

## Asst. Prof. Dr. Thirayoot Limanond

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### EDUCATION

<b>Ph.D.</b> Civil Engineering, University of California, Davis Major in Transportation Engineering, Minor in Statistics	2001
<b>M.S.</b> Civil Engineering, Arizona State University Major in Traffic Engineering	1997
<b>B.Eng.</b> Civil Engineering, Chulalongkorn University, Bangkok	1994

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### WORK EXPERIENCE

**Acting Head** Oct 2009 - Present  
**School of Transportation Engineering, Suranaree U. of Technology**  
Nakorn Ratchasima, Thailand

- Administer the undergraduate and the graduate programs of the school (currently with 200+ undergraduate students and 20+ graduate students),
- Coordinate, manage and supervise all activities related to the school of transportation engineering.

**Assistant Professor** Dec 2007 - Present  
**Lecturer** Dec 2005 - Nov 2007  
**School of Transportation Engineering, Suranaree U. of Technology,**  
Nakorn Ratchasima, Thailand

- Teach undergraduate and graduate courses in School of Transportation Engineering,

**Undergraduate courses:**

- Pavement Design
- Urban and Regional Planning
- Transportation Management and Logistics
- Transport Administration and Policy Analysis
- Environmental Analysis in Transportation Systems

**Graduate courses:**

- Traffic Management
- Advanced Traffic Engineering
- Analysis and Plan of Mass Transit Systems

- Advanced Pavement and Airfield Design
- Advanced Statistical Methods for Transportation Engineering

**Class evaluation by students in the past four years: 3.76 out of 4.00  
(3.62 for undergraduate courses, 3.85 for graduate courses)**

- Conduct research on sustainable transport, travel demand, transportation planning, traffic engineering, transport energy planning, intelligent transportation system
- Provide consultancy service to various government offices:
  - Co-develop a traffic and transport master plan for Saraburi, Lopburi, Chaiyabhum, Surat Thani and Satun Municipalities.
  - Propose engineering improvement measures on selected rural highways to improve road safety.
  - Supervise an accident investigation unit in the school
  - Develop a procedure to utilize probe-based traffic data to represent the performance on road segments.
  - Propose an appropriate transportation system to connect Songkla-Had Yai
  - Formulate a model framework to estimate vehicle kilometers of travel by provinces

**Asia Project Coordinator**

Sep 2005 - Dec 2009

**GTZ – Sustainable Urban Transport Project, Bangkok, Thailand**

- Promoted sustainable urban transport in Asia by offering expert opinions and conducting training courses for various municipalities.
- Formulated the concept, and develop a proposal to pursue international grants for financing appropriate sustainable transport projects for cities.

**Senior Traffic Engineer**

Feb 2004 - Aug 2005

**PlanPro Co., Ltd, Nonthaburi, Thailand**

- Forecasted and evaluate traffic impact of two major road improvement projects in inner Bangkok, including the widening of Ratchadapisek Road between Petchaburi Road and Sukhumvit Road from existing 4 lanes to 6 lanes, and the construction of a new arterial connecting Ratchadapisek Road and Sarasin Road.
- Provided consulting service to the Royal Police Office of Thailand, to prepare a technical specification of the Red Light Enforcement Camera project. The project is to install such enforcement system at 30 major intersections in Bangkok.

- Developed a conceptual plan of two ITS systems to facilitate the operation of the proposed bus rapid transit (BRT) services in the Bangkok Metropolitan Area. Those ITS systems are Transit Signal Priority and Passenger Information System.
- Developed a master plan for a traffic information system, reporting real-time traffic conditions on major surface arterials in Bangkok.
- Forecasted and evaluated traffic impact due to an opening of a new checkpoint (the Ban Prakob area) on the Thailand-Malaysia border.

**Senior Transportation Engineer**

Nov 2000 - Dec 2003

**TJKM Transportation Consultants**, Pleasanton, CA, US

- Evaluated short-term and long-term traffic impacts of a proposed development (*e.g.*, a shopping center, a residential subdivision, a hospital) to the nearby roadway system, and determine appropriate mitigation for the locations that would be significantly impacted.
- Developed signal coordination plans along main corridors in various jurisdictions in the San Francisco Bay Area.
- Gave advices to a number of public agencies, regarding traffic/transportation issues:
  - Suggest traffic calming devices on busy residential streets,
  - Recommend a posted speed limit for main road segments,
  - Develop a signal timing plan for new signalized intersections,
  - Determine time/day to close a freeway for construction/maintenance.
- Developed citywide travel speed monitoring system using GPS data and GIS application, and implement it for various Cities/Counties in California and Nevada.

**Post Graduate Researcher**

Jan 1998 - Sep 2002

**Institute of Transportation Studies**, University of California at Davis, US

- Performed policy testing; investigate how travelers would change their behavior in response to transportation policies.
  - Studied the impacts of regional setting, intra-neighborhood location on shopping travel behaviors of traditional neighborhood residents, using a nested logit model (Ph.D. dissertation).
- Conducted research on travel demand and vehicular pollution emission.

-Developed a new way to estimate travel activity on unpaved roads for each California County using the combination of GIS and statistical methods,  
-Analyzed the variability in the three methods of collecting driving data and suggested the best protocol for future use.

- Served as a local GIS expert.
  - guided colleagues to use GIS applications for their research.

**Class Reader**

Jan 1997 - May 1997

**Civil and Environmental Engineering Department**, Arizona State University,  
Tempe, AZ, US

- Prepared handouts and graded assignments for Highway Geometric Design.

**Consulting Engineer**

Aug 1994 - Jun 1995

**TT Planning & Design Co., Ltd.**, Bangkok, Thailand

- Acquired and analyzed traffic data for various projects aiming to alleviate traffic congestion in the Metropolitan Bangkok and other main cities in Thailand.
- Coded a City roadway network into a transportation planning software, SATURN.
- Translated the concepts of Traffic Engineering and Travel Demand Modeling Process from English textbooks into Thai.

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**COMPUTER SKILLS**

Platform: PC, MAC, UNIX

Languages: MATLAB, C++, AML (Arc Macro Language), AVENUE

Software: MS Office, MATLAB, Arc/INFO, ArcView

Statistical Software: MINITAB, SPSS, SST, LIMDEP

Traffic/Transportation Software: HCS (Highway Capacity Software), LOS, Traffix, Synchron, FREQ, TP+, Viper.

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## **SELECTED WORKS IN THE AREA OF SUSTAINABLE DEVELOPMENT**

### **Suranaree University of Technology , Nakhon Ratchasima, Thailand**

Selected research topics:

- Study the effects of fuel price on gasoline consumption and travel demand of Bangkok and Nakhon Ratchasima
- Estimate vehicle kilometers of travel using odometer readings in Bangkok and Nakhon Ratchasima
- Develop a methodology to estimate the overall vehicle kilometers of travel for Thailand
- Study travel behavior of university students to promote green campus
- Conduct a black spot improvement study for the entire campus of Suranaree University of Technology

### **GTZ – Sustainable Urban Transport Project, Bangkok, Thailand**

- Conducted training courses on sustainable transport, bicycle planning and design, Bus Rapid Transit planning and design, tricycle taxi operation improvement, congestion pricing, and innovative parking policies to various municipalities.
- Promoted sustainable urban transport to several municipalities, such as Bangkok, Chiang Mai, Udonthani, Nakhon Ratchasima, Phitsanulok, Ayudhya.

### **PLANPRO CORP. (Nonthaburi, Thailand)**

- Developed a conceptual plan of two ITS systems, the transit signal priority and the passenger information system, to facilitate the operation of the proposed bus rapid transit (BRT) services in the Bangkok Metropolitan Area.

### **TJKM Transportation Consultants (Pleasanton, CA USA)**

- Suggested traffic calming devices on busy residential streets in California
- Recommend a posted speed limit for main road segments

### **UC DAVIS**

- **Ph.D. Dissertations:** studied how to improve the design of a neo-tradition neighborhood community to minimize the amount of vehicular shopping trips.
  - **Research:** recommended an appropriate driving data collection method to suitably develop a driving cycle protocol for future use in California.
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## **PUBLICATIONS**

International Journal with an Impact Factor

1. Limanond T., Prabjabok P., Tippayawong K. Exploring impacts of countdown timers on traffic operations and driver behavior at a signalized intersection in Bangkok. In press for *Transport Policy*.
2. Limanond T, Chookerd S, Roubtonglang N. Effects of countdown timers on queue discharge characteristics of through movement at a signalized intersection. *Transportation Research Part C* 2009; 17: 662-671.
3. Limanond T, Niemeier DA, Mokhtarian PL, Specification of a tour-based neighborhood shopping model. *Transportation* 2005; 32: 105-134.
4. Morey J, Niemeier D and Limanond T. Statistical Framework Using GIS to Estimate Unpaved Road VMT for PM<sub>10</sub> Mobile Emission Inventories. *ASCE Journal of Urban Planning and Development* 2004; 130(2): 83-93.
5. Limanond T and Niemeier D. Effect of Land Use on Decisions of Shopping Tour Generation: a case study of three traditional neighborhoods in WA. *Transportation* 2004 May; 31(2): 153-181.
6. Limanond T. and Niemeier D. Accessibility and Mode-Destination Choice Decisions: Exploring Travel in Three Neighborhoods in Puget Sound, WA. *Environment and Planning, Part B Planning and Design* 2003; 30(2): 219-238.
7. Morey J, Limanond T, Niemeier D. Validity of Chase Car Data Used in Developing Emissions Cycles. *Journal of Transportation Statistics* 2000; 3( 2): 15-28.

## **SUBMITTED PUBLICATIONS**

International Journal with an Impact Factor

1. Limanond T. and Tuntiworawit N. Estimating Arterial Link Speed using Conventional Road Detectors. Submitted to *Transport Planning and Technology* since October 2009, subject to a preliminary review and undergo a full review.
2. Limanond T., Butsingorn T., Chermkhunthod C. Travel behavior of university students who live on campus: a case study of a rural university in Asia. Submitted to *Transport Policy*, undergone the first full review with minor changes required, now the revised manuscript being resubmitted to the editor.

3. Limanond T. How vehicle ownership affect time utilization on study, leisure, social activities and academic performance of university students? A case study of engineering freshman in a rural university in Asia. Submitted to *Transport Policy* since December 2009, subject to a preliminary review and undergo a full review.

International Journal without an Impact Factor

1. Limanond T., Ongkittikul S., Wattanaklang D., Jomnonkwoa S. Transport demand elasticity of Bangkok and Nakhon Ratchasima: Effect of oil price on gasoline consumption and travel behavior. Submitted to *ATRANS Journal* since March 2010, subject to a preliminary review and undergo a full review.

### **CONFERENCE PAPERS / Proceedings with peer review**

1. Lueanpech P. and Limanond T. Link Speed Estimation Using Bus Operation Speed as Probe Vehicle. Proceedings of the 15<sup>th</sup> National Convention on Civil Engineering; 2010 May 12-14; Ubon Ratchathani, Thailand; 2010.
2. Jomnonkwoa S. and Limanond T. Learning vector quantization artificial neural network application for mode choice model. Proceedings of the 15<sup>th</sup> National Convention on Civil Engineering; 2010 May 12-14; Ubon Ratchathani, Thailand; 2010.
3. Sangphong O., Watthanaklang D., Limanond T., Srikaew A. Fuel Consumption Model Development in Thailand. Proceedings of the 15<sup>th</sup> National Convention on Civil Engineering; 2010 May 12-14; Ubon Ratchathani, Thailand; 2010.
4. Limanond T., Ongkittikul O., Watthanaklang D., Jomnonkwoa S. Transport Demand Elasticity of Bangkok and Nakhon Ratchasima: Effects of Oil Price on Gasoline Consumption and Travel Behavior. Proceedings of the 6<sup>th</sup> National Transport Conference; 2009 October 28-30; Phitsanulok, Thailand; 2009.
5. Jomnonkwoa S. and Limanond T. Vehicle Kilometers of Travel Model Development. Proceedings of the 6<sup>th</sup> National Transport Conference; 2009 October 28-30; Phitsanulok, Thailand; 2009.
6. Cherdchunakorn M. and Limanond T. Study of the Efficiency of Using Rock Dust and Fly Ash as Additives to Asphalt Concrete. Proceedings of the 6<sup>th</sup> National Transport Conference; 2009 October 28-30; Phitsanulok, Thailand; 2009.

7. Ngamsom D., Suttayamully S., Limanond T. Study of Motorcycle Driver Characteristic on Traffic Law Violation - Proceedings of the 14<sup>th</sup> National Convention on Civil Engineering; 2009 May 13-15; Nakhon Ratchasima, Thailand; 2009.
8. Jomnonkwoa S., Limanond T., Srikaew A. Artificial Neural Network Application for Vehicle Kilometer of Travel Model Development. Proceedings of the 13<sup>th</sup> National Graduate Research Conference; 2009 May 15-16; Chiang Mai, Thailand; 2009.
9. Sonin A., Suttayamully S., Limanond T. An effectiveness evaluation of Traffic Control Devices in Highway Work Zone. Proceedings of the 13<sup>th</sup> National Convention on Civil Engineering; 2008 May 14-16; Pattaya, Thailand; 2008.
10. Rittidej P., Suttayamully S., Limanond T., Poobupphapan R. Accident prediction model and road improvement ranking for two-lane rural highways: A case study in Nakhon Ratchasima. Proceedings of the 13<sup>th</sup> National Convention on Civil Engineering; 2008 May 14-16; Pattaya, Thailand; 2008.
11. Ninjinda N., Meeyai S., Suttayamully S., Limanond T., Proceedings of the 4<sup>th</sup> National Transport Conference; 2007 November 23; Chiang Mai, Thailand; 2007.
12. Lueanpech P. and Limanond T. Evaluation on efficiency of Image Processing Cameras and Dual Loop Detector for Real Time Traffic Information System. Proceedings of the 4<sup>th</sup> National Transport Conference; 2007 November 23; Chiang Mai, Thailand; 2007.
13. Tuntiworawit N. and Limanond T. Optimum Location for Installing Traffic Sensor on Arterial Streets. Proceedings of the 3<sup>rd</sup> National Transport Conference; 2006 November 24; Khon Kean, Thailand; 2006. pp. TTM-23 – TTM-31.

## **TECHNICAL REPORTS**

1. Niemeier D, Limanond T, Morey J. *Data Collection for Driving Cycle Development: Evaluation of Current and Development of New Data Collection Protocols*, Draft Report 1999. Funded by California Department of Transportation, Institute of Transportation, Davis, CA.
2. Niemeier, D, Morey J, Limanond T. A New Methodology for Estimating Unpaved Road Miles and Vehicle Activity on Unpaved Roads, Vol. 1, Final Report 1999. Funded by California Air Resources Board, Institute of Transportation Studies, Davis, CA.



3. Niemeier D, Limanond T, Morey J. Using GIS to Estimate Unpaved Road Miles and Vehicle Activity on Unpaved Roads, Vol. II, Final Report (1999). Funded by California Air Resources Board, Institute of Transportation Studies, Davis, CA.
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## **REFEREES**

### **1. Professor Debbie Niemeier,**

School of Civil and Environmental Engineering, University of California, Davis, CA  
USA

Association: Ph.D. Advisor (Oct 1997 – Sept 2001 and thereafter)

### **2. Professor Patricia Mokhtarian,**

School of Civil and Environmental Engineering, University of California, Davis, CA  
USA

Association: Lecturer/Mentor (Oct 1997 – Sept 2001 and thereafter)

### **3. Gordon Lum,**

TJKM Transportation Consultants, Pleasanton USA

Association: Job supervisor (Nov 2000 – Dec 2003)

### **4. Barry Cable,**

Chief of Transport Division

UN-ESCAP, Bangkok, Thailand

Association: Job co-supervisor (Sept 2005 – Dec 2009)