Promet. Volume 30, 2018, No. 5. pp. 601-612.

39. Sun, Wei, Stoop, Ethan, and Washburn, Scott S. *Evaluation of Commercial Truck Parking Detection for Rest Areas*. Transportation Research Record: Journal of the Transportation Research Board. SAGE Journals. 2018. pp. 1-11. DOI: 10.1177/0361198118788185.

38. Jafari, Amirhossein, Al-Kaisy, Ahmed, Washburn, Scott S, Dowling, Richard, and Luttinen, Tapio. *Traffic Operations on Rural Two-Lane Highways: A Review on Performance Measures and Indicators*. Transportation Research Record: Journal of the Transportation Research Board. SAGE Journals. No. 2672, Issue 15. 2018. pp. 66-74. DOI: 10.1177/0361198118774743.

37. Al-Kaisy, Ahmed, Jafari, Amirhossein, and Washburn, Scott. *Measuring Performance on Two-Lane Highways: Empirical Investigation*. Transportation Research Record: Journal of the Transportation Research Board. No. 2615, Transportation Research Board of the National Academies, Washington, D.C., 2017. pp. 62–72. DOI: 10.3141/2615-08.

36. Bessa Jr, Jose Elievam, Setti, Jose Reynaldo, and Washburn, Scott S. *Evaluation of Models to Estimate Percent Time Spent Following on Two-Lane Highways.* Journal of Transportation Engineering, American Society of Civil Engineers. 2017. pp. 04017010-1 - 04017010-9. DOI: http://dx.doi.org/10.1061/JTEPBS.0000032.

35. Watson, Donald C., Crim, Matthew, Gurley, Kurtis R., and Washburn, Scott S. *Probabilistic Modeling of Single and Concurrent Truck Loads on Bridges*. Transportation Research Record: Journal of the Transportation Research Board. No. 2609, Transportation Research Board of the National Academies, Washington, D.C., 2017. pp. 11–18. DOI: 10.3141/2609-02.

34. Moreno, Ana Tsui, Llorca, Carlos, Washburn, Scott S., Bessa Jr, José Elievam, Hale, David, and Garcia, Alfredo Garcia. *Modification of the Highway Capacity Manual Two-Lane Highway Analysis Procedure for Spanish Conditions*. Journal of Advanced Transportation, Wiley & Sons. 2016. pp. 1–16. DOI: 10.1002/atr.1421.

33. Hu, Jiangchuan, Frey, Christopher, and Washburn, Scott S. *Comparison of Vehicle-Specific Fuel Use and Emissions Models Based on Externally and Internally Observable Activity Data*. Transportation Research Record: Journal of the Transportation Research Board. No. 2570, Transportation Research Board of the National Academies, Washington, D.C., 2016, pp. 30–38. DOI: 10.3141/2570-04.

32. Michalaka, Dimitra, Xu, Ruoying, Joseph Page, Steiner, Ruth L., Washburn, Scott S., and Elefteriadou, Lily. *Roundabouts as a Form of Access Management*. Transportation Research Record: Journal of the Transportation Research Board. No. 2556, Transportation Research Board of the National Academies, Washington, D.C., 2016, pp. 1–9. DOI: 10.3141/2556-01.

31. Lu, Bin, Shao-Quan, Ni, and Washburn, Scott S. *A Support Vector Regression Approach for Investigating Multi-Anticipative Driving Behavior*. Mathematical Problems in Engineering. Vol. 2015, Article ID 701926, 10 pages, 2015. DOI:10.1155/2015/701926

30. Ozkul, Seckin and Washburn, Scott S. *Updated Commercial Truck Speed versus Distance-Grade Curves for the Highway Capacity Manual.* Transportation Research Record: Journal of the Transportation Research Board. No. 2483, Transportation Research Board of the National Academies, Washington, D.C., 2015, pp. 91–101. DOI: 10.3141/2483-11

29. Modi, Vipul, Kondyli, Alexandra, Washburn, Scott S., McLeod, Douglas. *Freeway Capacity Estimation Method for Planning Applications.* Journal of Transportation Engineering, American Society of Civil Engineers. Reston, VA. Vol. 140, Issue 9, September 2014. pp. 05014004-1/05014004-9. DOI: 10.1061/(ASCE)TE.1943-5436.0000699

28. Elefteriadou, Lily, Kondyli, Alexandra, Brilon, Werner, Hall, Fred, Persaud, Bhagwant, and Washburn, Scott S. *Enhancing Ramp Metering Algorithms with the use of Probability Breakdown models*. Journal of Transportation Engineering, American Society of Civil Engineers. Reston, VA, Vol. 140, Issue 4, April 2014, pp. 04014003-1/04014003-9. DOI: 10.1061/(ASCE)TE.1943-5436.0000653

27. Li, Jing and Washburn, Scott S. *Improved Operational Performance Assessment for Two-Lane Highway Facilities*. Journal of Transportation Engineering, American Society of Civil Engineers. Reston, VA, Vol. 140, Issue 6, June 2014, pp. 04014017-1/04014017-9. DOI: 10.1061/(ASCE)TE.1943-5436.0000666

26. Ozkul, Seckin, Washburn, Scott S., and McLeod, Douglas S. *Revised Version of the Automobile Level-of-Service Methodology for Urban Streets in the Highway Capacity Manual 2010*. Transportation Research Record: Journal of the Transportation Research Board. No. 2395, Transportation Research Board of the National Academies, Washington, D.C., 2013, pp. 66–72. DOI: 10.3141/2395-08

25. Kondyli, Alexandra, Elefteriadou, Lily, Brilon, Werner, Hall, Fred, Persaud, Bhagwant, and Washburn, Scott S. *Development and Evaluation of Methods for Constructing Breakdown Probability Models*. Journal of Transportation Engineering, American Society of Civil Engineers, Reston, VA, Vol. 139, Issue 9, September 2013, pp. 931-940. DOI: 10.1061/(ASCE)TE.1943-5436.0000574

24. Carrick, Grady and Washburn, Scott S. *Estimating the Impacts of Police Traffic Enforcement Stops on Freeway Operations and Capacity*. Transportation Research Record: Journal of the Transportation Research Board, No. 2327, Transportation Research Board of the National Academies, Washington, D.C., 2013, pp. 45–52. DOI: 10.3141/2327-06

23. Carrick, Grady and Washburn, Scott S. *Move-Over Law: Effect of Emergency Vehicle Lighting on Driver Compliance on Florida Freeways*. Transportation Research Record: Journal of the Transportation Research Board, No. 2281, Transportation Research Board of the National Academies, Washington, D.C., 2012, pp. 1–7. DOI:10.3141/2281-01

22. Carrick, Grady and Washburn, Scott S. *Enforcement Engineering: Conceptual Exploration for New Engineering Discipline*. Transportation Research Record: Journal of the Transportation Research Board, No. 2265, Transportation Research Board of the National Academies, Washington, D.C., 2011, pp. 146–152. DOI: 10.3141/2265-16

21. Carrick, Grady, Srinivasan, Siva, and Washburn, Scott S. *Law Enforcement Vehicle Crashes in Florida*. Transportation Research Record: Journal of the Transportation Research Board, No. 2182, Transportation Research Board of the National Academies, Washington, D.C., 2010, pp. 40-47. DOI:10.3141/2182-06

20. Osei-Asamoah, Abigail, Kulshrestha, Ashish, Washburn, Scott S., and Yin, Yafeng. *Impact of Left-Turn Spillover on Through Movement Discharge at Signalized Intersections*. Transportation Research Record: Journal of the Transportation Research Board. No. 2173, Washington, D.C., 2010, pp. 80-88. DOI: 10.3141/2173-10

19. Washburn, Scott S. and Cruz-Casas, Carlos. *Impacts of Trucks on Signalized Intersection Capacity*. Computer Aided Civil and Infrastructure Engineering. Wiley-Blackwell. 2010. Vol. 25, Issue 6, pp. 452-467. DOI: 10.1111/j.1467-8667.2010.00651.x

18. Ko, Byungkon, Washburn, Scott S., and McLeod, Douglas S. *Performance Measures for Truck Level-of-Service: An Exploratory Survey Analysis*. Journal of the Transportation Research Board. TRR 2130, Washington, D.C., 2009, pp. 120-128. DOI: 10.3141/2130-15

17. Carrick, Grady and Washburn, Scott S. *Supplementing Work Zone Crash Data*. ITE Journal on the Web. Institute of Transportation Engineers, Washington, D.C., November 2009. pp. 61-64.

16. Yu, Qingyong and Washburn, Scott S. *Operational Performance Assessment for Two-Lane Highway Facilities*. Journal of Transportation Engineering, American Society of Civil Engineers, Reston, VA, Vol. 135, Issue 4, April 2009, pp. 197-205. DOI: 10.3141/2130-15

15. Ko, Byungkon, Washburn, Scott S., Courage, Kenneth G., and Dowell, Michael H. *Evaluation of Flexible Traffic Separators at Highway-Railroad Grade Crossings*. Journal of Transportation Engineering, American Society of Civil Engineers, Reston, VA, Vol. 133, Issue 7, July 2007, pp. 397-405. DOI: 10.1061/(ASCE)0733-947X(2007)133:7(397)

14. Washburn, Scott S., Leistner, Deborah L., and Ko, Byungkon. *An Evaluation of the Effectiveness of Pedestrian Countdown Signals*. Transport Science and Technology. Transtec Athens 2004. Edited by K.G. Goulias. Elsevier. 2007. pp. 311-320.

13. Washburn, Scott S. and Kirschner, David S. *Rural Freeway Level of Service Based Upon Traveler Perceptions*. Transportation Research Record: Journal of the Transportation Research Board. No. 1998, Transportation Research Board of the National Academies, Washington, D.C., 2006, pp. 31-37. DOI: 10.3141/1988-06

12. Washburn, Scott S., Ellis, Ralph D., and Broadwell, Ann L. *Evaluation of an Alternative Lighting System for Coastal Roadways*. ITE Journal on the Web. August 2005. pp. 69-75.

11. Washburn, Scott S., Ramlackhan, Kirby, and McLeod, Douglas S. *Quality of Service Perceptions by Rural Freeway Travelers: An Exploratory Analysis*. Transportation Research Record: Journal of the Transportation Research Board, No. 1883, Transportation Research Board of the National Academies, Washington, D.C., 2004, pp. 132-139. DOI: 10.3141/1883-15

10. Washburn, Scott S., Courage, Kenneth G., and Nguyen, Thuha. *An Integrated Simulation-Based Method for Estimating Arrival Type for Signalized Arterial Planning Applications*. Transportation Research Record: Journal of the Transportation Research Board, No. 1852, Transportation Research Board of the National Academies, Washington, D.C., 2003, pp. 69-76. DOI: 10.3141/1852-10

9. Kim, Jin-Tae, Courage, Kenneth G., Washburn, Scott S., and Bonyani, Gina. *Framework for Investigation of Level-of-Service Criteria and Thresholds on Rural Freeways*. Transportation Research Record: Journal of the Transportation Research Board, No. 1852, Transportation Research Board of the National Academies, Washington, D.C., 2003, pp. 239-245. DOI: 10.3141/1852-29

8. Washburn, Scott S., McLeod, Douglas S., and Courage, Kenneth G. *Adaptation of the HCM2000 for Planning Level Analysis of Two-Lane and Multilane Highways in Florida*. Transportation Research Record: Journal of the Transportation Research Board, No. 1802, Transportation Research Board of the National Academies, Washington, D.C., 2002, pp. 62-68. DOI: 10.3141/1802-08

7. Courage, Kenneth G., Washburn, Scott S., and Kim, Jin-Tae. *Development of an XML-Based Specification for Traffic Model Data Exchange*. Transportation Research Record: Journal of the Transportation Research Board, No. 1804, Transportation Research Board of the National Academies, Washington, D.C., 2002, pp. 144-150. DOI: 10.3141/1804-19

6. Washburn, Scott S. *Speech Recognition for On-Site Collection of License Plate Data: Exploratory Application Development and Testing*. Journal of Transportation Engineering, American Society of Civil Engineers, Reston, VA, Vol. 128, Issue 6, Nov/Dec 2002, pp. 481-489. DOI: 10.1061/(ASCE)0733-947X(2002)128:6(481)

5. Washburn, Scott S. and Larson, Nate. *Signalized Intersection Delay Estimation: Case Study Comparisons of Transyt-7F, Synchro, and HCS.* Institute of Transportation Engineers Journal, Washington, D.C., Vol. 72, Issue 3, March 2002, pp. 30-35. Awarded Best ITE Journal Paper of 2002 by District 6 ITE (co-author is a member of District 6), at 2003 ITE International Meeting (Seattle, WA).

4. Washburn, Scott S., Seet, Joseph, and Mannering, Fred L. *Statistical Modeling of Vehicle Emissions from Inspection/Maintenance Testing Data: An Exploratory Analysis*. Transportation Research Part D: Transport and Environment, Elsevier Science, Limited, Oxford, England, Vol. 6, Issue 1, 2001, pp. 21-36. DOI: 10.1016/S1361-9209(00)00011-0

3. Washburn, Scott S. and Nihan, Nancy L. *Estimating Link Travel Time with a Video Image Tracking System*. Journal of Transportation Engineering, American Society of Civil Engineers, Reston, Vol. 125, Issue 1, Jan/Feb 1999, pp. 15-20. DOI: 10.1061/(ASCE)0733-947X(1999)125:1(15)

2. Newman, Bruce R., Washburn, Scott S. and Nihan, Nancy L. *Motorist Behavior and Opinions Towards High-Occupancy Vehicle Lanes at Ramp Meters*. Transportation Research Record: Journal of the Transportation Research Board, No. 1634, Transportation Research Board of the National Academies, Washington, D.C., 1998, pp. 78-85. DOI: 10.3141/1634-10

1. Washburn, Scott S. and Nihan, Nancy L. *Using Voice Recognition to Collect License Plate Data for Travel Time Studies*. Transportation Research Record: Journal of the Transportation Research Board, No. 1593, Transportation Research Board of the National Academies, Washington, D.C., 1997, pp. 41-46. DOI: 10.3141/1593-06

7.2 Journal Articles in Review

Moreno, Ana, Yangqian Cai, Santiago Linares-Ramirez, Scott S. Washburn, Ahmed Al-Kaisy, Jorge Barrios, Bastian Schroeder. *Evaluating Quality of Service for Bicyclists on Rural Highways: Insights from a Comprehensive User Survey and Mixed-Logit Analysis*. Submitted to Transportation. Springer.

7.3 Journal Articles in Development

Ozkul, Seckin and Washburn, Scott S. *Vehicle Acceleration Modeling in Microscopic Traffic Simulation*.

7.4 Books

The following textbook, "Principles of Highway Engineering and Traffic Analysis" (https://www.wiley.com/en-us/Principles+of+Highway+Engineering+and+Traffic+Analysis%2C+7th+Edition-p-9781119493969), is currently the number one selling book in its market, selling over 45,000 copies since 2004, and is used at over 140 universities in the U.S. and numerous international universities as well.

Mannering, Fred L. and Washburn, Scott S. *Principles of Highway Engineering and Traffic Analysis*, 7th Edition. John Wiley and Sons, Hoboken, NJ. November 2019. 410 pages.

Mannering, Fred L. and Washburn, Scott S. *Principles of Highway Engineering and Traffic Analysis*, 6th Edition. John Wiley and Sons, Hoboken, NJ. September 2016. 399 pages.

Mannering, Fred L. and Washburn, Scott S. *Principles of Highway Engineering and Traffic Analysis*, 5th Edition (SI Units). John Wiley and Sons, Hoboken, NJ, December 2012. 330 pages.

Mannering, Fred L. and Washburn, Scott S. *Principles of Highway Engineering and Traffic Analysis*, 5th Edition (U.S. Customary Units). John Wiley and Sons, Hoboken, NJ, March 2012. 336 pages.

Mannering, Fred L., Washburn, Scott S., Kilareski, Walter P. *Principles of Highway Engineering and Traffic Analysis*, 4th Edition. John Wiley and Sons, Hoboken, NJ, August 2008. 411 pages.

Mannering, Fred L., Kilareski, Walter P., Washburn, Scott S. *Principles of Highway Engineering and Traffic Analysis*, 3rd Edition. John Wiley and Sons, Hoboken, NJ, July 2004. 384 pages.

7.5 Books in Development

Washburn, Scott S. *Microscopic Traffic Simulation: Introduction and Traffic Analysis Applications*. John Wiley and Sons, Hoboken, NJ.

7.6 Book Chapters

Transportation Research Board. Highway Capacity Manual (HCM). National Academy of Sciences, Washington, DC. 2022
- Lead author, Two-Lane Highway Analysis (Chapter 15). New chapter based on results of NCHRP Project 17-65. Initially released online in February 2020. Released in printed form in the 7th Edition of the HCM, which was published in January 2022.

Lu, Bin and Washburn, Scott S. *Vehicle Trajectory Analysis System for Estimating HCM Compatible Performance Measures*. Transportation Research Circular, Number E-C190. Issue theme: "Innovative Applications of the HCM 2010 Methodologies", Transportation Research Board, Washington, D.C. December 2014. pp. 50-70.

7.7 Research Reports

55. Washburn, Scott S., Hale, David, Mahmassani, Hani. *Fundamentals of Travel Time Reliability*. United States Department of Transportation, Federal Highway Administration. In final publication process.

54. Shannon Hickey, Akcali, Elif, Washburn, Scott, Evangelos Kaisar, Vasileia Antonoglou. *Determination of Position and Operation Analysis of Emergency Freight Parking in Florida State*. Final Report. Freight Mobility Research Institute (FMRI), Tier 1 University Transportation Center. Florida Atlantic University, Boca Raton. December 2024.

53. Du, Lili, Washburn, Scott S., Mukundhan, Narasimhan. *Sequential Synchronization Control Scheme for Freeway Truck Platooning Formation*. Final Report. Freight Mobility Research Institute (FMRI), Tier 1 University Transportation Center. Florida Atlantic University, Boca Raton. March 2024. 33 pages.

52. Washburn, Scott S., Davis, Asean, Centurion, Ariel, Propis, Taylor. *Two-Lane Highway Analysis Methodology Enhancements Considering Commercial Trucks*. Final Report. Freight Mobility Research Institute (FMRI), Tier 1 University Transportation Center. Florida Atlantic University, Boca Raton. March 2024. 56 pages.

51. Washburn, Scott S., Du, Lili, Kaisar, Evangelos. Curriculum Development for Highway Freight Transportation. Final Report. Freight Mobility Research Institute (FMRI), Tier 1 University Transportation Center. Florida Atlantic University, Boca Raton. Final material published at https://swash17.github.io/FreightCurriculum/. November 2023.

50. Washburn, Scott S., Al-Kaisy, Ahmed, Moreno, Ana Tsui, Schroeder, Bastian and Barrios, Jorge Andres. *Reliability and Quality of Service Evaluation Methods for Rural Highways*. NCHRP Project 08-135. Transportation Research Board. September 2023.
https://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=4747
https://nap.nationalacademies.org/catalog/27895/reliability-and-quality-of-service-evaluation-methods-for-rural-highways
DOI: https://dx.doi.org/10.17226/27895
https://nap.nationalacademies.org/catalog/27897/developing-a-guide-for-rural-highways-reliability-and-quality-of

DOI: https://dx.doi.org/10.17226/27897

49.   Washburn, Scott S., Shastri, Akhilesh, and Centurion, Ariel. *Interchange Design to Accommodate Ramp Metering System*. Final Report (Project BDV31-977-92). Florida Department of Transportation. Tallahassee, FL. December 2020. 221 pages.

48.   Washburn, Scott S. Chapter 5: *Monte Carlo Simulation (for Fundamentals of Travel Time Reliability Guide)*, FHWA. January 2020. 67 pages.

47.   Ozkul, Seckin and Washburn, Scott S. *Commercial Heavy Vehicle Impacts on Signalized Arterial Corridor Performance*. Final Report (Project BDV25-977-50). Florida Department of Transportation. Tallahassee, FL. December 2019. 251 pages.

46.   Washburn, Scott S. and Sun, Wei. *Enhancement of Transportation Network Analysis Tools for Truck Related Planning and Operations: Part B*. Final Report. Freight Mobility Research Institute (FMRI), Tier 1 University Transportation Center. Florida Atlantic University, Boca Raton. January 2019. 54 pages.

45.   Washburn, Scott S., Sun, Wei, and Knight, Matthew. *Commercial Truck Parking Detection Technology Evaluation for Columbia County Rest Areas (Part 2)*. Final Report. Florida Department of Transportation. Tallahassee, FL. April 2018. 48 pages.

44.   Washburn, Scott S., Al-Kaisy, Ahmed, Luttinen, Tapio, Dowling, Richard, Watson, Donald, Jafari, Amirhossein, Bian, Zilin, and Elias, Aaron. *Improved Analysis of Two-Lane Highway Capacity and Operational Performance*. NCHRP Project 17-65. Transportation Research Board. March 2018. 670 pages. DOI: https://dx.doi.org/10.17226/25179

43.   Margiotta, Richard and Washburn, Scott S. *Simplified Highway Capacity Calculation Method for the Highway Performance Monitoring System*. Federal Highway Administration, No. PL-18-003. October 2017. 46 pages.

42.   Washburn, Scott S., Sun, Wei, and Stoop, Ethan. *Commercial Truck Parking Detection Technology Evaluation for Columbia County Rest Areas*. Final Report. Florida Department of Transportation. Tallahassee, FL. November 2016. 76 pages.

41.   Washburn, Scott S. *Signalized Intersection Simulation Program for Education*. Final Report. Southeastern Transportation Research, Innovation, Development and Education Center. University of Florida, Gainesville, FL. March 2016. 29 pages.

40.   Washburn, Scott S., Frey, Christopher, Rouphail, Nagui, Ozkul, Seckin and Hu, Jiangchuan. *On-Board-Diagnostics (OBD) Data Integration into Traffic Microsimulation for Vehicle-Specific Fuel Use and Emissions Modeling and In-Vehicle App Testing*. Final Report. Southeastern Transportation Research, Innovation, Development and Education Center. University of Florida, Gainesville, FL. February 2016. 111 pages.

39.   Washburn, Scott S., Frey, Christopher, Rouphail, Nagui, Hulsberg, Jack, and Hu, Jiangchuan. *Emissions Modeling and Integration into Microsimulation Modeling*. Final

Report. Southeastern Transportation Research, Innovation, Development and Education Center. University of Florida, Gainesville, FL. September 2015. 156 pages.

38. Ruth L. Steiner, Scott Washburn, Lily Elefteriadou, Albert Gan, Priyanka Alluri, Dimitra Michalaka, Ruoying Xu, Shanty Rachmat, Benjamin Lytle, Amy Cavaretta. *Roundabouts and Access Management*. Final Report. Florida Department of Transportation. Tallahassee, FL. March 2014. 177 pages.

37. Washburn, Scott S., Watson, Don, and Song, Ziqi. *Impact of Lane Closures on Roadway Capacity: Phase 2*. Final Report. Florida Department of Transportation. Tallahassee, FL. January 2014. 135 pages.

36. Washburn, Scott S. and Ozkul, Seckin. *Heavy Vehicle Effects on Florida Freeways and Multilane Highways*. Florida Department of Transportation. Tallahassee, FL. October 2013. 146 pages.

35. Washburn, Scott S., Letter, Clark, Michalaka, Dimitra and Modi, Vipul. *FDOT Central Data Warehouse Enhancements, Part 3*. Final Report. Florida Department of Transportation. Tallahassee, FL. December 2012. 74 pages.

34. Washburn, Scott S., Li, Jing and Hammontree, Heather. *Development of an Analytical Methodology for Two-Lane Highway Facility Analysis*. Center for Multimodal Solutions for Congestion Mitigation. University of Florida, Gainesville, FL. November 2012. 95 pages.

33. Washburn, Scott S. *LOSPLAN 2012: Updates for the HCM 2010*. Florida Department of Transportation. Tallahassee, FL. September 2012. 97 pages.

32. Elefteriadou, Lily, Washburn, Scott S., Yin, Yafeng, Modi, Vipul, Letter, Clark. *Variable Speed Limit (VSL) - Best Management Practice*. Final Report. Florida Department of Transportation. Tallahassee, FL. August 2012. 199 pages.

31. Yin, Yafeng, Washburn, Scott S., Wu, Di, Kulshrestha, Ashish, Modi, Vipul, Michalaka, Dimitra and Lu, Jie. *Managed Lane Operations – Adjusted Time of Day Pricing vs. Near-Real Time Dynamic Pricing, Volume I: Dynamic Pricing and Operations of Managed Lanes*. Final Report. Florida Department of Transportation. Tallahassee, FL. January 2012. 144 pages.

30. Washburn, Scott S. and Modi, Vipul. *FDOT Central Data Warehouse Enhancements, Part 2*. Final Report. Florida Department of Transportation. Tallahassee, FL. January 2012. 21 pages.

29. Washburn, Scott S., Ozkul, Seckin, and Sprinkle Consulting. *Arterial Highway Capacity and Level of Service Analysis for Florida*. Final Report (Project BDK-77-931-02). Florida Department of Transportation. Tallahassee, FL. December 2011. 96 pages.

28. Washburn, Scott S., Modi, Vipul, and Purushan, Arun. *FDOT Central Data Warehouse Enhancements*. Final Report. Florida Department of Transportation. Tallahassee, FL. June 2011. 156 pages.

27. Washburn, Scott S. *Improvements and Enhancements to LOSPLAN 2009*. Florida Department of Transportation. Tallahassee, FL. March 2011. 79 pages.

26. Courage, Kenneth G., Washburn, Scott S., Elefteriadou, Lily, and Nam, Do. *Guidance for the Use of Alternative Traffic Analysis Tools in Highway Capacity Analyses*. NCHRP Project 3-85. Transportation Research Board. December 2010. 254 pages.
https://apps.trb.org/cmsfeed/TRBNetProjectDisplay.asp?ProjectID=841

25. Washburn, Scott S. and Li, Jing. *Development of a Simulation Program for Two-Lane Highway Analysis*. Center for Multimodal Solutions for Congestion Mitigation. University of Florida, Gainesville, FL. March 2010. 62 pages.

24. Washburn, Scott S, Yin, Yafeng, Modi, Vipul, and Kulshrestha, Ashish. *Investigation of Freeway Capacity*. Florida Department of Transportation. Tallahassee, FL. March 2010. 162 pages.

23. Zhang, Lihui, Yin, Yafeng and Washburn, Scott. *Simulation-based Robust Optimization for Signal Timing and Setting*. Center for Multimodal Solutions for Congestion Mitigation. University of Florida, Gainesville, FL. December 2009. 220 pages.

22. Elefteriadou, Lily, Washburn, Scott S., Kondyli, Alexandra, Brilon, Werner, Jacobson, Les, Hall, Fred, and Persaud, Bhagwant. *Proactive Ramp Management Under the Threat of Freeway-Flow Breakdown*. NCHRP Project 3-87. Transportation Research Board. December 2009. 220 pages. DOI 10.1016/j.sbspro.2011.04.424

21. Washburn, Scott S and Osei-Asamoah, Abigail. *Improvements and Enhancements to LOSPLAN 2007*. Florida Department of Transportation. Tallahassee, FL. June 2009. 93 pages.

20. Washburn, Scott S, Landis, Bruce, McLeod, Peyton, Perez, Benito, and Barrios, Jorge. *Multimodal Arterial LOS Modeling and Testing*. Final Report. Florida Department of Transportation. Tallahassee, FL. March 2009. 201 pages.

19. Srinivasan, Siva, Carrick, Grady, Zhu, Xiaoyu, Heaslip, Kevin, and Washburn, Scott. *Analysis of Crashes in Freeway Work-Zone Queues: A Case Study*. Final Report. Southeast Transportation Center, Univ. of Tennessee, Knoxville, TN. August 2008. 27 pages.

18. Washburn, Scott S, Hiles, Thomas, and Heaslip, Kevin. *Impact of Lane Closures on Roadway Capacity: Development of a Two-Lane Work Zone Lane Closure Analysis Procedure (Part A)*. Final Report. Florida Department of Transportation. Tallahassee, FL. January 2008. 78 pages.

17. Washburn, Scott S and Cruz-Casas, Carlos O. *Impact of Trucks on Arterial LOS and Freeway Work Zone Capacity—Part A: Impact of Trucks on Arterial LOS*. Final Report (Project BD-545-51). Florida Department of Transportation. Tallahassee, FL. July 2007. 107 pages.

16. Washburn, Scott S. *Updates and Enhancements to LOSPLAN to Support the Q/LOS Handbook and SIS Analysis*. Final Report. Florida Department of Transportation. Tallahassee, FL. May 2007. 64 pages.

15. Washburn, Scott S and Ko, Byungkon. *Travel Time Reliability and Truck Level of Service on the Strategic Intermodal System—Part B: Identification of Preferred Performance Measures for the Assessment of Truck Level of Service*. Final Report. Florida Department of Transportation. Tallahassee, FL. April 2007. 303 pages.

14. Washburn, Scott S. and Carrick, Grady T. *Data Collection Needs for Work Zone Incidents*. Final Report. Southeast Transportation Center, Univ. of Tennessee, Knoxville, TN. August 2006. 104 pages.

13. Washburn, Scott S and Kondyli, Alexandra. *Development of Guidelines for Driveway Location and Median Configuration in the Vicinity of Interchanges*. Final Report. Florida Department of Transportation. Tallahassee, FL. March 2006. 115 pages.

12. Washburn, Scott S. *Improvement of Planning Level Analysis Procedures for Two-Lane Highways*. Final Report. Florida Department of Transportation. Tallahassee, FL. October 2005. 375 pages.

11. Gurley, Kurtis and Washburn, Scott S. *Probabilistic Assessment of Bridge Loading Concurrent with Permit Vehicles*. Florida Department of Transportation. Tallahassee, FL. August 2005. 130 pages.

10. Washburn, Scott S. *Facility Performance Model Enhancements for Multimodal Systems Planning (Part II)*. Final Report. Florida Department of Transportation. Tallahassee, FL. June 2005. 145 pages.

9. Washburn, Scott S. *Evaluation of Effectiveness of Pedestrian Countdown Signals*. Final Report. Florida Department of Transportation. Tallahassee, FL. June 2005. 76 pages.

8. Ellis, Ralph D. and Washburn, Scott S. *Development of Improved Procedures for Business Accommodation on Transportation Construction Projects*. Final Report. Florida Department of Transportation. Tallahassee, FL. February 2005. 125 pages.

7. Washburn, Scott S. and Courage, Kenneth G. *Investigation of Red Light Running Factors*. Final Report. Southeast Transportation Center, Univ. of Tennessee, Knoxville, TN. July 2004. 62 pages.

6. Washburn, Scott S. *Updates and Enhancements to the LOSPLAN User Interface and Computational Procedures*. Final Report. Florida Department of Transportation. Tallahassee, FL. October 2003. 95 pages.

5. Washburn, Scott S. and Courage, Kenneth G. *Facility Performance Model Enhancements for Multimodal Systems Planning (Part I, Tasks 1, 2, 3a)*. Final Report. Florida Department of

Transportation. Tallahassee, FL. February 2003. 107 pages.

4. Ellis, Ralph D. and Washburn, Scott S. *Evaluation of the Safety and User Response to Embedded Roadway Lighting Systems on an FDOT Demonstration Project*. Final Report. Florida Department of Transportation. Tallahassee, FL. December 2002. 47 pages.

3. Washburn, Scott S. *Multimodal Quality of Service: Truck Level of Service*. Final Report. Florida Department of Transportation. Tallahassee, FL. October 2002. 108 pages.

2. Washburn, Scott S. and Courage, Kenneth G. *Development and Testing of a Red Light Violation Data Collection Tools*. Final Report. Southeast Transportation Center, Univ. of Tennessee, Knoxville, TN. May 2001. 20 pages.

1. Nihan, Nancy L. and Washburn, Scott S. *Estimating Link Travel Time with a Video Image Tracking System*. Technical Report #TNW 98-03, Transportation Northwest, Univ. of Washington, Seattle, WA. 1998. 39 pages.

7.8   Miscellaneous

Washburn, Scott S. and Washburn, Leslie D. *Manual on Uniform Traffic Control Devices (MUTCD): Overview of Highway Traffic Signals*. 40 pages. A document for professional engineer licensure continuing education. Distributed through SunCam (https://www.suncam.com/courses/100250-05.html).

Washburn, Scott S. and Washburn, Leslie D. *Manual on Uniform Traffic Control Devices (MUTCD): Overview of Pavement Markings*. 47 pages. A document for professional engineer licensure continuing education. Distributed through SunCam (https://www.suncam.com/courses/100250-04.html).

Washburn, Scott S. and Washburn, Leslie D. *Manual on Uniform Traffic Control Devices (MUTCD): Introduction and Overview of Signs*. 52 pages. A document for professional engineer licensure continuing education. Distributed through SunCam (https://www.suncam.com/courses/100250-03.html).

Washburn, Scott S. and Washburn, Leslie D. *The Highway Capacity Manual - 6th Edition: Overview and What's New*. 43 pages. A document for professional engineer licensure continuing education. Distributed through SunCam (https://www.suncam.com/courses/100250-02.html).

Washburn, Scott S. and Washburn, Leslie D. *Future Highways—Automated Vehicles*. 45 pages. A document for professional engineer licensure continuing education. Distributed through SunCam (https://www.suncam.com/courses/100250-01.html). First edition published December 2014. Second edition published February 2018.

Washburn, Scott S. and Mannering, Fred L. *Statistical modeling of vehicle emissions from inspection/maintenance testing data: an exploratory analysis – Reply*. Transportation Research, Vol. 8, No. 1, pp. 73-74, 2003.

Primary author of Chapter 3 (Geometric Design, 46 pages) of Florida Intersection Design Guide. A product of a Florida Dept. of Transportation project "Florida Intersection Design Guide". Published electronically at
http://www.dot.state.fl.us/rddesign/FIDG%20Manual/FIDG.htm

7.9   *Refereed Conference Articles*

Mukundhan Narasimhan, Lili Du, Scott Washburn. *Sequential Truck Platoon Formation in Mixed Traffic Using Multiple Spring Mass Damper Systems*. American Control Conference (https://acc2024.a2c2.org/). Toronto, Canada, July 2024.

Ana Tsui Moreno, Santiago Linares-Ramirez, Scott S. Washburn, Ahmed F. Al-Kaisy, Jorge Andres Barrios, Bastian J. Schroeder. *Motivations and Constraints for Rural Cycling Based on User Perception: Recommendations for Bicycle Analysis Procedures*. Transportation Research Board Meeting, January 2024. Winner of the 2024 Highway Capacity and Quality of Service Committee Best Paper Award.

Lu, Bin, Ni, Shaoquan, and Washburn, Scott S. *A Data-Driven Car-Following Model That Considers Impacts of Car-Truck Combinations*. Third International Conference on Smart Vehicular Technology, Transportation, Communication and Applications VTCA 2019 Arad-Romania. October 2019.

Jafari, Amirhossein, Al-Kaisy, Ahmed, and Washburn, Scott S. *Investigation of Passing Section Optimal Length on 2+1 Highways*. Transportation Research Board Annual Meeting, Washington, D.C., 2019.

Jafari, Amirhossein, Al-Kaisy, Ahmed, and Washburn, Scott S. *Investigation of Passing Lane Effective Length on Two-Lane Two-Way Highways*. Transportation Research Board Annual Meeting, Washington, D.C., 2018.

Al-Kaisy, Ahmed, Jafari, Amirhossein, and Washburn, Scott. *Following Status and Percent Followers on Two-Lane Two-Way Highways: Empirical Investigation*. Transportation Research Board Annual Meeting, Washington, D.C., 2017.

Moreno, Ana Tsui, Llorca, Carlos, Washburn, Scott S., Bessa Jr, José Elievam, and Garcia, Alfredo. *Effect of Average Passing Zone Length on Spanish Two-Lane Highway Performance*. Transportation Research Board Annual Meeting, Washington, D.C., 2016.

Al-Kaisy, Ahmed, Jafari, Amirhossein, Washburn, Scott S., Luttinen, Tapio, and Dowling, Richard. *Performance Measures on Two-Lane Highways: Survey of Practice*. Transportation Research Board Annual Meeting, Washington, D.C., 2016.

Watson, Donald, Hiles, Thomas and Washburn, Scott S. *Analysis Methodology for Two-Lane Highways with a Lane Closure.* Transportation Research Board Annual Meeting, Washington, D.C., 2015. 24 pages.

Lu, Bin and Washburn, Scott S. *Modeling and Analysis of Heterogeneity in Car-following Behavior Using Support Vector Regression*. Transportation Research Board Annual Meeting, Washington, D.C., 2015. 22 pages.

Modi, Vipul, Washburn, Scott S., and McLeod, Douglas S. *Capacity Estimation for Florida Freeways*. Transportation Research Board Annual Meeting, Washington, D.C., 2012. 18 pages.

Li, Jing and Washburn, Scott S. *Implementing Two-Lane Highway Simulation Modeling into CORSIM*. 6th International Symposium on Highway Capacity and Quality of Service. Stockholm, Sweden. July 2011. Published in "Procedia: Social and Behavioral Science", Elsevier. pp. 293-305. https://dx.doi.org/10.1016/j.sbspro.2011.04.451

Elefteriadou, Lily, Kondyli, Alexandra, Washburn, Scott S., Brilon, Werner, Lohoff, Jan, Jacobson, Les, Hall, Fred, and Persaud , Bhagwant. *Proactive Ramp Management under the Threat of Freeway-Flow Breakdown*. 6th International Symposium on Highway Capacity and Quality of Service. Stockholm, Sweden. July 2011. Published in "Procedia: Social and Behavioral Science", Elsevier. pp. 4-14. DOI: 10.1016/j.sbspro.2011.04.424

Ko, Byungkon, Washburn, Scott S., and McLeod, Douglas S. *Quality of Transportation Service from a Trucking Community's Perspective: Exploratory Focus Group Analysis*. Transportation Research Board Annual Meeting, Washington, D.C., 2012. 16 pages

Kondyli, Alexandra, Elefteriadou, Lily, and Washburn, Scott S. *Arterial Link Travel Time Model with Consideration of Mid-Block Delays*. 5th International Symposium on Highway Capacity and Quality of Service. Yokohama, Japan. July 2006. pp. 489-498.

McLeod, Douglas S. and Washburn, Scott S. *Level of Service Analysis for Two-lane Uninterrupted Flow Facilities in Developed Areas*. 9th National Conference on Transportation Planning for Small and Medium-Sized Communities. Colorado Springs, Colorado. September 2004. 12 pages.

Washburn, Scott S., Prassas, Elena S., McLeod, Douglas S. *Adaptation of the HCM 2000 to a Planning Level Implementation*. Annual Meeting of the Institute of Transportation Engineers (Seattle, WA), August 2003. 15 pages.

Washburn, Scott S. and Courage, Kenneth G. *New Technology for Conducting Red Light Running Studies*. The 28th Annual Conference of the IEEE Industrial Electronics Society (IECON '02), Sevilla, Spain. November 2002. 6 pages. DOI: 10.1109/IECON.2002.1182891

Washburn, Scott S. and Courage, Kenneth G., and MacKenzie, Shaun. *Development of a Red Light Violation Data Collection Tool*. Transportation Research Board Annual Meeting, Washington, D.C., 2001. 22 pages.

Note: The above listing of refereed proceedings does not include the publications through the Transportation Research Board that were also published in the Transportation Research Record journal or Transportation Research Circular.

8   Software Development

Primary developer of SwashSim, a microscopic traffic simulation program. This program utilizes a modern software architecture (object-oriented, C#/.NET Framework). This simulation platform has been applied successfully to numerous research projects and also serves as the foundation for my Advanced Traffic Simulation course. See https://github.com/swash17/SwashSim for more information.

Primary developer of HCM-CALC. This suite of software programs implements all of the uninterrupted-flow analysis methodologies of the Highway Capacity Manual (5th, 6th, and 7th editions). Of particular note in this software package are the Freeway Facility and TTR/ATDM modules. The effort to develop the travel time reliability and active traffic demand management methodologies module was supported through a contract with the Federal Highway Administration. See https://github.com/swash17/HCM-CALC for more information.

Primary developer of the Florida Department of Transportation (FDOT) LOSPLAN software suite. This suite of software programs consists of ARTPLAN (for arterial analysis), HIGHPLAN (for two-lane and multilane highway analysis), and FREEPLAN (for freeway facility analysis). These programs, which are largely based on the analysis methods of the Highway Capacity Manual, but with extensions based on FDOT research project results, are the FDOT required software tools for planning and preliminary engineering level of service analysis applications. Thus, LOSPLAN is used widely by transportation analysts throughout Florida, as well as many other locations nationwide. I have worked closely with FDOT on the development of these programs since 2000. Major updates have been released in 2002, 2007, 2009, and 2012. See https://swash.essie.ufl.edu/software/ for more information.

Led effort to implement the two-lane highway modeling logic that was developed by Li and Washburn (2011) into the CORSIM microscopic traffic simulation program.

Led effort to implement the toll plaza modeling logic that was developed by Fuller and Washburn (based on Fuller's Masters thesis) into the CORSIM microscopic traffic simulation program.

Primary developer of FlagSim, a microscopic simulation program for two-lane, two-way roadways with a lane closure under flagging control. See https://swash.essie.ufl.edu/software/ for more information.

Co-developed Windows™ data collection program (DAITA). Can be used for collecting intersection turning movement counts and vehicle classification data. Currently integrated into Highway Capacity Software, distributed through Mc*Trans* Software Center at University of Florida, Gainesville, FL.

Developed Windows™ application that allows the collection of license plate data using voice recognition. This program allows a user to speak license plates into a microphone that are then time-stamped and saved in an electronic file. For more information, see journal publication #6.

Co-developed Pop Quiz software program (see Teaching section for details).

Primary developer of XXE software program (see Teaching section for details).

9 Presentations (Fall 1999 – Present)

August 8, 2024   Highway Capacity and Quality of Service and Traffic Simulation joint committee meeting, Raleigh, NC (*Invited speaker*)
Washburn, Scott S. Session on Methodological Innovations: *Rural Highway Analysis. Methodology*. Postponed due to Hurricane Debby. Session will be conducted as a virtual session at later date to be determined.

July 30, 2024 (*Invited speaker*)
Presentation on *New Highway Traffic Analysis Methods for the Highway Capacity Manual* Kittelson & Associates. Presentation given in Orlando, FL office. Other office locations connected virtually.

July 2024   American Control Conference, Toronto, Canada
Mukundhan Narasimhan, Lili Du, Scott Washburn. *Sequential Truck Platoon Formation in Mixed Traffic Using Multiple Spring Mass Damper Systems*. Presented by Narasimhan Mukundhan.

May 22, 2024 (*Invited speaker*)
Presentation on *New Highway Traffic Analysis Methods for the Highway Capacity Manual* Florida Atlantic University. Organizer: Dr. Evangelos Kaiser

April 12, 2024 (*Invited speaker*)
Presentation on *New Highway Traffic Analysis Methods for the Highway Capacity Manual* Technical University of Munich (Munich, Germany). Organizer: Dr. Ana Moreno

April 8, 2024 (*Invited speaker*)
Presentation on *New Highway Traffic Analysis Methods for the Highway Capacity Manual* Sapienza Università di Roma (Rome, Italy). Organizer: Dr. Andrea Pompigna

January 2024   Transportation Research Board meeting, Washington, DC
Ana Tsui Moreno, Santiago Linares-Ramirez, Scott S. Washburn, Ahmed F. Al-Kaisy, Jorge Andres Barrios, Bastian J. Schroeder. *Motivations and Constraints for Rural Cycling Based on User Perception: Recommendations for Bicycle Analysis Procedures*. Winner of the 2024 Highway Capacity and Quality of Service Committee Best Paper Award. Presented by Dr. Ana Moreno.

June 2023   ASCE International Conference on Transportation & Development, Austin, Texas
Raza, Sajid, Al-Kaisy, Ahmed Washburn, Scott S. *Roundabout Influence Areas Along Rural and Suburban Corridors*. Presented by Sajid Raza.

May 2023   Institute of Industrial and Systems Engineers (IISE) Conference, New Orleans

Shannon Hickey, Akcali, Elif, Washburn, Scott, Evangelos Kaisar, Vasileia Antonoglou. *Assessing the performance of an emergency truck parking network: A simulation-based Approach*.

January 2023   Transportation Research Board meeting, Washington, DC
Sajid Raza, Ahmed F. Al-Kaisy, Scott S. Washburn, Jorge Andres Barrios, Ana Tsui Moreno, Bastian J. Schroeder. *Influence Area at Signalized and Stop-Control Intersections: Operational Analysis*. TRBAM-23-01414, Poster Session 3148

Ana Tsui Moreno, Santiago Linares-Ramirez, Scott S. Washburn, Ahmed F. Al-Kaisy, Jorge Andres Barrios, Bastian J. Schroeder. *Identification of Potential Improvements to the Highway Capacity Manual Methodology for Rural Bicyclists and Bicyclist Classification*. TRBAM-23-02602, Poster Session 3148

July 14, 2022 (*Invited speaker*)
Transportation Research Board webinar: *New Facilities and Systems Methods in HCM7*.
- Co-Presenters: Scott Washburn, Lily Elefteriadou; Moderator: Tom Creasey
- 245 attendees

June 6, 2022 (*Invited speaker*)
Presentation on *Recent Rural Highway Analysis Efforts for the Highway Capacity Manual*. University of Idaho. Organizer: Dr. Kevin Chang.

June 3, 2022   ASCE International Conference on Transportation & Development, Seattle, Washington (*Invited speaker*)
Washburn, Scott S., Sun, Wei, and Tucker, Marie. Case *Study: Florida's Efforts of Evaluating and Implementing Parking Detection Technologies for Commercial Truck Parking Management at Public Rest Areas*.

April 19, 2022   Western Section of Institute of Transportation Engineers (ITE) (*Invited speaker*)
Highway Capacity Manual Upgrade: What Is New for the 7th Edition?
Presenter for topic "*New Two-Lane Highway Analysis Method*"
Conducted via Teams (> 100 attendees)

January 2022   Transportation Research Board meeting, Washington, DC (*Invited speaker*)
Highway Capacity Manual Upgrade: What Is New for the 7th Edition?
Presenter for topic "*New Two-Lane Highway Analysis Method*"
Event # 1245, Lectern Session

January 2021   Transportation Research Board meeting, Washington, DC
Davis, Asean and Washburn, Scott S. *Two-Lane Highway Capacity Estimation*. Virtual presentation at Transportation Research Board meeting (Washington, DC).

January 2020   Transportation Research Board meeting, Washington, DC

Fernando Jose Piva, Setti, Jose Reynaldo, and Washburn, Scott S. *Guidance for Applying Traffic Microsimulation to Studies on User Perception of Level of Service*.

Ozkul, Seckin, Noei, Shirin, and Washburn, Scott S. *Vehicle Acceleration Modeling in Simulation*. Poster presentation.

Sun, Wei and Washburn, Scott S. *Impact of Incidents and Adverse Weather Conditions on Freeway Segment Capacity*. Poster presentation.

Sun, Wei and Washburn, Scott S. *Freeway Network Travel Time Reliability Analysis Methodology and Software Tool Development*. Poster presentation.

June 11, 2019 (*Invited speaker*)
Presentation on *Improved Analysis of Two-Lane Highway Capacity and Operational Performance* (based on NCHRP 17-65 project) to First Coast Chapter of ITE (in Jacksonville, FL).

April 12, 2019 (*Invited speaker*)
Presentation on *Research Focused on Commercial Trucks* for FDOT Research Showcase. FDOT State Materials Office, Gainesville, FL.

March 25, 2019 (*Invited speaker*)
Transportation Research Board webinar: *Improved Analysis of Two-Lane Highway Capacity and Operational Performance* (based on NCHRP 17-65 project).
- Co-Presenters: Scott Washburn, Ahmed Al-Kaisy; Moderator: Jafari Amirhossein
- 348 sites logged in, estimated attendance of 428 persons

January 2019   Transportation Research Board meeting, Washington, DC

Jafari, Amirhossein, Al-Kaisy, Ahmed, and Washburn, Scott S. *Investigation of Passing Section Optimal Length on 2+1 Highways*. Poster presentation

Jafari, Amirhossein, Al-Kaisy, Ahmed, and Washburn, Scott S. *Investigation of Passing Lane Optimum Length on Two-Lane Highways*. Lectern presentation (presented by Amirhossein Jafari).

Sept. 2018   Semana de Transportes e Trânsito (Transport and Transit Week), Belo Horizonte, Brazil. (*Invited speaker*)
Washburn, Scott S. *Two-lane highway analysis and simulation*. Workshop presentation.

Washburn, Scott S. *Current trends in traffic operations management and analysis in the U.S.* Lectern presentation.

June 2018   Highway Capacity and Quality of Service committee meeting, Austin, TX (*Invited speaker*)
Washburn, Scott S. *Two-Lane Highway Analysis. NCHRP 17-65 Project*. Workshop presentation to Highway Capacity and Quality of Service committee.

January 2018 Transportation Research Board meeting, Washington, DC

Al-Kaisy, Ahmed, Jafari, Amirhossein, Washburn, Scott S, Luttinen, Tapio, and. Dowling, Richard. *Traffic Operations on Rural Two-Lane Highways: A Review on Performance Measures and Indicators*. Presentation to Highway Capacity and Quality of Service committee.

Jafari, Amirhossein, Al-Kaisy, Ahmed, and Washburn, Scott S. *Investigation of Passing Lane Effective Length on Two-Lane Two-Way Highways*. Poster presentation.

Al-Kaisy, Ahmed, Jafari, Amirhossein, Washburn, Scott S, Luttinen, Tapio, and. Dowling, Richard. *Traffic Operations on Rural Two-Lane Highways: A Review on Performance Measures and Indicators*. Poster presentation.

Wei, Sun, Stoop, Ethan, and Washburn, Scott S. *Evaluation of Commercial Truck Parking Detection for Rest Areas*. Lectern presentation (presented by Sun Wei).

January 2017 Transportation Research Board meeting, Washington, DC

Jafari, Amirhossein, Al-Kaisy, Ahmed, and Washburn, Scott S. *Measuring Performance on Two-Lane Highways: Empirical Investigation.* Poster presentation.

Al-Kaisy, Ahmed, Jafari, Amirhossein, and Washburn, Scott S. *Following Status and Percent Followers on Two-Lane Two-Way Highways: Empirical Investigation.* Poster presentation.

Sept. 2016 Speaker on Travel Time Reliability Analysis Software Tool.
(*Invited speaker*) Florida Department of Transportation, Tallahassee, FL.

August 2016 Implementing the New 6th Edition of the Highway Capacity Manual (HCM 6). (*Invited speaker*) Institute of Transportation Engineers, Annual Meeting, Anaheim, CA.

June 2016 International Highway Symposium on Enhancing Highway Performance, Berlin, Germany

Washburn, Scott S. *NCHRP 17-65 Project, Two-Lane Highway Operations Analysis, Overview*. Podium presentation.

Ozkul, Seckin and Washburn, Scott S. *Enhanced Vehicle Dynamics Modeling in Traffic Microsimulation*. Podium presentation.

January 2016 Transportation Research Board meeting, Washington, DC

Michalaka, Dimitra, Xu, Ruoying, Page, Joseph, Steiner, Ruth L., Washburn, Scott S., and Elefteriadou, Lily. *Roundabouts as a Form of Access Management*. Poster presentation.

Moreno, Ana Tsui, Llorca, Carlos, Washburn, Scott S., Bessa, José Elievam., and Alfredo Garcia. *Effect of Average Passing Zone Length on Spanish Two-Lane Highways Traffic Performance.* Poster presentation.

Al-Kaisy, Ahmed, Jafari, Amirhossein, Washburn, Scott S., Luttinen, Tapio, and Dowling, Richard. *Performance Measures on Two-Lane Highways: Survey of Practice.* Poster presentation.

Hu, Jiangchuan, Frey, Christopher, and Washburn, Scott S. *Comparison of Vehicle-Specific Fuel Use and Emissions Models Based on Externally and Internally Observable Activity Data.* Poster presentation.

January 2015   Transportation Research Board meeting, Washington, DC

Updated Commercial Truck Speed versus Distance-Grade Curves for the Highway Capacity Manual. Poster presentation.

Analysis Methodology for Two-Lane Highways with a Lane Closure. Poster presentation.

Modeling and Analysis of Heterogeneity in Car-following Behavior Using Support Vector Regression. Poster presentation.

Sept. 2014   Transportation Associate of Canada (TAC) Conference and Exhibition. Montreal, Quebec. (*Invited speaker*)

Washburn, Scott S. *Florida's Program for Automated Vehicle Highways (AVH) and Engineering Education Considerations for AVH.* Podium presentation.

January 2014   Transportation Research Board meeting, Washington, DC

Michalaka, Dimitra, Xu, Ruoying, Joseph Page, Steiner, Ruth L., Washburn, Scott S., and Elefteriadou, Lily. *Access Management Aspects Influencing Roundabout Design and Operations.* Poster presentation.

Lu, Bin and Washburn, Scott S. *Vehicle Trajectory Analysis System for Estimating HCM-Compatible Performance Measures.* Poster presentation.

January 2013   Transportation Research Board meeting, Washington, DC

Carrick, Grady and Washburn, Scott S. *Estimating the Impacts of Police Traffic Enforcement Stops on Freeway Operations and Capacity.* Podium presentation. Presentation given by Grady Carrick.

Ozkul, Seckin and Washburn, Scott S. *Revised Version of HCM 2010 Urban Streets Automobile LOS Methodology.* Poster presentation.

January 2012 Transportation Research Board meeting, Washington, DC

Carrick, Grady and Washburn, Scott S. *Move-Over Law: Role of Emergency Vehicle Lighting in Conformity on Florida Freeways.* Poster presentation.

Modi, Vipul, Kondyli, Alexandra, Washburn, Scott S., McLeod, Douglas. *Capacity Estimation for Florida Freeways*. Poster presentation.

August 2011 **Rural Two-Lane Highway Traffic Models: HCM 2010 and now CORSIM**. (***Invited speaker***) National Rural ITS Conference (Coeur d'Alene, Idaho). Remote presentation.

August 2011 **Speaker on two-lane highway modeling and next version of CORSIM**. UF Transportation Research Center meeting on CORSIM, Orlando, FL

July 2011 **Implementing Two-Lane Highway Simulation Modeling into CORSIM**. Podium presentation at 6th International Symposium on Highway Capacity and Quality of Service, Stockholm, Sweden.

June 2011 **Speaker on The Highway Capacity Manual 2010**. (***Invited speaker***) Alabama Section ITE annual meeting, Gulf Shores, AL.

February 2011 **Speaker on uninterrupted flow analysis in the HCM 2010**. (***Invited speaker***) Florida ITE Section meeting, Orlando, FL.

January 2011 **Enforcement Engineering: A Conceptual Exploration for a New Engineering Discipline**. Poster session at Transportation Research Board meeting (Washington, DC).

Ramp Metering Enhancements for Postponing Freeway-flow Breakdown. Poster session at Transportation Research Board meeting (Washington, DC).

Quality of Transportation Service from a Trucking Community's Perspective: Exploratory Focus Group Analysis. Poster session at Transportation Research Board meeting (Washington, DC).

August 2010 **Overview of the U.S. 2010 Highway Capacity Manual**. (***Invited speaker***) International Chinese Conference of Transportation Professionals (ICCTP), Beijing, China, August 2010.

August 2010 **Overview of the U.S. 2010 Highway Capacity Manual**. (***Invited speaker***) Beijing Institute of Technology, Beijing, China, August 2010.

August 2010 **Speaker on uninterrupted flow analysis in the HCM 2010**. UF Transportation Research Center meeting on HCM 2010, Orlando, FL

January 2010 **Impact of Left-Turn Spillover on Through Movement Discharge at Signalized Intersections**. Poster session at Transportation Research Board meeting (Washington, DC).

Descriptive Analysis and Characterization of Law Enforcement Vehicle Crashes in Florida. Transportation Research Board meeting (Washington, DC). Presentation given by Mr. Grady Carrick (co-author).

May 2009 **Impact of Trucks on Signalized Intersection Capacity.**
(***Invited speaker***) Presentation for University of Washington Transportation Graduate Student Seminar course (Seattle, WA).

January 2009 **Performance Measures for Truck Level-of-Service: An Exploratory Survey Analysis**. Poster session at Transportation Research Board meeting (Washington, DC).

Sept. 2008 **Planning Analysis to Operations Analysis to Visualization (ARTPLAN-TRANSYT-7F Connectivity)**. TRANSPO 2008 conference, Orlando, FL. Presentation given by Dr. David Hale (co-author).

July 2008 **Impact of Trucks on Signalized Intersection Capacity**. International Federation of Operational Research Societies (IFORS), Sandton, South Africa.

January 2007 **A Methodology for the Operational Performance Assessment of Two-Lane Highway Facilities**. Poster session at Transportation Research Board meeting (Washington, DC).

Data Collection Needs for Work Zone Incidents. Poster session at Transportation Research Board meeting (Washington, DC).

July 2006 **Arterial Link Travel Time Model with Consideration of Mid-Block Delays**. Poster session at the 5th International Symposium on Highway Capacity and Quality of Service. (Yokohama, Japan)

January 2006 **Research Issues with Two-Lane Highways in Developed Areas**.
(***Invited speaker***) *Identification of Preferred Service Measures for Two-Lane Highways*. Conference session at Transportation Research Board meeting (Washington, DC). Sponsored by Highway Capacity and Quality and Service Committee.

Rural Freeway Level of Service Based Upon Traveler Perceptions. Poster session at Transportation Research Board meeting (Washington, DC).

Truck Level of Service: A Conceptual Methodological Exploration. Poster session at Transportation Research Board meeting (Washington, DC).

January 2005   **New and Emerging Quality of Service Measures**. (*Invited speaker*)
Determination of Service Measures for Rural Freeways. Conference session at Transportation Research Board meeting (Washington, DC). Sponsored by Highway Capacity and Quality and Service Committee.

Dec. 2004   **An Evaluation of the Effectiveness of Pedestrian Countdown Signals**.
TRANSPO 2004 conference, Jacksonville, FL

Sept. 2004   **An Evaluation of the Effectiveness of Pedestrian Countdown Signals**.
TRANSTEC conference, Athens, Greece.

January 2004   **Quality of Service from a Traveler's Perspective**.
(*Invited speaker/panel member*). Conference session at Transportation Research Board meeting (Washington, DC). Sponsored by Highway Capacity and Quality and Service Committee.

Quality of Service Perceptions by Rural Freeway Travelers: An Exploratory Analysis. Transportation Research Board meeting (Washington, DC)

Sept. 2003   **TRANSPLEX (Florida's Transportation Planning Exchange**.
(*Invited speaker*) Truck Level of Service
(*Panel member*) Forum on Quality of Service. Orlando, FL.

May 2003   **FDOT Statewide Special Use Lane Task Team**. (*Invited speaker*)
Truck Level of Service for Freeways. Orlando, FL.

January 2003   **Evaluation of an Alternative Lighting System for Coastal Roadways**.
Transportation Research Board meeting (Washington, DC)

An Integrated Simulation-Based Method for Estimating Arrival Type for Signalized Arterial Planning Applications. Transportation Research Board meeting (Washington, DC)

April 2002   **Introduction to FDOT's Level of Service Planning Methodology and Software**. (*Invited speaker*) Luncheon meeting of Gainesville professional chapter of ASCE.

January 2002   **Development of a Red Light Violation Data Collection Tool.**
Transportation Research Board meeting (Washington, DC)

Adaptation of the HCM2000 for Planning Level Analysis of Two-Lane and Multilane Highways in Florida.
Transportation Research Board (Washington, D.C.)

Development of an XML-Based Specification for Traffic Model Data Exchange. Transportation Research Board (Washington, D.C.)

Feb. 2001 **Development of a Red Light Violation Data Collection Tool**, Florida State Section ITE Meeting (Altamont Springs, FL)

January 2001 **Signalized Intersection Delay Estimation: Case Study Comparisons of Transyt-7F, Synchro, and HCS**, Transportation Research Board (Washington, D.C.)

June 2000 **Ramp Signals and I-95 Sunguide: An Information and Partnering Workshop (*Invited speaker*)** Theory of Ramp Metering and its Practical Considerations. Florida International University (Miami, FL).

Nov. 1999 **Signalized Intersection Delay Estimation: Case Study Comparisons of Transyt-7F, Synchro, and HCS**, Florida State Section Annual ITE Meeting (Tallahassee, FL),
Awarded Best Presentation of Meeting.

10 Teaching/Mentoring

10.1 *Student Advising*

Graduate Students Supervised

	Student	Research Topic	Home Dept.	Complete Date
Chair, Ph.D. Committees				
7	Wei Sun	Freeway Network Travel Time Reliability	CCE	5/2019
6	Don Watson	Lane changing models for simulation	CCE	5/2018
5	Seckin Ozkul	Modeling Advanced Vehicle Dynamics in Simulation	CCE	8/2014
4	Jing Li	Two-lane Highway Simulation and Analysis	CCE	8/2012
3	Grady Carrick	Impacts of Police Traffic Stops on Freeway Operations and Capacity	CCE	5/2012
2	Byungkon Ko	Truck level of service	CCE	5/2007
1	Qingyong Yu	Two-lane highway facility analysis	CCE	5/2006
Co-Chair, Ph.D. Committees				
2	Ashish Kulshrestha (30%)	Transit Evacuation Planning	CCE	12/2011
1	Randall Showers	Arterial travel time and delay measurement	CCE	05/2002
Member, Ph.D. Committees				
45	Orestis Karamouzis	TBD	CCE	TBD
44	Gustavo Zschaber	TBD	CCE	TBD
43	Bryce Grame	TBD	CCE	8/2026
42	Chenlu Pu	Shockwave Theories Empowered AI-Learning and Applications: Traffic Anomaly Detection and Prediction	CCE	8/2025
41	Mukundhan Narasimhan	Autonomous Truck Platooning	CCE	TBD
40	Shannon Hickey	Commercial Truck Parking Needs During Severe Weather Events	ISE	8/2024
39	Hanyu Zhang	Connected and Autonomous Vehicle Platooning Technology: Cooperative Lane-Change,	CCE	5/2023

		Intersection-Passing, and Platoon-Formation Strategy		
38	Sagar Patni	Modeling Route and Stop Level Transit Ridership	CCE	8/2022
37	Fabio Sasahara	Evaluation of Queue Spillback on Freeway Off-Ramp Bottlenecks	CCE	8/2020
36	Pedro Adorno	Driver Behaviors and Safety at Signalized Intersections	CCE	5/2020
35	Aschkan Omidvar	Optimizing Freeway Merge Operations	CCE	12/2019
34	Abraham Yarney	Older Driver Safety	CCE	8/2019
33	Khajonsak Jermprapai	Freeway Service Patrol Operations	CCE	8/2019
32	Deja Jackson	Florida Motorcycle Safety	CCE	5/2019
31	Pruthvi Manjunatha	Incorporating Human Factors in Traffic Simulation	CCE	5/2018
30	Liteng Zha	Dynamic Pricing in Ride-Sharing Markets	CCE	5/2017
29	Zhibin Chen	Advanced Parking Management Systems	CCE	5/2017
28	Clark Letter	On-ramp merging with connected vehicle technology	CCE	5/2017
27	Yinan Zheng	Pedestrian Operations in Urban Networks	CCE	8/2016
26	Eleftheria Kontou	Light Duty Vehicle Electrification	CCE	5/2016
27	Lin Qi	Spatial Networks in Database Systems	CISE	5/2016
26	Nima Shirmohammadi	Analysis and Design of Tradeable Credit Schemes Under Uncertainty	CCE	12/2015
25	Zhuofei Li	Isolated Intersection Control Optimization and Simulation for Automated Vehicles	CCE	8/2015
24	Miguel Lugo Ortiz	Walking and Healthy? On the Relationship Among Utilitarian Walking, Health, and Residential Choice	CCE	8/2015
23	Phillip Haas	An Examination of the Spatial and Temporal Transferability of Crash Prediction Models in Florida	CCE	5/2015
22	Mahmood Zangui	Differential congestion pricing	CCE	8/2014
21	Roosbeh Nowrouzian	Spatial models for analyzing land use patterns	CCE	8/2014
20	Feng He	Electric vehicle charging stations	CCE	5/2014
19	Nagendra Dhakar	Route Choice Modeling Using GPS Data	CCE	12/2012
18	Md Mamun	Impact Analysis of Site Development and Mileage Fee	CCE	8/2012
17	Dimitra Michalaka	Enhancement and Evaluation of Dynamic Pricing Strategies of Managed Toll Lanes	CCE	8/2012
16	Cuie Lu	Effect of incidents on capacity	CCE	12/2011
15	Lu Ma	Generating Disaggregate Population Characteristics for Input to Travel-Demand Models	CCE	12/2011
14	Ziqi Song	Pareto-improving pricing strategies	CCE	12/2011
13	Di Wu	Increasing public acceptance for congestion pricing	CCE	8/2011
12	Lihui Zhang	Robust signal timing for sustainable mobility	CCE	8/2010
11	Xiaoyu Zhu	Analysis of large truck crash injury severities	CCE	5/2011
10	Seokjoo Lee	Central Data Warehouse	CCE	12/2009
9	Yingyan Lou	Hierarchical network and facility roadway pricing	CCE	8/2009
8	Alexandra Kondyli	Freeway on-ramp merge behavior	CCE	8/2009
7	Jian Sun	Lane-changing model for urban arterial streets	CCE	8/2009
6	Kitti Manokhoon	Public works management	CCE	12/2007
5	Xiao Cui	Signalized Art. Travel Time Estimation	CCE	12/2006
4	Ji-Youn Yeon	Freeway Travel Time Estimation	CCE	8/2006
3	Jin-Tae Kim	Comp. procedures for signal timing design	CCE	12/2001
2	David Hale	Actuated traffic control modeling	CCE	08/2000
1	Shiow-Min Lin	Signal timing optimization	CCE	12/1999
Chair, Masters Committees				

55	Ravidu M. Idippili-Pathiran	30-hr	CCE	5/2025
54	Kim Chadalawada	30-hr	CCE	12/2023
53	Ryan Kenis	30-hr	CCE	5/2023
52	Luze Jia	30-hr	CCE	12/2022
51	Akhilesh Shastri	30-hr	CCE	5/2021
50	Asean Davis	30-hr	CCE	8/2020
49	Shuaizhou Hu	30-hr	CCE	5/2020
48	Ning Wang	30-hr	CCE	5/2019
47	Abdul Alrashidy	Impacts of Commercial Trucks on Arterial Street Operations	CCE	12/2018
46	Xincheng Wang	30-hr	CCE	12/2018
45	Ethan Stoop	30-hr	CCE	8/2017
44	Wei Sun	Travel Time Reliability Analysis	CCE	5/2016
43	Zilin Bian	30-hr	CCE	5/2016
42	Shenyang Chen	30-hr	CCE	8/2015
41	Gaurav Chauhan	30-hr	CCE	8/2015
40	Jim Fliess	30-hr	CCE	12/2013
39	Jack Hulsberg	Emissions calculations in CORSIM	CCE	12/2013
38	Don Watson	30-hr	CCE	8/2012
37	Michelle Adejumo	30-hr	CCE	5/2012
36	Robin Osborne	Implementing Toll Plaza Analysis into FREEPLAN#	CCE	5/2012
35	Albert Bohl	30-hr	CCE	5/2012
34	Brett Fuller	Toll Plaza Simulation#	CCE	5/2011
33	Alexander Poling	30-hr	CCE	5/2011
32	Saahith Mallavarapu	30-hr	CCE	5/2011
31	Heather Hammontree	Two-Lane Highway Simulation#	CCE	12/2010
30	John Carlton	30-hr	CCE	8/2010
29	Michael Riebe	30-hr	CCE	5/2010
28	Matt Weisman	30-hr	CCE	12/2009
27	Vipul Modi	Florida Freeway capacity#	CCE	12/2009
26	Abigail Osei-Asamoah	Effect on signal throughput due to left turn Overspill#	CCE	5/2009
25	Shaoming Zhang	30-hr	CCE	5/2008
24	Thomas Hiles	Two-lane work zone analysis#	CCE	5/2008
23	Kevin Johns	30-hr	CCE	12/2007
22	Carlos Cruz	Truck PCEs at signalized intersections#	CCE	8/2007
21	Bradley Choi	30-hr	CCE	5/2007
20	Grady Carrick	Data Collection for Work Zone Crashes#	CCE	8/2006
19	Nan Zhang	30-hr	CCE	12/2005
18	Ian Rairden	30-hr	CCE	8/2005
17	Jessica Morriss	Two-lane highway performance measures#	CCE	8/2005
16	Deborah Leistner	Effect. of pedestrian countdown signals#	CCE	8/2005
15	Pongkan Deopanich	30-hr	CCE	4/2005
14	Eric Wommeldorf	30-hr	CCE	4/2005
13	David Kirschner	Rural freeway level of service modeling #	CCE	4/2005
12	Purvi Dave	30-hr	CCE	4/2005
	Kirby Ramlackhan	Rural freeway performance measures	CCE	4/2005*
11	Vishal Kakkad	Red light running factors	CCE	08/2004
10	Francis DeLaRosa	Diamond interchange design	CCE	05/2004
9	Imtyazahmad Shaikh	30-hr	CCE	05/2004
8	Mudassar Alam	Empirical estimation of freeway capacity	CCE	05/2004
7	Kim Seager	Rural freeway level of service #	CCE	05/2004

6	Leigh Ann Nichols	30-hr	CCE	12/2003
5	Xiaozhao Lu	Truck level of service modeling	CCE	12/2003
4	Fabricio Ponce	Two-lane highway analysis #	CCE	08/2003
3	Sergio Quevedo	Red light running measurement #	CCE	12/2001
2	Jaime Rooney	Truck level of service modeling #	CCE	12/2001
1	Thuha Nguyen	Arrival type estimation	CCE	08/2001
Co-Chair, Masters Committees				
9	Clark Letter	Variable Speed Limits in CORSIM#	CCE	08/2011
8	Barbara Barqueta Martin	Assessment of In-Vehicle Driving Assistance Technologies#	CCE	12/2010
7	Aaron Elias	Roundabout modeling in CORSIM#	CCE	08/2009
6	Matt Crim	Bridge traffic load ratings #	CCE	4/2005
5	Senthil Manian	30-hr	CCE	4/2005
4	Feng Ji	Traffic data warehousing	CCE	12/2003
3	Qingyong Yu	Traffic data warehousing	CCE	12/2003
2	Robert McMullen	Business accommodation during construction	CCE	08/2002
1	Carlos-Andres Ramirez	Enhancement of the Arterial Analysis Package	CCE	05/2002
Member, Masters Committees				
26	Tyler Vallila	Intersection design for pedestrians	CCE	12/2017
25	Evangelos Mintsis	Evaluation of the Joint Operation of Ramp Metering and Variable Speed Limits Using CORSIM	CCE	8/2012
24	Corey Hill	Freeway Lane Changing	CCE	8/2012
23	George Chrysikopoulos	Travel Time Reliability	CCE	05/2010
22	Irene Soria	Assessment of Car-Following Models	CCE	05/2010
21	Mayank Jain	Capacity estimation of arterial workzones	CCE	08/2008
20	Amith Yarlagadda	School travel modes for children	CCE	12/2006
19	Diego Arguea	Freeway Work Zone Capacity	CCE	05/2006
18	Dima Haddad	30-hr	CCE	05/2006
17	Alexandra Kondyli	Arterial Travel Time	CCE	12/2005
16	Anil Sharma	30-hr	CCE	12/2005
15	Tait Karlson	Pavement Performance Evaluation through application of cyclic pore pressure	CCE	12/2005
14	Pratap Bhonsle	30-hr	CCE	08/2005
13	Seokjoo Lee	Hardware in the loop simulation	CCE	05/2004
12	Brian Kirkpatrick	Railroad grade crossing safety	CCE	12/2003
11	Partesh Vakil	Diamond interchange simulation	CCE	05/2003
10	Holly Shirey	Business accommodation during construction	CCE	08/2002
9	Byungkon Ko	Railroad grade crossing safety	CCE	08/2002
8	Nan Zhao	Benchmark data sets for highway analysis	CCE	12/2001
7	Patipan Mitrosongkroh	Evaluation of the CORSIM 5.0 traffic model	CCE	08/2001
6	Samuel Trotman	Triple left turn lane modeling	CCE	08/2001
5	Romeo Coleman	Costs and benefits of natural gas fleets	CCE	05/2001
4	Shaun MacKenzie	Red light running measurement	CCE	12/2000
3	Philippe Jolicoeur	Triple left turn lane design guidelines	CCE	08/2000
2	Micah Henry	Benchmark data sets for arterial analysis	CCE	12/1999
1	Salvador Arnaldo	Variable speed limits	CCE	12/1999

thesis

Other Graduate Student Research Advising
   Christian Breau: Summer 2020 (HCM Service Volumes)
   Akhilesh Shashtri: Fall 2019 – Spring 2021 (Interchange Ramp Metering)

Visiting Ph.D. Student Advising

	Student	University	Dates
4	Fernando Piva	Universidade de SÃO PAULO	Oct. 2017-May 2018
3	Ana Tsui Moreno	Universitat Politècnica de València	Fall 2013
2	Jose Elievam Bessa Jr.	Universidade de SÃO PAULO	Fall 2013
1	Bin Lu	Southwest Jiaotong University	Fall 2011-Sum 2013

International Graduate Student Committees

Member of Mr. Fernando Piva's PhD committee
Universidade de SÃO PAULO
Dissertation Defense held on 10/26/22

Undergraduate High Honors Committees (4 students)

- Donald Watson, Undergraduate High Honors, Member, Spring 2011
- Jorge Barrios, Undergraduate High Honors, Co-Chair, Fall 2009
- Hala Mourad, Undergraduate High Honors, Member, Fall 2005
- Christine Nabong, Undergraduate High Honors, Chair, Summer 2001

Summer Internship Student Advising

	Student	University	Year
12	Asean Davis	Jackson State Univ.	2017
11	Taehyun Kim	UF-CISE	2016
10	Ethan Stoop	UF	2015
9	Megan McGinley	UF	2014
8	Brian Pitman	UF	2014
7	Imad Ghossein	Univ. of Alabama-Birmingham	2012
6	Michael Cangiolosi	UF	2011
5	Silvana Vargas	UF	2011
4	David Champoux	Clarkson Univ.	2010
3	Heather Hammontree	UF	2009
2	Jorge Barrios	UF	2008
1	Martijn Siemerlink	Netherlands	2008

Undergraduate Research Assistants (from Department of Civil and Coastal Engineering)

	Student	**Dates**
33	Emily Dang	Fall 2021 – Spring 2022, Fall 2022 – Spring 2023
32	Taylor Propis	Fall 2021 – Spring 2022
31	Jonathan Crosby	Fall 2021 – Spring 2022
30	Ariel Centurion	Summer 2019 – Spring 2021
29	Christian Breau	Summer 2019 – Fall 2019
28	Matthew Knight	Fall 2017 – Spring 2019
27	Megan McGinley	Fall 2014, Spring 2015
26	Bao Nguyen	Summer 2013, Fall 2013
25	Shane Misztal	Spring 2013
24	Michael Cangiolosi	Summer 2011, Fall 2011, Spring 2012, Fall 2012
23	Danielle Soriano	Summer 2010, Fall 2010
22	Kevin Marquez	Spring 2010, Summer 2010
21	Heather Hammontree	Spring 2009, Fall 2009
20	Jorge Barrios	Fall 2008, Spring 2009, Fall 2009
19	Eric Tilden	Summer 2008, Fall 2008, Spring 2009
18	John-Mark Palacios	Fall 2006
17	Daryl Schnieder	Spring 2006, Summer 2006
16	Jason Sherman	Spring 2006
15	Matt O'Brien	Fall 2005, Spring 2006
14	Carolina Cardoza	Summer 2005
13	Eric Spurgeon	Spring 2005, Summer 2005
12	Jessica Morriss	Summer 2004
11	Teri Chynoweth	Spring 2004
10	Jennifer Webster	Fall 2003
9	Christian Gyle	Fall 2003
8	Jason Starr	Summer 2003, Fall 2003
7	David Kirschner	Summer 2003, Fall 2003
6	Tania Thurston	Fall 2002
5	Matt Crim	Summer 2002, Fall 2002
4	John Whitaker	Summer 2002, Fall 2002
3	Brent Ivy	03/02-07/02
2	Merideth Cebelak	06/01-05/02
1	Shannon Mergelsberg	03/01-12/01

Graduate Research Assistants from Departments other than Civil and Coastal Engineering

	Student	**Date**	**Department**
14	Prakriti Vardhan	Summer 2016	Computer Science
13	Prerna Mandal	Fall 2015-Spring 2016	Computer Science
12	Umar Majeed	Spring 2015	Computer Science
11	Vishal Kommala	Spring 2015	Computer Science
10	Arka Bhattacharya	Fall 2012-Spring 2013	Computer Science
9	Milan Jape	Summer 2012	Computer Science

8	Aswin Damodar	June 2011-May 2012	Computer Science
7	Arun Purushan	2010-May 2011	Computer Science
6	Tapan Shah	5/05-8/05	Computer Science
5	Sachin Hegde	9/05-5/05, 9/06-5/06	Computer Science
4	Yogedesh Deshmush	09/03-07/04	Computer Science
3	Vivek Parihiya	09/03-01/04	Information Technology
2	Dilip Gokulram Prabhu	01/02-08/03	Computer Science
1	Ashish Bhalani	06/00-09/01	Computer Science

- Faculty advisor for University Lego Club (Fall 2022-present)
- Faculty advisor for ASCE concrete canoe team (Fall 1999-Summer 2006)
- Faculty advisor for ITE Student Chapter (Fall 2003-Summer 2006)

10.2 Instructional Aid Development

Pop Quiz: Co-developed and manage distribution of Pop Quiz software program for use in classroom. This is a Windows™ program modeled after the popular Jeopardy game show format. The instructor creates custom answer and question files that are read into program and displayed on overhead screen through projection system connected to the computer. The Pop Quiz game is a student favorite. It is used by 100+ instructors around the nation. It is also used by ITE international for their collegiate traffic bowl competition (https://www.ite.org/events-meetings/traffic-bowl).

XXE: Primary developer of latest version. This is a traffic assignment program based on the standard user equilibrium principle. With a defined network and a given origin-destination matrix, XXE assigns traffic flows by setting up the user equilibrium problem as a mathematical program as shown in Equation 8.8 in Mannering and Washburn (2016). See https://github.com/swash17/XXE http://swashware.com/for more information.

SwashSim: See the software development section (8) for more information.

10.3 Courses Taught and Evaluations (Fall 1999 – Fall 2024)

Summary

Course #	Course Title	Credits	Required?	# Taught	Total Enrollment	Course format
CGN 4806	Capstone Design: Transportation – Water – Materials (25%)	3	Yes	1	25	Lecture
TTE 4004 C/L*	Transportation Engineering	4	Yes	4	237	Lecture/Lab
TTE 4004	Transportation Engineering	3	Yes	10	623	Lecture
TTE 5256 / TTE 4201	Traffic Engineering	3	No	7	183	Lecture
TTE 6306 / CGN 6905	Computational Methods in Transportation Engr	3	No	4	40	Lecture
CGN 6905	Advanced Traffic Simulation	3	No	6	68	Lecture
CGN 6905	Statistical and Econometric Methods	3	No	1	9	Lecture
TTE 6205 / CGN 4905, CGN 6905	Freeway Operations and Simulation	3	No	9	131	Lecture
TTE 5805 / TTE 4824	Geometric Design of Transportation Facilities / Transportation Facility Design	3	No	5	101	Lecture
CGN 5315	Civil Engineering Systems	3	No	1	9	Lecture
CGN 3421	Computer Methods	3	Yes	1	20	Lecture
			Total	**49**	**1437**	

* Course switched from 3 credits to 4 in Fall 2011

Evaluations

The rating scale is from 1 to 5, with 5 being the highest rating.

#	Course #	Course Title	Semester	Enrolled	# Responded	Washburn Mean	Dept. Mean	College Mean
49b	CGN 4905	Advanced Traffic Simulation	Fall 2024	6				
49a	CGN 6905	Advanced Traffic Simulation	Fall 2024	17				
48b	CGN 4905	Freeway Operations and Simulation	Spring 2023	5	3	4.72	4.46	4.25
48a	TTE 6205	Freeway Operations and Simulation	Spring 2023	12	7	4.86	N/A	N/A
47b	TTE 4201	Traffic Engineering	Fall 2022	14	7	4.02	4.39	4.26
47a	TTE 5256	Traffic Engineering	Fall 2022	10	8	4.58	4.59	4.51
46b	CGN 4905	Advanced Traffic Simulation	Spring 2022	10	7	4.81	4.44	4.23
46a	CGN 6905	Advanced Traffic Simulation	Spring 2022	4	2	5.00	4.40	4.42
45b	TTE 6205	Freeway Operations and Simulation	Fall 2021	7	4	5.00	N/A	4.56
45a	CGN 4905	Freeway Operations and Simulation	Fall 2021	2	--	--	--	--
44b	TTE 4201	Traffic Engineering	Spring 2021	26	14	3.38	4.13	4.25
44a	TTE 5256	Traffic Engineering	Spring 2021	23	14	4.50	4.25	4.35
43	CGN 4806	Transportation/Water/Materials Capstone Design	Fall 2020	25	--	--	--	--
42b	CGN 4905	Freeway Operations and Simulation	Spring 2020	16	6	4.58	4.31	4.26
42a	TTE 6205	Freeway Operations and Simulation	Spring 2020	21	9	4.46	4.56	4.26
41b	TTE 4201	Traffic Engineering	Fall 2019	5	2	4.25	4.39	4.29
41a	TTE 5256	Traffic Engineering	Fall 2019	30	22	4.42	4.39	4.19
40b	CGN 6905	Advanced Traffic Simulation	Spring 2019	4	--	--	--	--
40a	CGN 4905	Advanced Traffic Simulation	Spring 2019	8	3	4.67	4.2	4.07
39a	TTE 6205	Freeway Operations and Simulation	Fall 2018	5	3	5.00	4.33	4.29
39b	TTE 4905	Freeway Operations and Simulation	Fall 2018	5	--	--	--	--
38a	TTE 5256	Traffic Engineering	Spring 2018	13	10	4.80	4.50	4.16
38b	TTE 4201	Traffic Engineering	Spring 2018	11	6	4.33	4.49	4.07
37a	TTE 6205	Freeway Operations and Simulation	Fall 2017	16	12	4.73	4.67	4.40
37b	CGN 4905	Freeway Operations and Simulation	Fall 2017	3	--	--	--	--
36a	TTE 5256	Traffic Engineering	Spring 2017	17	1	4.00	4.59	4.43
36b	TTE 4201	Traffic Engineering	Spring 2017	13	2	2.00	4.37	4.16
35	TTE 4004	Intro to Transportation Engineering	Spring 2017	117	70	3.74	4.37	4.16
34	TTE 4004	Intro to Transportation Engineering	Fall 2016	48	30	4.13	4.37	4.15
33	TTE 4004	Intro to Transportation Engineering	Fall 2014	41	12	3.67	4.41	4.13
32	CGN 6905	Advanced Traffic Simulation	Spring 2014	8	8	4.63	4.29	4.14
31	TTE 6205	Freeway Operations and Simulation	Fall 2013	6	4	4.50	4.32	4.17
30	CGN 6905	Advanced Traffic Simulation	Spring 2013	4	4	4.50	4.16	4.15
29	TTE 4004	Intro to Transportation Engineering	Fall 2012	31	16	4.13	4.13	4.19
28	TTE 6205	Freeway Operations and Simulation	Spring 2012	6	3	4.67	4.24	4.15
27	TTE 6306	Computational Methods in Trans Engr	Fall 2011	7	6	4.67	4.18	4.17
26	CGN 6905	Advanced Traffic Simulation	Spring 2011	7	6	4.60	4.16	4.11
25	TTE 6205	Freeway Operations and Simulation	Fall 2010	18	17	4.71	4.18	4.21
24	TTE 4004	Intro to Transportation Engineering	Spring 2010	76	51	3.67	4.18	4.17

23	TTE 6306	Computational Methods in Trans Engr	Fall 2009	11	10	4.50	4.10	4.18
22	TTE 4004	Intro to Transportation Engineering	Spring 2009	94	30	4.47	4.04	4.19
21	TTE 4004	Intro to Transportation Engineering	Spring 2007	58	50	4.40	4.18	4.17
20	CGN 6905	Freeway Operations and Simulation	Fall 2006	9	9	4.56	4.27	4.13
19	CGN 6905	Computational Methods in Trans Engr	Spring 2006	5	3	5.00	4.28	4.10
18	TTE 4004	Intro to Transportation Engineering	Fall 2005	76	47	4.34	4.37	4.12
17	CGN 6905	Statistical and Econometric Methods	Spring 2005	9	6	4.00	4.32	4.12
16a	TTE 4824	Transportation Facility Design	Spring 2005	24	21	3.53	4.32	4.12
16b	TTE 5805	Geometric Design of Transportation Facilities	Spring 2005	14	1	3.00	4.32	4.12
15	CGN 6905	Computational Methods in Trans Engr	Fall 2004	17	17	4.11	4.23	4.06
14	TTE 4004	Intro to Transportation Engineering	Fall 2004	65	50	4.46	4.23	4.06
13	TTE 4004	Intro to Transportation Engineering	Spring 2004	89	55	4.02	4.18	4.12
12	TTE 4004	Intro to Transportation Engineering	Fall 2003	56	39	4.21	4.11	4.01
11a	TTE 4824	Transportation Facility Design	Spring 2003	18	17	4.53	4.04	4.01
11b	TTE 5805	Geometric Design of Transportation Facilities	Spring 2003	8	8	4.75	4.04	4.01
10	TTE 4004	Intro to Transportation Engineering	Fall 2002	50	45	4.27	4.00	4.03
9	TTE 5256	Traffic Engineering	Fall 2002	11	11	4.69	4.00	4.03
8	TTE 4004	Intro to Transportation Engineering	Spring 2002	25	20	4.65	4.09	3.96
7	TTE 5805	Geometric Design of Transportation Facilities	Spring 2002	14	14	4.36	4.47	4.30
6	TTE 4004	Intro to Transportation Engineering	Fall 2001	34	30	4.53	3.95	3.94
5	TTE 5805	Geometric Design of Transportation Facilities	Spring 2001	11	11	4.64	4.11	4.06
4	TTE 5256	Traffic Engineering	Fall 2000	10	10	4.45	4.02	3.99
3	CGN 3421	Computer Methods	Summer 2000	20	18	4.00	4.28	4.01
2	TTE 5805	Geometric Design of Transportation Facilities	Spring 2000	12	12	4.50	4.15	4.01
1	CGN 5315	Civil Engineering Systems	Fall 1999	9	8	4.75	3.99	3.97

Notes:
- Fall 2023 & Spring 2024: Did not teach due to being on sabbatical.
- Fall 2020: Course evaluations are not applicable to me, as Dr. Shirish Bhat was lead instructor.
- Spring 2019: Course evaluations were not made available due to small enrollment in section
- Fall 2015 & Spring 2016: Did not teach due to being on sabbatical.
- Did not teach Spring 2015 semester.
- Fall 2012: Employed full implementation of "Inverted Classroom" instructional model for first time.
- Spring 2010: A large number of students in this class were penalized for academic honesty and conduct code violations; thus, students may have factored this into their course evaluations.
- Fall 2008: Did not teach due to neck surgery.
- Fall 2007 & Spring 2008: Did not teach due to being on sabbatical.

11 Research Projects

Funding Agency Abbreviations Key
- CMS: Center for Multimodal Solutions (a USDOT Tier 1 University Transportation Center consortium, with University of Florida serving as the lead university)
- FDOT: Florida Department of Transportation
- FHWA: Federal Highway Administration
- FMRI: Freight Mobility Research Institute (a USDOT Tier 1 University Transportation Center consortium, with Florida Atlantic University serving as the lead university). I served as the principal investigator for the University of Florida's membership in the consortium. See https://www.fau.edu/engineering/research/fmri/ for more information.
- NCHRP: National Cooperative Highway Research Program
- STC: Southeastern Transportation Center (a USDOT Region IV University Transportation Center consortium, with University of Tennessee serving as the lead university)
- STRIDE: Southeastern Transportation Research, Innovation, Development and Education Center (a USDOT Region IV University Transportation Center consortium, with University of Florida serving as the lead university)
- USDOT: United States Department of Transportation

11.1 Active

Role	Agency	Title	Dates	Funding Amount ($)
PI	FHWA	SHRP2 L38 Travel Time Reliability Product Completion	10/27/22-12/31/24	10,400.73

11.2 Completed

Role	Agency	Title	Dates	Total Award ($)	Report #[1]
Co-PI	FMRI	Determination of Position and Operation Analysis of Emergency Freight Parking in Florida State	10/1/20 – 12/30/24	157,922	54
Co-PI	FMRI	Sequential Synchronization Control Scheme for Freeway Truck Platooning Formation	10/1/22 - 12/31/23	100,000	53
PI	FMRI	Two-lane Highway Analysis Methodology Enhancements Considering Commercial Trucks	10/1/18 – 12/31/23	85,000	52
Co-PI	FMRI	Curriculum Development for Highway Freight Transportation	10/1/18 – 12/31/23	25,000	51
PI	NCHRP	Reliability and Quality of Service Evaluation Methods for Rural Highways	12/8/20 – 9/7/23	400,000	50
PI	FDOT	Development of Florida Traffic Characteristics for Service	11/4/2019 – 9/30/2022	234,427	

		Volume Calculations Based on the Latest HCM			
PI	FDOT	Interchange Design to Accommodate Ramp Metering System	1/30/18 – 12/31/20	130,000	49
Investigator (2%)	NCHRP	Highway Capacity Manual Methodologies for Corridors Involving Freeways and Surface Streets	4/2016 – 9/2019	800,000	
Co-PI (3%)	FDOT	Before and After-Implementation Studies of Advanced Signal Control Technologies in Florida	05/07/2014 - 12/31/2018	664,123	
PI	FHWA	Fundamentals of Travel Time Reliability Guide	3/2018 – 1/2020	53,000	48
Co-PI (50%)	FDOT	Commercial Heavy Vehicle Impacts on Signalized Arterial Corridor Performance BDV-25-TWO 977-50	12/2017 – 12/2019	231,677	47
PI	FMRI	Enhancement of Transportation Network Analysis Tools for Truck-related Planning and Operations	10/1/17 – 9/30/18	80,000	46
PI	FDOT	Commercial Truck Parking Detection Technology Evaluation for Columbia County Rest Areas, Part 2	10/1/17 - 4/30/18	29,426	45
PI	NCHRP	Improved Analysis of Two-Lane Highway Capacity and Operational Performance	09/21/2014 - 3/5/2018	544,526	44
Investigator	FHWA	Simplified Highway Capacity Calculation Method for the Highway Performance Monitoring System	10/15/2017		43
PI	FDOT	Commercial Truck Parking Detection Technology Evaluation for Columbia County Rest Areas	4/5/16 – 11/30/16	35,874	42
PI	FHWA	Highway Capacity Manual Enhancement Material, Part 2	08/21/2014 - 02/28/2016	103,225	--
PI	FHWA	Highway Capacity Manual Enhancement Material	08/21/2013 - 08/20/2014	74,825	--
PI	STRIDE	Signalized Intersection Simulation Program for Education	07/01/2012 - 12/31/2013	34,212	41
Co-PI	STRIDE	OBD Data Integration into Traffic Microsimulation	10/01/2013 - 12/31/2014	150,000	40
PI	STRIDE	Emissions Modeling and Integration into Traffic Micro-Simulation	07/01/2012 - 12/31/2013	251,764	39
Co-PI	FDOT	Roundabouts and Access Management	09/20/2012 - 12/31/2013	38,337	38

PI	FDOT	Impact of Lane Closures on Roadway Capacity, Phase 2	04/27/2011 - 09/01/2013	128,753	37
Co-PI	FDOT	Heavy Vehicle Effects on Florida Freeways and Multilane Highways	04/06/2011 - 07/31/2013	103,321	36
PI	FDOT	Central Data Warehouse Enhancements, Part 3	02/20/2012 - 10/30/2012	49,027	35
PI	CMS	Two-Lane Highway Facility Analysis	04/01/2010 - 06/30/2012	70,000	34
PI	FDOT	LOSPLAN 2012: Updates for HCM2010	05/12/2011 - 09/30/2012	86,588	33
Co-PI	FDOT	Variable Speed Limits	07/15/2010 - 08/01/2012	239,779	32
Co-PI	FDOT	Managed Lane Operations	06/09/2009 - 02/12/2012	469,389	31
PI	FDOT	Central Data Warehouse Enhancements, Part 2	03/07/2011 - 10/30/2011	49,771	30
PI	FDOT	Arterial Highway Capacity and Level of Service Analysis	09/21/2010 - 12/31/2011	103,000	29
PI	FDOT	Central Data Warehouse Enhancements	03/18/2010 - 11/30/2010	28,747	28
PI	FDOT	Improvements and Enhancements to LOSPLAN 2009	06/17/2009 - 03/31/2011	90,000	27
Investigator	NCHRP	Production of the Year 2010 Highway Capacity Manual	9/24/2007 - 9/23/2011	1,000,000	--
Investigator	NCHRP	Guidance for the Use of Alternative Traffic Analysis Tools in Highway Capacity Analyses	07/28/2006 - 12/31/2010	299,953	26
PI	CMS	Development of a Simulation Program for Two-Lane Highway Analysis	07/29/2008 - 08/31/2010	50,000	25
PI	FDOT	Investigation of Freeway Capacity	04/30/2008 - 02/28/2010	222,551	24
Co-PI	CMS	Simulation-based Robust Optimization for Signal Timing and Setting	04/01/2008 - 12/31/2009	70,000	23
Co-PI	NCHRP	Proactive Ramp Management Under the Threat of Freeway-Flow Breakdown	10/19/2006 - 12/18/2009	400,000	22
PI	FDOT	Improvements and Enhancements to LOSPLAN 2007	06/21/2007 - 06/30/2009	142,995	21
PI	FDOT	Multimodal Arterial LOS Modeling and Testing	09/17/2008 - 09/30/2010	75,000	20
Co-PI	STC	Analysis of Crashes in Freeway Work Zone Queues DTRS99-G-0004	08/01/2007 - 07/31/2008	25,000	19
PI	FDOT	Impact of Lane Closures on Roadway Capacity	01/11/2006 - 01/31/2008	200,000	18

Co-PI	FDOT	Impact of Trucks on Arterial LOS and Freeway Work Zone Capacity	8/31/04 – 12/31/05	194,780	17
PI	FDOT	Updates and Enhancements to LOSPLAN for the SIS	01/30/2006 - 05/30/2007	165,000	16
Co-PI	FDOT	Travel Time Reliability and Truck Level of Service for the Strategic Intermodal System BD-545-RPWO-48	06/01/2005 - 04/30/2007	152,592	15
PI	STC	Data Collection Needs for Work Zone Incident Investigation	06/01/2005 - 08/31/2006	25,000	14
PI	FDOT	Access Management Guidelines for Interchange Areas	9/2/03 – 2/28/05	86,200	13
PI	FDOT	Improvement of Planning Level Analysis Procedures for Two-Lane Highways	1/7/03 – 8/31/04	97,989	12
Co-PI	FDOT	Bridge Load Rating Methods for Heavy Vehicles	6/11/03 – 3/31/05	108,862	11
PI	FDOT	Facility Performance Model Enhancements, Part 2 BC-354-92	1/16/03 – 8/31/04	135,000	10
PI	FDOT	Pedestrian Countdown Signal Evaluation	9/30/03 – 12/31/04	4,736	9
Co-PI	FDOT	Business Accommodation	12/31/01 – 3/30/04	139,509	8
PI	STC	Red Light Running Factors	9/1/01 – 8/31/02	49,959	7
Co-PI	FDOT	Hardware-in-the-Loop Simulation	10/25/02 – 6/30/04	99,980	--
PI	FDOT	Updates and Enhancements to LOSPLAN BC-354-65	1/1/02 – 9/30/03	184,997	6
PI	FDOT	Facility Performance Model Enhancements BC-354-RPWO-38	1/15/01 – 11/30/02	84,949	5
Co-PI	FDOT	Roadway Lighting	10/30/00 – 7/30/02	100,050	4
PI	FDOT	Multimodal (Truck) Quality of Service BC-354-RPWO-28	9/1/00 – 8/31/01	125,000	3
Investigator	STC	Red Light Running Measurement	8/15/00 – 5/31/01	9,989	2
Investigator	FDOT	Traffic Operations Software Tools	4/1/99-12/30/02	182,503	--
Investigator	FDOT	Benchmark Data Sets	7/9/97-3/31/02	224,816	--
Investigator	FDOT	Florida Intersection Design Guide	9/16/96-11/30/01	148,811	--

12 Service (Currently active committee appointments highlighted)

- Friend of Highway Capacity and Quality of Service Committee (ACP40), Transportation Research Board (TRB) (May 2016-present)
- Member of Highway Capacity and Quality of Service Committee (ACP40), Transportation Research Board (TRB) (April 2006-April 2016)
    - o Chair of the User Liaison Subcommittee, TRB (April 2011-April 2016)
    - o Chair of the Freeways/Multilane Highways Subcommittee, TRB (April 2006-March 2011)
    - o Member, Two-Lane Highways Subcommittee (July 2002-present)
    - o Member, Performance Measures Subcommittee (Jan. 2003-present)
- Friend of Highway Capacity and Quality of Service Committee (ACP40), Transportation Research Board (TRB) (January 2000-March 2006)
- Friend, Committee on Traffic Simulation (ACP80), TRB (Jan. 2017-present)
- Friend, Committee on Traffic Signal Systems (ACP25), TRB (Jan. 2006-present)
- Friend, Committee on Traffic Flow Theory and Characteristics (ACP50), TRB (Jan. 2005-present)
- Friend, Committee on Freeway Operations (ACP20), TRB (Jan. 1996-present)
- Friend, Committee on Information Systems and Technologies, TRB (Jan. 2002-Jan. 2003)

- Airport Cooperative Research Program (ACRP) 7-02 Project Panel member (June 2006-January 2010)
- National Cooperative Highway Research Program (NCHRP) 20-7 Project Panel member (Fall 2002-Fall 2003)
- ASCE Key Contact, https://www.asce.org/keycontacts, (Fall 2017-present)

- Chair, University Transportation and Parking Committee, (June 2022-May 2024)
- Associate Chair, University Transportation and Parking Committee, (Fall 2018-May 2022)
- Member of Climate Action Plan, Transportation Working Group (Spring 2021-Spring 2022)
    - o https://sustainable.ufl.edu/campus-initiatives/energy-climate-action/uf-climate-action/
- Member, University Transportation and Parking Committee (Fall 2004-Fall 2006)
- Member, College of Engineering Honors and Awards Committee (Fall 2019-Summer 2020)
- Member, Internal Steering Committee, Center for Multimodal Solutions for Congestion Mitigation, USDOT Tier 1 University Transportation Center (Fall 2007-Summer 2012)
- Member, Departmental Research Committee (Fall 2001-Spring 2010)
- Member, Departmental Curriculum Committee (Fall 2000-present)
- Member, Departmental Tenure & Promotion Committee (Fall 2009-Summer 2012)
- Member, Departmental ABET Committee (Fall 2005-Spring 2010)
- Member, Departmental Graduate Recruitment and Admissions Committee (Fall 2000-Spring 2001)
- Member of NSF proposal review panel (April 2015)
  Civil, Mechanical and Manufacturing Innovation (CMMI), Civil Infrastructure Systems (CIS)

- Member, FDOT Level of Service (LOS) Task Team. The FDOT has maintained a LOS Task Team for over two decades, and I have been active with this task team since shortly after I started at UF (1999). The role of this task team is to oversee the implementation of the HCM analysis methodologies within Florida. The task team is comprised of representatives from the FDOT central office, FDOT district offices, and several metropolitan planning organizations. My role on this task team is to serve as the lead technical expert regarding the HCM analysis methodologies and provide advice and guidance on application of these methodologies and their extensions and

derivatives based on FDOT-sponsored research projects.

- Taught transportation session of professional engineering exam review course for State Chapter of Florida Engineering Society (August 2007, February 2008)
- Taught transportation session of fundamentals of engineering (FE) exam review course for UF Student Chapter of Florida Engineering Society, (Spring 2003, Fall 2003, Spring 2004, Fall 2004, Fall 2005, Spring 2010, Spring 2017, Fall 2017, Spring 2018, Fall 2018, Spring 2019, Fall 2019, Spring 2020, Fall 2020, Fall 2021)
- Provided guidance to IPPD team on development of parking sensors (Team Faculty Advisor was Dr. Keith Rambo, Electrical and Computer Engineering), Fall 2019

Actively involved with student Outreach Programs (sponsored by the Civil Engineering Department) and Engineering Open Houses; including presentations at elementary school family engineering night, hosting signal lab tours for high school students, UF Gator Computing Camp, and advising the ITE student chapter in engineering week activities.

Reviews performed for the following journals/conferences:
- Computer-Aided Civil and Infrastructure Engineering
- Journal of Advanced Transportation
- Journal of Transportation Engineering – American Society of Civil Engineers
- Transportation Research Record – Transportation Research Board
- Transportation Research Part A (Policy and Practice)– Elsevier Science
- Transportation Research Part B (Methodological)– Elsevier Science
- Transportation Research Part C (Emerging Technologies)– Elsevier Science
- Journal of the Air & Waste Management Association – Harvard School of Public Health
- International Symposium on Enhancing Highway Performance (ISEHP, Berlin 2016)

Research proposal reviews performed for the following University Transportation Centers:
- Mid-Atlantic Transportation Sustainability (Univ. of Virginia)
- PacTrans (Univ. of Washington)
- Rhode Island

13 Conference/Meeting Attendance (Fall 1999 – Present)

13.1 Professional Conferences/Meetings Attended (International locations highlighted)

- August 2024   Highway Capacity and Quality of Service and Traffic Simulation Joint Committee meeting, Raleigh, NC
- January 2024   Highway Capacity and Quality of Service Committee, Annual meeting, Washington, D.C. (remote attendance)
- August 2023   Highway Capacity and Quality of Service Committee, Mid-year meeting, Newport Beach, CA (remote attendance)
- January 2023   102nd Transportation Research Board Meeting, Washington, D.C.
- June 2022   Highway Capacity and Quality of Service Committee, Mid-year meeting, Washington, D.C.
- June 2022   ASCE International Conference on Transportation & Development, Seattle, Washington
- March 2022   7th Annual UTC Conference for the Southeastern Region, **Moderator for Session 1C (Transportation Safety)**, Boca Raton, FL
- March 2022   FAU UTC (FMRI) Advisory Board Meeting, Boca Raton, FL

- January 2022   101st Transportation Research Board Meeting, Washington, D.C.
- December 2021 FAU UTC (FMRI) Advisory Board Meeting (Virtual)
- August 2021   Highway Capacity and Quality of Service Committee, Mid-year meeting, (Virtual)
- June 2021   Florida Puerto Rico ITE District, Summer Meeting, Ft. Lauderdale, FL
- January 2021   100th Transportation Research Board Meeting, Washington, D.C. (Virtual)
- August 2020   Highway Capacity and Quality of Service Committee, Mid-year meeting, (Virtual)
- March 2020   FAU UTC (FMRI) Advisory Board Meeting (Virtual)
- January 2020   99th Transportation Research Board Meeting, Washington, D.C.
- May 2019   FAU UTC (FMRI) Advisory Board Meeting, Memphis, TN
- January 2019   98th Transportation Research Board Meeting, Washington, D.C.
- Sept. 2018   Semana de Transportes e Trânsito (Transport and Transit Week) Belo Horizonte, Brazil
- June 2018   Highway Capacity and Quality of Service Committee, Mid-year meeting, Austin, TX.
- March 2018   FAU UTC (FMRI) Advisory Board Meeting, Boca Raton, FL
- March 2018   ASCE Fly-In, Washington, D.C.
- January 2018   97th Transportation Research Board Meeting, Washington, D.C.
- June 2017   FAU UTC (FMRI) Advisory Board Meeting, Boca Raton, FL
- June 2017   ITE Florida State Section Summer Meeting, Naples, FL
- January 2017   96th Transportation Research Board Meeting, Washington, D.C.
- August 2016   Institute of Transportation Engineers, Annual Meeting, Anaheim, CA
- June 2016   International Symposium on Enhancing Highway Performance, Berlin, Germany
- June 2016   American Society of Engineering Education, Annual Meeting New Orleans, LA.
- January 2016   95th Transportation Research Board Meeting, Washington, D.C.
- June 2015   Highway Capacity and Quality of Service Committee, Mid-year meeting, Little Rock, AR.
- May 2015   Florida LOS Task Force Team Meeting, Orlando, FL.
- January 2015   94th Transportation Research Board Meeting, Washington, D.C.
- Sept. 2014   Transportation Association of Canada (TAC) Conference and Exhibition, Montreal, Quebec.
- June 2014   Highway Capacity and Quality of Service Committee, Mid-year meeting, Lexington, KY.
- February 2014 Florida LOS Task Force Team Meeting, Orlando, FL.
- January 2014   93rd Transportation Research Board Meeting, Washington, D.C.
- Nov. 2013   Florida Automated Vehicles Summit, Tampa, FL.
- July 2013   Highway Capacity and Quality of Service Committee, Mid-year meeting, Brooklyn, NY.
- January 2013   92nd Transportation Research Board Meeting, Washington, D.C.
- June 2012   Highway Capacity and Quality of Service Committee, Mid-year meeting, Ft. Lauderdale, FL.
- June 2012   American Society of Engineering Education, Annual Meeting San Antonio, TX.
- January 2012   91st Transportation Research Board Meeting, Washington, D.C.
- August 2011   UF Transportation Research Center meeting on CORSIM, Orlando, FL.
- July 2011   6th International Symposium on Highway Capacity and Quality of Service, Stockholm, Sweden.

- June 2011   Alabama Section ITE annual meeting, Gulf Shores, AL.
- March 2011   Florida LOS Task Force Team Meeting, Orlando, FL.
- February 2011   Florida Section ITE meeting, Orlando, FL.
- January 2011   90th Transportation Research Board Meeting, Washington, D.C.
- August 2010   International Chinese Conference of Transportation Professionals (ICCTP), Beijing, China.
- August 2010   UF Transportation Research Center meeting on Highway Capacity Manual 2010, Orlando, FL.
- August 2010   Florida LOS Task Force Team Meeting, Orlando, FL.
- May 2010   Innovations in the Pricing of Transportation Systems, Orlando, FL.
                  Also served as a session chair.
- January 2010   89th Transportation Research Board Meeting, Washington, D.C.
- June 2009   Transportation Education Conference, Portland, OR.
- June 2009   Highway Capacity and Quality of Service Committee, Mid-year meeting, Newport Beach, CA.
- January 2009   88th Transportation Research Board Meeting, Washington, D.C.
- July 2008   The International Federation of Operational Research Societies (IFORS), Sandton, South Africa.
- July 2008   Highway Capacity and Quality of Service Committee, Mid-year meeting, Newport Beach, CA.
- February 2008   Visit to Helsinki University of Technology (now Aalto University) and Universidad Politécnica de Madrid (Technical University of Madrid) as part of sabbatical activities
- January 2008   87th Transportation Research Board Meeting, Washington, D.C.
- Sept. 2007   FDOT Research Symposium, Orlando, FL.
- July 2007   Highway Capacity and Quality of Service Committee, Mid-year meeting, Charlotte, NC.
- May 2007   Florida LOS Task Force Team Meeting, Orlando, FL.
- January 2007   86th Transportation Research Board Meeting, Washington, D.C.
- Nov. 2006   TRANSPO 2006 conference, Palm Harbor, FL.
- August 2006   Florida LOS Task Force Team Meeting, Orlando, FL.
- July 2006   5th International Symposium on Highway Capacity and Quality of Service, Yokohama, Japan.
- March 2006   Florida LOS Task Force Team Meeting, Orlando, FL.
- January 2006   85th Transportation Research Board Meeting, Washington, D.C.
- Nov. 2005   ITE Florida State Section Annual Meeting, Daytona Beach, FL.
- August 2005   Florida LOS Task Force Team Meeting, Daytona Beach, FL.
- July 2005   Highway Capacity and Quality of Service Committee, Mid-year meeting, Las Vegas, NV.
- May 2005   Florida LOS Task Force Team Meeting, Daytona Beach, FL.
- March 2005   Technical Exhibition and Conference, Institute of Transportation Engineers, Las Vegas, NV.
- January 2005   84th Transportation Research Board Meeting, Washington, D.C.
- Dec. 2004   TRANSPO 2004 conference, Jacksonville, FL.
- Sept. 2004   TRANSTEC 2004 conference, Athens, Greece.
- August 2004   Annual Meeting of the Institute of Transportation Engineers, Orlando, FL.
- July 2004   Transportation Research Board Highway Capacity and Quality of Service Committee, Mid-year meeting, State College, PA.
- February 2004   Florida LOS Task Force Team Meeting, Daytona Beach, FL.

- January 2004   83rd Transportation Research Board Meeting, Washington, D.C.
- October 2003   Florida LOS Task Force Team Meeting, Daytona Beach, FL.
- Sept. 2003   Transplex conference, Orlando, FL.
- August 2003   Annual Meeting of the Institute of Transportation Engineers, Seattle, WA.
- July 2003   Transportation Research Board Highway Capacity and Quality of Service Committee, Mid-year meeting, Atlanta, GA.
- May 2003   Florida Special Use Lanes Task Team Meeting, Orlando, FL.
- February 2003   Florida LOS Task Force Team Meeting, Orlando, FL.
- January 2003   82nd Transportation Research Board Meeting, Washington, D.C.
- October 2002   Florida LOS Task Force Team Workshop, Miami, FL.
- June 2002   Transportation Research Board Highway Capacity and Quality of Service Committee, Mid-year meeting, Milwaukee, WI.
- February 2002   Florida LOS Task Force Team Workshop, Orlando, FL.
- January 2002   81st Transportation Research Board Meeting, Washington, D.C.
- March 2001   Florida LOS Task Force Team Workshop, Tallahassee, FL.
- February 2001   ITE Florida State Section Spring Meeting, Altamont Springs, FL.
- January 2001   80th Transportation Research Board Meeting, Washington, D.C.
- Nov. 2000   ITE Florida State Section Annual Meeting, Clearwater, FL.
- October 2000   Florida LOS Task Force Team Meeting, Orlando, FL.
- April 2000   Transpo 2000 conference, Kissimmee, FL.
- January 2000   79th Transportation Research Board Meeting, Washington, D.C.
- Nov. 1999   ITE Florida State Section Annual Meeting, Tallahassee, FL.

13.2 Workshops Attended

- December 2022 NSF Workshop: Integrating AI in Transportation Infrastructure System Education and Workforce Development Phase II (**Session Moderator**), Gainesville, FL
- July 2012   NSF/FHWA Transportation Engineering Education Workshop Seattle, WA.
- Sept. 2001   Workshop on Next Generation of Traffic Models, Tucson, AZ.
- Feb. 2001   Teaching and Learning in the Engineering Classroom, Gainesville, FL. Sponsored by The Succeed Coalition of the National Science Foundation.
- June 2000   ITE/ITS Workshop: Transportation Systems Management and Operations, Ft. Lauderdale, FL.
- June 2000   National Effective Teaching Institute, ASEE, St. Louis, MO.
- August 1999   Effective Teaching Workshop, SUCCEED (NSF), Gainesville, FL.

13.3 Other Conferences Attended

- June 2019   ASCE National Concrete Canoe Competition, Florida Institute of Technology, Melbourne, FL
- March 2006   ASCE Student Chapter Regional Competition, University of Florida, Gainesville, FL
- June 2005   ASCE National Concrete Canoe Competition, Clemson University, Clemson, SC
- March 2004   ASCE Student Chapter Regional Competition, University of South Florida, Tampa, FL
- June 2002   ASCE National Student Conference, University of Wisconsin, Madison, WI
- March 2002   ASCE Student Chapter Regional Competition, Florida State University, Tallahassee, FL

- March 2001   ASCE Student Chapter Regional Competition, Auburn University, Auburn, AL
- June 2000   ASCE National Concrete Canoe Competition, Colorado School of Mines, Golden, CO
- March 2000   ASCE Student Chapter Regional Competition, Tennessee Technological University, Cookeville, TN

14 Honors and Awards

- Transportation Research Board, Winner of the 2024 Highway Capacity and Quality of Service Committee Best Paper Award. *Motivations and Constraints for Rural Cycling Based on User Perception: Recommendations for Bicycle Analysis Procedures*. Ana Tsui Moreno, Santiago Linares-Ramirez, Scott S. Washburn, Ahmed F. Al-Kaisy, Jorge Andres Barrios, Bastian J. Schroeder.
- Transportation Research Board Blue Ribbon Award for Highway Capacity and Quality of Service committee. I was a committee member during the period recognized for the award. http://www.trb.org/AboutTRB/BlueRibbonAwards.aspx. 2016
- Doctoral Dissertation Advisor/Mentoring Award, UF College of Engineering, 2014-2015
- Exemplary Ecosystem Initiative, Federal Highway Administration, "For Exceptional Environmental Stewardship" for work performed on *Evaluation of the Safety and User Response to Embedded Roadway Lighting Systems on an FDOT Demonstration Project.* October 2011
- Post, Buckley, Schuh & Jernigan (PBS&J) Term Professorship, 2006-2010
- *Signalized Intersection Delay Estimation: Case Study Comparisons of Transyt-7F, Synchro, and HCS.* Institute of Transportation Engineers Journal, Washington, D.C., Vol. 72, Issue 3, March 2002, pp. 30-35. Awarded Best ITE Journal Paper of 2002 by District 6 ITE (co-author is a member of District 6), at 2003 ITE International Meeting (Seattle, WA).
- *Signalized Intersection Delay Estimation: Case Study Comparisons of Transyt-7F, Synchro, and HCS*, District 10 Annual ITE Meeting (Tallahassee, FL), 1999
  Awarded Best Presentation of Meeting