

## *Dr. Yi Qi*

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### **RESEARCH INTERESTS**

- Mobile source emission modeling and air quality assessment
- Traffic safety and crash analysis
- Roadway geometric design
- Traffic signal design and operational analysis
- GIS based system design and analysis

### **EDUCATION**

- Ph.D., Transportation Planning and Engineering, Department of Civil Engineering, New York University at Polytechnic Institution, December 2002
- M.S., Probability and Statistics, Department of Statistics, East China Normal University, Shanghai, P.R. China, July 1999
- B.S., Mathematics, Department of Mathematics, East China Normal University, Shanghai, P.R. China, July 1996

### **TEACHING ASSIGNMENTS**

- TMGT 865 Traffic Signals and Signal Control
- TMGT 882 Geographical Information Systems for Transportation

### **SELECTED RESEARCH FUNDING**

1. **PI:** Preparing technically savvy homeland security professionals for maritime transportation security, Department of Homeland Security Award Number 2014-ST-062-000057, 2014-2019, \$800,000
2. **PI:** Systematically evaluate the impacts of traffic condition information on the reduction of on-road mobile emissions (TranLIVE University Transportation Center Project, 2012-2014).
3. **PI:** Safety Performance of Different Types of Freeway Weaving Segments (Southwest Region Transportation Research Center Project, 2012-2014).
4. **PI:** Left-Turn Lanes at Unsignalized Median Openings (Southwest Region Transportation Research Center Project, 2012-2013).
5. **PI:** Use of Directional Median Openings on Urban Roadways (Southwest Region

Transportation Research Center Project, 2012-2013).

6. **PI:** Design and Scope of Impact of Auxiliary Lanes (Texas Department of Transportation research project 0-6706, 2011-2013).
7. **PI:** Reduction of Motorists' Delay and Crash Potential Upstream of Highway Work Zones (Texas Department of Transportation research project, Number: 0-6704, 2011-2013 TSU support, UT/CTR lead).
8. **PI:** Examining the Use of Existing Public Rights-of-Way for High-Speed Rail or Other Infrastructure (Texas Department of Transportation research project, Number: 0-6698, 2011-2013, TSU support, UT Arlington lead).
9. **PI:** Development of Guidelines for Operationally Effective Raised Medians and the Use of Alternative Movements on Urban Roadways (Texas Department of Transportation research project 0-6644, 2010-2012).
10. **PI:** Development of Warrants for Installation of Dual Right-Turn Lanes at Signalized Intersections (Southwest Region Transportation Research Center (SWUTC) Project, 2010-2011).
11. **PI:** Use of Flashing Yellow Operations to Improve Safety at Signals with Protected-Permissive Operations (Texas Department of Transportation research project Number: 0-6585, 2009-2011).
12. **PI:** Investigate Existing Non-Intrusive Inspection (NII) Technologies for Port Cargo Inspections (Southwest Region Transportation Research Center Project, SWUTC 161042, 2009-2010).
13. **PI:** Development of Guidelines for Triple Left and Dual Right-Turn Lanes (Texas Department of Transportation research project, Number: 0-6611, 2008-2010).
14. **PI:** Preserving Functionality / Asset Value of the State Highway System (Texas Department of Transportation research project, Number: 0-6208, 2008-2009).
15. **PI:** Development of Pedestrian Safety Based Warrants for Permissive Left-Turn Control (Southwest Region Transportation Research Center Project, SWUTC 169302, 2008-2009).
16. **Co-PI:** Development of Left-Turn Operations Guidelines at Signalized Intersections (Texas Department of Transportation research project, Number: 0-5840, 2006-2008).
17. **PI:** Vehicle Infrastructure Integration (VII) Based Road-Condition Warning System For Highway Collision Prevention (Southwest Region Transportation Research Center Project, SWUTC 476660-00043, 2006-2008).
18. **Co-PI**

### **SELECTED SCIENTIFIC JOURNAL PAPERS**

1. Chen X., **Y. Qi**, and Y. Lu, "Safety Impacts of Using Short Left-Turn Lanes at Unsignalized Median Openings", accepted for publication in Transportation Research Record: Journal of Transportation Research Board series, 2014.
2. Chen X., **Y. Qi**, D. Li and Y. Wang, "Dual Right-Turn Lanes in Mitigating Weaving Conflicts at Frontage Road Intersections in Proximity to Off-Ramps", accepted for publication in Journal of Transportation Planning and Technology, 2014.

3. Wang, Y., K. Cheu, **Y. Qi**, X. Chen, “Operational Impacts of Auxiliary Lanes at Freeway Weaving Segments”, accept for publication in *Transportation Research Circular*, 2014.
4. Wang, Y., R. Cheu, **Y. Qi**, and X.Chen. Operational Benefits of Auxiliary Lanes at Isolated Freeway On-ramp Junctions. *Journal of Transportation of ITE*, 2013
5. **Qi ,Y.** , Y.Salehi and Y. Wang, “Investigate Existing Non-Intrusive Inspection (NII) Technologies For Port Cargo Inspections By Discrete-Event Simulation Modeling Approach”, *Transportation Research Record*, Volume 2330, pp 80-86, 2013
6. Chen X., **Y. Qi**, and G. Liu, “Empirical Study of Gap-Acceptance Behavior of Right-Turn-on-Red Drivers on Dual Right-Turn Lanes”, *ASCE's Journal of Transportation Engineering*, Volume 139, Issue 2, 2013.
7. **Qi ,Y.** and P. Yuan , “Pedestrian Safety Under Permissive Left-Turn Signal Control”, *Transportation Research Record*, Volume 2299, pp 91-100, 2013
8. Chen X. , **Y. Qi** , and D. Li , “Estimating Right Turn on Red Capacity for Dual Right-Turn Lanes at Signalized Intersections”, *Transportation Research Record*, Volume 2286, pp 29-38, 2012
9. **Qi ,Y.,** R. Srinivasan, H. Teng and R. Baker, “Analysis of The Frequency And Severity Of Rear-End Crashes in Work Zones”, *Traffic Injury Prevention*, Volume 14(1), pp 61-72, 2013.
10. **Qi ,Y.,** L. Guo, L. Yu and H. Teng, “Estimation of Design Lengths of Left-turn Lanes”, *ASCE's Journal of Transportation Engineering*, accept for publication, 2011
11. **Qi ,Y.,** X. Chen, A. Guo and L. Yu, “A New Analytical Approach To Estimating The Operational Benefit And The Safety Cost Of Protected/Permissive Left-Turn Signal Control Mode”, *Transportation Research Record*, Volume 2149, pp 37-49, 2010
12. Yu.L., X. Zhang, F. Qiao and **Y. Qi**, “GA-based Approach for the development of driving schedules for evaluating greenhouse Gas emissions from light-duty vehicles”, accepted for publication at *Transportation Research Record*, 2010
13. **Qi, Y.,** H. Teng, D.R. Martinelli, “An Investigation of Incident Frequency, Duration and Lanes Blockage for Determining Traffic Delay”, *Journal of Advanced Transportation*, Vol. 43, No. 3, pp. 275-299, 2009
14. **Qi, Y.** and H. Teng, “An Information-Based Time Sequential Approach to On-Line Incident Duration Prediction”, *Journal of Intelligent Transportation Systems*, Vol. 2, No. 1, 2008
15. Yu, L., Z. Wang, F. Qiao, and **Y. Qi**, “Vehicle Emission Characteristics-based Approach to the Development and Evaluation of Driving Cycles for Classified Roads”, *Transportation Research Record*, Volume 2058, pp 58-67, 2008
16. Yu, L., L. Yu, **Y. Qi**, J. Wang, and H. Wen. Traffic Incident Detection Algorithm for Urban Expressways based on Floating Car Data. *Journal of Transportation Systems Engineering and Information*. Vol. 8, No. 4: 36-41, 2008.
17. H. Teng , **Qi, Y.** and D. Martinelli, “Parking Difficulty and Parking Information System Technologies and Costs”, *Journal of Advanced Transportation*, Vol. 42, No. 2, 2008
18. **Qi, Y.,** L. Yu and M. Azimi, “Determination of Storage Lengths of Left-Turn Lanes at Signalized Intersections”, *Transportation Research Record*, Volume 2023, pp 102-111, 2007
19. **Qi, Y.** and B. Smith, J. Guo “Freeway Accident Probability Prediction Using a Panel Data Analysis Approach,” *ASCE's Journal of Transportation Engineering*, Volume 133, Number 3, pp. 149-156, 2007.
20. **Qi ,Y.,** Y. Tang and B. Smith, “Video-Based Automated Identification Of Freeway Shoulder Events”, *Transportation Research Record*, Volume 1972, pp 46-53, 2006

21. Park, H., **Y. Qi**, and B. Smith, “A New Methodology for the Development of Regional Vehicle-Mapping Tables for the MOBILE Emission Model”, National Research Council, *Transportation Research Record*, Volume 1987, pp 92-102, 2006

## **SELECTED PRESENTATIONS**

1. **Qi ,Y.**, X. Chen, and G. Liu, “Operational and Safety Impacts of Directional Median Opening on Urban Roadways: Case Study in Houston, Texas”, accept for presentation and publication in the proceedings of the 92<sup>th</sup> Annual Meeting of *Transportation Research Board* , Washington, DC, Jan 12-16, 2014
2. **Qi, Y.**, A. Padiath, and L. Yu. “Development Of Operating Mode ID Distributions For Different Types Of Roadways Under Different Congestion Levels For Vehicle Emission Assessment Using Moves”, accept for presentation and publication in the proceedings of the 92<sup>th</sup> Annual Meeting of *Transportation Research Board* , Washington, DC, Jan 12-16, 2014.
3. **Qi ,Y.** and Z. Qun. “Safety Impacts of Signalized Lane Merge Control at Highway Work Zones”, accept for presentation and publication in the proceedings of the 92<sup>th</sup> Annual Meeting of *Transportation Research Board*, Washington, DC, Jan 12-16, 2014.
4. **Qi ,Y.** and A. Gou. “Pedestrian Safety under Permissive Left-Turn Signal Control”, accept for presentation and publication in the proceedings of the 92<sup>th</sup> Annual Meeting of *Transportation Research Board*, Washington, DC, Jan 12-16, 2014.
5. **Qi ,Y.** M. Azimi and L. Yu , “Safety Impacts Of Increasing Lengths Of Left-Turn Lanes”, accept for presentation and publication in the proceedings of the 92<sup>th</sup> Annual Meeting of *Transportation Research Board* , Washington, DC, January 13-17, 2013
6. **Qi ,Y.** Y. Wang, S. Chen and L. Yu , “Safety Issues In The Design Of Dual Right-Turn Lanes”, accept for presentation and publication in the proceedings of the 92<sup>th</sup> Annual Meeting of *Transportation Research Board* , Washington, DC, January 13-17, 2013
7. Chen X. , **Y. Qi** , G. Liu and J. Wu, “Operational and Safety Effects of Using Left-Turn Lanes with Substandard Lengths at Unsignalized Median Openings: Case Study in Houston, Texas”, accept for presentation and publication in the proceedings of the 92<sup>th</sup> Annual Meeting of *Transportation Research Board* , Washington, DC, January 13-17, 2013
8. **Qi ,Y.** and P. Yuan , “Pedestrian Safety Under Permissive Left-Turn Signal Control”, Presented and published in proceedings of the 91<sup>th</sup> Annual Meeting of *Transportation Research Board* , Washington, DC, January 22-26, 2012.
9. **Qi ,Y.** and D. Li , “When Should Right Turn on Red (RTOR) Be Used? Synthesis on the Safety of RTOR”, Presented and published in proceedings of the 91<sup>th</sup> Annual Meeting of *Transportation Research Board* , Washington, DC, January 22-26, 2012
10. **Qi ,Y.** , M. Zhang, Y. Wang and X. Chen , “Safety Performance of Flashing Yellow Arrow Signal Indication”, Presented and published in proceedings of the 91<sup>th</sup> Annual Meeting of *Transportation Research Board* , Washington, DC, January 22-26, 2012
11. **Qi ,Y.** , P. Yuan, X. Chen and M. Zhang , “Safety of Flashing Yellow Arrow Indication with Protected - Permissive Left - Turn (PPLT) Operation”, Presented and published in proceedings of the 91<sup>th</sup> Annual Meeting of *Transportation Research Board* , Washington, DC, January 22-26, 2012.
12. Chen X. , **Y. Qi** , and D. Li , “Estimating Right Turn on Red Capacity for Dual Right-Turn Lanes at Signalized Intersections”, Presented and published in proceedings of the 91<sup>th</sup> Annual Meeting of *Transportation Research Board* , Washington, DC, January 22-26, 2012.
13. **Qi ,Y.** and Y. Wang , “Review of Available Non-Intrusive Inspection (NII) Technologies for Port Cargo Inspection”, Presented and published in proceedings of the 89<sup>th</sup> Annual Meeting of *Transportation Research Board* , Washington, DC, January 10-14, 2010.
14. X. Chen, **Qi ,Y.** and L. Yu, “Application Of Vehicle Infrastructure Integration (VII) Technology For Work Zone Collision Prevention”, Presented and published in proceedings of

- the 89<sup>th</sup> Annual Meeting of *Transportation Research Board* , Washington, DC, January 10-14, 2010.
15. **Qi, Y.**, H. Yu and L. Yu, “Development Of Traffic Volume Based Criteria For Left-Turn Signal Control Mode Selection”, Presented and published in proceedings of the 89<sup>th</sup> Annual Meeting of *Transportation Research Board* , Washington, DC, January 10-14, 2010.
  16. **Qi, Y.**, B. Wang and L. Yu, “Vehicle Infrastructure Integration (VII) Based Highway Lane Change Warning System For Collision Prevention”, Presented and published in proceedings of the 88<sup>th</sup> Annual Meeting of *Transportation Research Board* , Washington, DC, January 11-15, 2009.
  17. **Qi, Y.**, L. Yang and L. Yu, “Vehicle Infrastructure Integration-Based Driver Warning System for Run-Off-Road Crash Prevention”, Presented and published in proceedings of the 88<sup>th</sup> Annual Meeting of *Transportation Research Board* , Washington, DC, January 11-15, 2009.
  18. **Qi, Y.**, L. Guo and L. Yu, “Safety Impacts of Left-Turn Phasing Sequence”, Presented and published in proceedings of the 88<sup>th</sup> Annual Meeting of *Transportation Research Board* , Washington, DC, January 11-15, 2009.
  19. **Qi, Y.**, H. Yu and L. Yu, “Guidelines for Selecting Left-Turn Signal Control Mode”, Presented and published in proceedings of the 88<sup>th</sup> Annual Meeting of *Transportation Research Board* , Washington, DC, January 11-15, 2009.
  20. **Qi, Y.**, L. Guo, L. Yu, and H. Teng “Estimation of Design Lengths of Left-turn Lanes”, Presented and published in proceedings of the 88<sup>th</sup> Annual Meeting of *Transportation Research Board* , Washington, DC, January 11-15, 2009.
  21. **Qi, Y.**, C. Guo and L. Yu, “Impacts of Signal Phasing Sequence on Left-Turn Operation”, Presented and published in proceedings of the 87<sup>st</sup> Annual Meeting of *Transportation Research Board*, Washington, DC, January , 2008
  22. Yu, L., S. Jia, F. Qiao, and **Y. Qi**. Research On Transportation Related Emissions: Current Status And Future Directions. 87th Transportation Research Board Annual Meeting CD-ROM, Washington, DC, Jan 2008

### **SELECTED TECHNICAL REPORTS PUBLISHED**

1. **Qi, Y.**, X. Chen, L. Yu, H. Liu, G. Liu, D. Li, K. Persad, and K. Pruner, “Development Of Guidelines For Operationally Effective Raised Medians And The Use Of Alternative Movements On Urban Roadways”, Report No. TxDOT 0-6644-1, final report to Texas Department of Transportation (*TxDOT*), 2013
2. **Qi, Y.**, X. Chen, L. Yu, Y. Wang, M. Zhang, P. Yuan and K. Persad, “Use of Flashing yellow operations to improve safety at signals with protected-permissive left-turn (PPLT) operations”, Report No. TxDOT 0-6568-1, final report to Texas Department of Transportation (*TxDOT*), 2012
3. **Qi, Y.**, X. Chen, L. Yu, Y. Wang, M. Zhang, P. Yuan, “Training Strategies and Materials”, Report No. TxDOT 0-6568-2, research report to Texas Department of Transportation (*TxDOT*), 2012.
4. **Qi, Y.** and Y. Salehi and Y. Wang “Investigate Existing Non-Intrusive Inspection (NII) Technologies for Port Cargo Inspections”, Research Report for the Southwest Region University Transportation Center (SWUTC), Report number: SWUTC/11/ 161042-1, (63 pages), 2011 <http://swutc.tamu.edu/publications/technicalreports/161042-1.pdf>
5. Qi. Y., X. Chen, and D. Li, “Development of Warrants for Installation of Dual Right-Turn Lanes at Signalized Intersections”, Research Report for the Southwest Region University

Transportation Center (SWUTC), Report number: SWUTC/12/ 161141-1, (121 pages), 2012  
<http://swutc.tamu.edu/publications/technicalreports/161141-1.pdf>

6. Cooner, S., S. Ranft, Y. Rathod, **Y. Qi**, L. Yu, Y. Wang, and S. Chen, “Development Of Guidelines For Triple Left And Dual Right turn Lanes”, Report No. TxDOT 0-6112-1, final report to Texas Department of Transportation (*TxDOT*), 2011
7. **Qi. Y** and A. Guo, “Development of Pedestrian Safety Based Warrants for Permissive Left-Turn Control”, Research Report for the Southwest Region University Transportation Center (SWUTC), Report number: SWUTC/10/ 169302-1, (58 pages), 2010  
<http://swutc.tamu.edu/publications/technicalreports/169302-1.pdf>
8. Hard, E.N, B.S. Bochner, Y. Li, **Y. Qi**, I. Damjanovic, and W.E. Frawley, “Preserving Functionality / Asset Value of the State Highway System”, Report No. TxDOT 0-6208-1, final report to Texas Department of Transportation (*TxDOT*), 2010.
9. Lei Y., **Y. Qi**, H. Yu, L. Guo and C. Chen, “Training Strategies and Materials”, Report No. TxDOT 0-5840-2, research report to Texas Department of Transportation (*TxDOT*), 2008.
10. Lei Y., **Y. Qi**, H. Yu, L. Guo and C. Chen, “Development of Left-Turn Operations Guidelines at Signalized Intersections”, Report No. TxDOT 0-5840-1, research report to Texas Department of Transportation (*TxDOT*), 2008.
11. Lei Y., **Y. Qi**, M. Azimi, L. Guo and C. Guo., “Left-turn Lane Design and Operation”, Report No. TxDOT 0-5290-1, research report to Texas Department of Transportation (*TxDOT*), 2007.
12. **Qi. Y**, X. Chen, L. Yang B. Wang and L. Yu, “Vehicle Infrastructure Integration (VII) Based Road-Condition Warning System for Highway Collision Prevention”, Research Report for the Southwest Region University Transportation Center (SWUTC), Report number: SWUTC/09/ 476660-00043-1, (83 pages), 2009  
<http://swutc.tamu.edu/publications/technicalreports/476660-00043-1.pdf>

## **OTHER SERVICES AND MEMBERSHIPS**

1. **Member** on the Transportation Research Board (TRB) ABE40 Committee - Critical Transportation Infrastructure Protection, under the National Academies ,2007- present
2. **Member** on the Transportation Research Board (TRB) ABJ70 Committee - Artificial Intelligence and Advanced Computing Applications, under the National Academies ,2007-present
3. **Vice Chair** for the Transportation Research Board(TRB) TETT (Training, Education, and Technology Transfer) Subcommittee, 2006- 2012
4. **Chair** for the paper review Subcommittee for Transportation Research Board(TRB) ABE40, 2013- present
5. **Associate Editor** for 15<sup>th</sup> IEEE ITS Conference, 2012
6. **Member** on Advisory Board of Houston National Summer Transportation Institute (HNSTI)