

## CURRICULUM VITAE (CV)

- 1. Name** : Dr. Bhargab Maitra  
**2. Date and Place of Birth** : 7<sup>th</sup> October 1967, Midnapur, West Bengal, India  
**3. Present Appointment** : Professor, Department of Civil Engineering  
IIT Kharagpur, Kharagpur-721 302, India

### 4. Address

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### 5. Educational Qualifications

Degree	Institute	Year	Specialization
B.E.	B.E. College Howrah-711 103	1989	Civil Engineering
M.Tech	IIT Kanpur Kanpur-208016	1991	Transportation Systems Engineering
Ph. D	IIT Bombay Mumbai-400 076	1997	Transportation Systems Engineering

### 6. Employment Record

From April 2014 to till date	Professor, Department of Civil Engineering Indian Institute of Technology Kharagpur, Kharagpur- 721 302, India
From April 2007 to April 2014	Associate Professor, Department of Civil Engineering Indian Institute of Technology Kharagpur Kharagpur- 721 302, India
From March 2001 to April 2007	Assistant Professor, Department of Civil Engineering Indian Institute of Technology Kharagpur Kharagpur- 721 302, India
From July 1999 to February 2001:	Manager (Highway and Transportation) Gherzi Eastern Limited, Raheja Point 1, Wing "A", Pandit Jawaharlal Nehru Road, Vakola Santacruz (East), Mumbai-400 055, India
From February 1998 to June 1999:	Senior Transport ation Engineer Transport and Planning Group 505 Keshava Building, Bandra-Kurla Complex Bandra (East), Mumbai- 400 051, India
From February 1997 to January 1998:	Lecturer, Department of Civil Engineering Bengal Engineering College (D.U.) P.O.- B. Garden, Howrah- 711 103, India

From July 1991 to June  
1992:

Senior Project Associate (SPA)/ Project Associate (PA)  
Department of Civil Engineering  
IIT Kanpur-208016, India

## 7. Professional Training

- Users workshop on “Training of Trainers for Dissemination of Road safety Manual (UW-15, Venue: Kolkata)”, January 9-11, 2006, Kolkata, ICT Pvt. Ltd./ NHAI, Govt. of India
- Certification Course on “Road Safety Audit”, February 21-25, 2011, New Delhi, International Road Foundation (India Chapter) and Australian Road Research Board.

## 8. Academic/Professional Honors

### 8.1 Distinguished Awards/ Research Fellowships

- Pt. Jawaharlal Nehru Birth Centenary Award, Indian Roads Congress, India (2011)
- Alexander von Humboldt Research Fellowship for Experienced Researchers, Germany (2009) (*visits during May 07 to December 31, 2010, and May 04 to July 01, 2011, June 02 to July 01, 2012*)
- Deutscher Akademischer Austausch Dienst (DAAD) Fellowships, Germany (2006 and 2009) (*visits during May 18 to July 03, 2006, and June 02 to July 01, 2009*)

### 8.2 Reviewer of Journals/ Editorial Board Member

- Journal of Transport Literature (Co-Editor since 2012)
- Asian Transport Studies (Associate Editor since 2014)
- Journal of Transportation Engineering, ASCE (Reviewer)
- Journal of Urban Planning and Development, ASCE (Reviewer)
- Transport Policy (Reviewer)
- Case Studies on Transport Policy (Reviewer)
- Transportmetrica A: Transport Science (Reviewer)
- European Transport (Reviewer)
- Journals of Indian Roads Congress (Reviewer)
- Journal of the Institution of Engineers, India (Reviewer)
- Journal of Indian Institute of Science (Reviewer)
- Current Science (Reviewer)

### 8.3 Institute Responsibilities

- Chairperson, Kshitij, IIT Kharagpur, 2014, 2015 and 2016
- Coordinator, Future of Cities, 2014 onwards
- Professor-in-Charge (Technical) Technology Students’ Gymkhana, IIT Kharagpur, 2014 onwards

#### **8.4 Membership of Professional Societies / Research Committees /Scientific Committees**

- Member, Scientific Committee, World Conference on Transportation Research Society (WCTRS), 2013–16
- Chair, SIG D3 (Applications of Travel Behavior Analysis and Demand Modeling Approaches), World Conference on Transportation Research Society (WCTRS), 2013–16
- International Adviser, International Transportation Planning Society (ITPS), (formerly known as Brazilian Transportation Planning Society), Brazil
- Life Member, Indian Roads Congress
- Life Member, Institute of Urban Transport (India)
- Life Member, Transportation Research Group of India
- Member, International Association for Travel Behaviour Research (IATBR), 2009-11
- Member, Transport Planning, Traffic Engineering and Road Safety Committee (H-1), Indian Roads Congress, 2012-14 – also Convener of a subgroup of H-1 Committee for modification of IRC-108 “Guidelines for Traffic Prediction on Rural Highways”
- Member, Project Review Committee (PRC-4) formed by Department of Information Technology (DIT), Govt. of India, for the project titled “An Intelligent Traffic Congestion Management System using RFID and wireless technologies”, 2010-11

#### **8.5 Invitation as External Examiner**

- Indian Institute of Technology Bombay, Mumbai (2016), Ph. D Examination (**B. K. Bhavathrathan**)
- Indian Institute of Technology Madras, Chennai (2016), Ph. D Examination (**A Arun Prakash**)
- National Institute of Technology, Surat (2016), Ph. D Examination (**Jiten Harishabhai Shah**)
- Jawaharlal Nehru Technological University Hyderabad (2016), Ph. D Examination (**Abed Mohammadi**)
- National Institute of Technology, Patna (2015), Ph. D Examination (**Sanjeev Kumar Suman**)
- Indian Institute of Technology Roorkee (2014), Ph. D Examination (**Ashish Dhamaniya**)
- Indian Institute of Technology Bombay (2014), Ph. D Examination (**Pradeep Singh Kharola**)
- Technische Universität Darmstadt, Germany (2013), Ph. D Examination (**Nguyen Van Nam**)
- University of Dar Es Salaam, Tanzania (2013), Ph. D Examination (**Emmanuel Elifadhili Mchome**)
- Indian Institute of Technology Bombay (2010), Ph. D Examination (**Sharminda Bera**)

- Technische Universität Darmstadt, Germany (2008), Ph. D Examination (**Anil Minhans**)
- University of Dar Es Salaam, Tanzania for the Department of Transportation and Geotechnical Engineering (2007, 2008 and 2009)
- University of Dar Es Salaam, Tanzania (2006), Ph. D Examination (**Hannibal Bwire**)

#### **8.6 Invitation for Special Events**

- Expert Panelist for Panel Discussion on Sustainability, Satellite Event: Alumniportal Deutschland, New Delhi, March 31, 2012.
- Annual Meeting of the Alexander von Humboldt foundation during June 21-23, 2010, Berlin, Germany and interactions with the Federal President of Germany on June 22, 2010, in the Gardens of Schloss Bellevue, Berlin.
- Second National Frontiers of Engineering Symposium organized by the INAE during Mar 31– April 2, 2007, IIT Delhi and interactions with the President of India on April 2, 2007 at Rashtrapati Bhawan, New Delhi.

#### **8.7 Invitation for Research Interactions/Presentations in Conferences/Seminars/ Workshops/Symposiums**

- National Workshop on Recent Advances in Civil Engineering (RACE-2014), VSSUT, Burla, Odisha, October 25, 2014 (Lecture as Resource Person)
- Networking Conference on New Frontiers: Shifting Trends in the Global Research Landscape and Their Impact on Researcher's Career Pattern, New Delhi, India, March 29-31, 2012 (Organized by AvH Foundation, Germany and Sponsored by Federal Ministry of Education and Research, Germany)
- National Conference on Transportation Challenges- 2022 and R&D Needs, Central Road Research Institute, New Delhi, India, March 1-2, 2012 (Keynote)
- International Doctoral Seminar, Vietnamese German University, Ho-Chi-Minh City, Vietnam, December 12-17, 2011
- The First Conference of the Cities and Climate Change Network, Freie Universitat, Berlin, Germany, October 4-9, 2011
- Workshop on Developing a National Standard for Road Traffic Signals in Vietnam, Vietnamese German University, Ho-Chi-Minh City, Vietnam, September 29, 2011
- Joint Seminar on Transport Planning and Traffic Engineering, Shanghai, Republic of China, October 4-8, 2010
- Workshop on The Future of Public Transport, Transport Research Centre, Vietnamese German University, Ho-Chi-Minh City, Vietnam, March 05, 2010
- Workshop and Spotlight Presentation in Public Congress "Traffic and Transport 2030", February 27-29, 2008, Darmstadt, Germany
- First Indo-US Symposium on Advances in Mass Transit and Travel Behaviour Research (MTTBR-08), IIT Guwahati, 12-15 February, 2008
- Second National Frontiers of Engineering Symposium (2 NatFOE) on "Can Engineering and Technology Help Balance the Demand and Supply of Available Resource, namely Water, Energy, Knowledge and Transport?", Mar 31 – April 2, 2007, IIT Delhi

### 8.8 Distinguished Guest Lectures

- Institute of Transportation Engineering, Tsinghua University, Beijing, China, June 25, 2015
- Institute for Transport Studies, Karlsruhe Institute of Technology, Karlsruhe, Germany, May 22, 2013
- Institute of Transport Research, Deutsches Zentrum für Luft- und Raumfahrt e.V. (DLR), German Aerospace Center, Germany, May 21, 2013
- Department of Transport Planning and Traffic Systems, University of Kassel, Germany, June 22, 2011
- Institute for Transport Studies, University of Leeds, United Kingdom, November 26, 2010
- Institute for Transport Studies, University of Natural resources and Applied Life Sciences, Vienna, Austria, October 20, 2010
- Dipartimento di Scienze Economiche Aziendali, Matematiche e Statistiche, Università degli studi di Trieste, Italy, July 6, 2010
- Institute of Land and Sea Transportation System, Technische Universität Berlin, Germany, June 23, 2010
- IVU Traffic Technologies AG, Berlin, Germany, June 23, 2010.
- Public Congress of “Traffic and Transport 2030”, February 29, 2008, Darmstadt, Germany
- ETH, Swiss Federal Institute of Technology Zurich, Switzerland, February 25, 2008.

### 8.9 Invited Lectures in Short-Term Courses / Training Programme

- “Travel Behavior Analysis and Its Applications”, QIP Short term Course on Recent Advances and Innovations in Transportation Engineering, *VSSUT, Burla*, 25-30 April, 2016
- “Travel Behavior Analysis and Its Applications”, TEQIP Workshop on Recent Trends in Transportation Engineering, *NIT Agartala*, 18-19 March, 2016
- “Traffic Signs, Delineators and Road Markings”, PMGSY Training Programme, Department of Civil Engineering, *College of Engineering and Technology, Bhubneswar*, 12-13 February, 2007.
- “A Spatial Quantitative Approach for EIA of Highway Projects”, DONER Sponsored Short Term Course on Recent Practices in Transportation Planning and Traffic Engineering, Civil Engineering Department, *IIT Guwahati*, 15– 19 January, 2007
- “Potential Rationalization of On-Street Parking on Urban Roads”, DONER Sponsored Short Term Course on Recent Practices in Transportation Planning and Traffic Engineering, Civil Engineering Department, *IIT Guwahati*, 15– 19 January, 2007
- “Willingness-To-Pay and Preference Heterogeneity for Rural Bus Attributes”, DONER Sponsored Short Term Course on Recent Practices in Transportation Planning and Traffic Engineering, Civil Engineering Department, *IIT Guwahati*, 15– 19 January, 2007
- “Environmental Impact Assessment of Highway Projects”, QIP Short Term Course on Environmental Impact Assessment and Management Plan, Civil Engineering Department, *IIT Kharagpur*, 26<sup>th</sup> October, 2005.

- “Quality Control and Quality Assurance”, Training Programme for Engineers under PMGSY, *National Institute of Technology Durgapur*, 24<sup>th</sup> October, 2005.
- “Road Geometries and Issues relating to Road Safety”, Training Programme for Engineers under PMGSY, *National Institute of Technology Rourkela*, 26<sup>th</sup> February, 2005.
- “Alignment and Surveys for Rural Roads”, Training Programme for Engineers under PMGSY, *Road Research Laboratory, Guwahati*, PWD, Government of Assam, 27<sup>th</sup> November, 2004.
- “Road Alignment and Road Geometries and Issues relating to Road Safety”, Training Programme for Engineers under PMGSY, *National Institute of Technology Rourkela*, 6<sup>th</sup> November, 2004.
- “Road Geometries and Issues relating to Road Safety”, Training Programme for Engineers under PMGSY, *National Institute of Technology Rourkela*, 16<sup>th</sup> October, 2004.

## 9. Research Publications

### 9.1 Book Edited

- Proc. of International Conference on Structural and Road Transportation Engineering (START), January 2005, Elite Publishing House Pvt. Ltd., New Delhi, **ISBN: 81-88901-14-8** (both Hard copy and CD) – *Editors: J. N. Bandyopadhyay and Bhargab Maitra*

### 9.2 Book Chapter

- Maitra, B. and Sadhukhan, S. (2013). “Urban Public Transportation System in the Context of Climate Change Mitigation: Emerging Issues and Research Needs in India.”, A Chapter of the Book “Mitigating Climate Change: The Emerging Face of Modern Cities, Anshuman Khare and Terry Beckman (Editors), Springer, 75-91.

### 9.3 International Journals

- Dandapat, S., Bhattacharyya, K., and Maitra, B. (2016). “Quantifying the factors influencing bus passenger boarding and alighting dynamics in urban India.” *Transportation Research, Part-A* (Under Review)
- Paul, B., Ramteke, M., Maitra, B., and Mitra, S. (2016). “A New Objective Function for Calibration of Robertson’s Platoon Dispersion Model.” *Journal of Transportation Engineering, ASCE* (Under Review)
- Pal, S., Maitra, B., and Sarkar, J. R. (2016). “An Approach for Prioritization of State Highways and Its Application.” *Transportation in Developing Economies* (Accepted)
- Cheranchery, M. F., Bhattacharyya, K., Maitra, B., and Boltze, M. (2016). “Assessing Safety Level of Bus Stops in the Absence of Crash Data.” *Case Studies on Transport Policy* (Under Review)
- Bulusu, S. A., Prasad, P., and Maitra, B. (2016). “Effect of Development of Rural Roads and Feeder Service on Trip Characteristics of Households: A Case Study.” *Transportation in Developing Economies* (Under Review)
- Sadhukhan, S., Banerjee, U. K., and Maitra, B. (2015). “Rationality of Fare Increment for Improvement of Transfer Facilities at Metro Stations: An Experience in Kolkata.” *Transport Policy* (Under Review)
- Sadhukhan, S., Banerjee, U. K., and Maitra, B. (2016). “Commuters’ Willingness-to-Pay for Improvement of Transfer Facilities in and around Metro Stations –A Case Study in Kolkata.” *Transportation Research, Part-A* (Accepted)

- Paul, B., Maitra, B., and Mitra, S. (2016). "Calibration of Robertson's platoon dispersion model in non-lane based mixed traffic operation." *Transportation in Developing Economies* (Accepted)
- Chandrappa, A. K., Bhattacharyya, K., and Maitra, B. (2015). "Measures for Improving Pedestrian Crossing Facilities based on Perceptions of Urban Commuters: An Experience in Kolkata", *Journal of Urban Planning and Development*, ASCE (Under Review)
- Chandrappa, A. K., Bhattacharyya, K., and Maitra, B. (2015). "Estimation of PET and Threshold Wait Time for Pedestrians on Busy Urban Corridor in Heterogeneous Traffic Environment: An Experience in Kolkata." *Asian Transport Studies* (Accepted)
- Dandapat, S., and Maitra, B. (2015). "An Approach for Identifying Optimal Service Headway and Fare for Rural Bus Routes." *Case Studies on Transport Policy*, 3(3), 287-294.
- Maitra, B., Bhattacharyya, K., Jose, R., and Boltze, M. (2015). "Micro-simulation Based Evaluation of Queue Jump Lane at Isolated Urban Intersections: An Experience in Kolkata." *The Journal of Transport Literature*, 9(3), 10-14.
- Basu, D., and Maitra, B. (2015). "Developing Corridor Choice Model under Hypothetical Variable Message Sign Based Traffic Information." *The Journal of Transport Literature*, 9(2), 5-9.
- Maitra, B., Dandapat, S., and Phanikumar, C.V. (2015). "Difference in Perceptions of Captive and Choice Riders towards Bus Service Attributes and the Need for Segmentation of Bus Services in Urban India." *Journal of Urban Planning and Development*, ASCE, 141(2).
- Sadhukhan, S., Banerjee, U. K., and Maitra, B. (2014). "Commuters' Perception towards Transfer Facility Attributes in and around Metro Stations: An Experience in Kolkata." *Journal of Urban Planning and Development*, ASCE (Available On-line)
- Maitra, B., Ghosh, S., Das, S. S., and Boltze, M. (2013). "Effect of Model Specification on Valuation of Travel Attributes: A Case Study of Rural Feeder Service to Bus Stop." *The Journal of Transport Literature*, 7(2), 8-28.
- Hazra, T., Goel, S., and Maitra, B. (2013). "Willingness-To-Pay for Solid Waste Management Service Attributes: Kolkata Municipal Corporation Area, India, as a Case Study.", *Int. Journal of Environment and Waste Management*, 12(4), 406-421.
- Das, S. S., Ghosh, S., Maitra, B. and Boltze, M. (2012). "Search Strategy for Nested Logit Tree Structure: A Case Study of Rural Feeder Service to Bus Stop.", *International Journal for Traffic and Transport Engineering*, 2(4), 333-346.
- Das, S. S., Maitra, B. and Boltze, M. (2012). "Planning of Fixed-Route Fixed-Schedule Feeder Service to Bus Stops in Rural India." *Journal of Transportation Engineering*, ASCE, 138(10), 1274-1281.
- Basu, D., Maitra, B. (2010). "Stated Preference Approach for Valuation of Travel Time Displayed as Traffic Information on a VMS Board." *Journal of Urban Planning and Development*, ASCE, 136 (3), 214-224.
- Phanikumar C. V., and Maitra, B. (2010). "Modelling Generalized Cost of Travel and Its Application for Improvement of Taxies in Kolkata." *Journal of Urban Planning and Development*, ASCE, 136 (1), 42-49.
- Basu, D., Maitra, B. (2010). "Evaluation of VMS-Based Traffic Information Using Multiclass Dynamic Traffic Assignment Model: Experience in Kolkata." *Journal of Urban Planning and Development*, ASCE, 136 (1), 104-113.
- Das, S. S., Maitra, B. and Boltze, M. (2009): Valuing Travel Attributes of Rural Feeder Service to Bus Stop: A Comparison of Different Logit Model Specifications. *Journal of Transportation Engineering*, ASCE, 135(6), 330-337.
- Basu, D., and Maitra, B. (2007). "Valuing Attributes of Enhanced Traffic Information: An Experience in Kolkata." *Transport*, 22 (3).
- Basu, D., and Maitra, B. (2007). "Valuing Travel Time and its Variation Level Projected as Traffic Information on a Roadside VMS Board: A SP Approach." *International Journal of Transport Economics*, XXXIV(2), 225-243.

- Phanikumar C. V., and Maitra, B. (2007). "Willingness-To-Pay and Preference Heterogeneity for Rural Bus Attributes." *Journal of Transportation Engineering*, ASCE,133 (1), 62-69.
- Basu, D., Roy Maitra, S., and Maitra, B. (2006). "Modelling "Passenger Car Equivalency at an Urban Mid-block using Stream Speed as Measure of Equivalence." *European Transport*, 34, 75-87.
- Phani Kumar, C. V., and Maitra, B. (2006). "Modelling Willingness-To-Pay Values for Rural Bus Attributes under Different Trip Purposes." *Journal of Transportation Research Forum*, 45(2), 31-44.
- Basu, D., and Maitra, B. (2006). "Modelling Stream Speed in Heterogeneous Traffic Environment using ANN – Lessons Learnt." *Transport*, 21 (4), 269-273.
- Phani Kumar, C. V., and Maitra, B. (2006). "Valuing Urban Bus Attributes: An Experience in Kolkata." *Journal of Public Transportation*, 9 (2), 69-87.
- Agrawal, M.L., Maitra, B., and Ghose, M.K. (2005). "GIS Based Highway Traffic Noise Analysis for Land Use Planning." *Interdisciplinary Environmental Review*, 7(1), 110-121.
- Agrawal, M.L., Maitra, B., and Ghose, M. K. (2005). "Spatial Assessment of Impacts on Water Quality due to Highway Development Project." *Asian Journal of Water, Environment and Pollution*, 2(1), 85-92.
- Maitra, B., Sikdar, P.K., and Dhingra, S. L. (2004). "Modeling of Congestion: A Tool for Urban Traffic Management in Developing Countries." *European Transport*, 27, 45-56.
- Maitra, B., Azmi, M., Kumar, N., and Sarkar, J. R. (2004). "Modeling Traffic Impact of Flyover at an Urban Intersection under Mixed Traffic Environment." *European Transport*, 27, 57-68.
- Phani Kumar, C. V., Basu, D., and Maitra, B. (2004). "Modelling Generalized Cost of Travel for Rural Bus Users: A Case Study." *Journal of Public Transportation*, 7(4), 59-72.
- Maitra, B., Azmi, M., and Ibrahim, S. N. (2002). "Prioritization of Road Projects – A Disutility Based Approach." *Transport*, XVII (2), 52-56.
- Maitra, B., Sikdar, P.K., and Dhingra, S.L. (2001). "Potential Rationalization of On-Street Parking on Urban Roads." *European Transport*, VI (16), 34-39.
- Maitra, B., Sikdar, P.K., and Dhingra, S. L. (1999). "Modeling Congestion on Urban Roads and Assessing Level of Service." *Journal of Transportation Engineering*, ASCE, 125 (6), 508-514.

#### 9.4 National Journals

- Dandapat, S., Maitra, B., and Phanikumar, C.V. (2014). "Is Bus Fare the Only Concern to Urban Trip Makers'? An Experience in Kolkata." *Indian Highways*, IRC, 42(4), 65-73.
- Maitra, B., Padwal, R., Das, S. S., and Boltze, M. (2012). Role of Fare Model in Design of Rural Feeder Service with Fixed-Route Fixed-Schedule Form of Operation, *Indian Highways*, IRC, 40(6), 83-91.
- Agrawal, M.L., Maitra, B., Ghose, M.K. and Paul, S.K. (2008): Modeling of Socioeconomic Impacts due to Highway Development Project Based on Public Preparation. *Indian Highways*, IRC, 36(4), 71-76.
- Phani Kumar C. V., and Maitra, B. (2007). "Random Parameter Logit for Estimating Willingness-to-Pay Values." *Highway Research Bulletin*, IRC, 76, 79-84.
- Das, S. S., and Maitra, B. (2007). "A Covariance Heterogeneity Nested Logit Model for Choice of Rural Feeder Service to Bus Stop." *Indian Highways*, IRC, 35(12), 31-39.



- Das, S. S., Maitra, B., and Boltze, M. (2007). "Valuing Attributes of Rural Feeder Service to Bus Stop." *Indian Highways*, IRC, 35(5), 9-16.
- Basu, D., and Maitra, B. (2007). "Valuing Attributes of Traffic Information by Taxi Users: A Comparison between Multinomial and Mixed Logit Techniques." *Highway Research Bulletin*, IRC, 77, 63-71.
- Basu, D., Maitra, B. (2006). "Development of Generalised Cost Model for Private Car Trip makers under Traffic Information." *Journal of the Indian Institute of Science*, 86 (6), 681-693.
- Phani Kumar, C. V., and Maitra, B. (2006). "Conjoint Analysis for Estimating Trip Makers' Perceived Values Associated with Travel Attributes." *Highway Research Bulletin*, IRC, IRC, Vol. 42, 67-72.
- Agrawal, M.L., Maitra, B., Ghose, M.K., and Paul, S.K. (2005). "Noise Impact Assessment for Highway Projects in GIS Framework - A Case Study." *Highway Research Bulletin*, IRC, 72, 79-91.
- Maitra, B., Sikdar, P.K., and Dhingra, S. L. (2003). "Effect of Road Width on Traffic Congestion and Level of Service." *Highway Research Bulletin*, Indian Roads Congress, 68, 123-132.
- Rao, K. V. K., Maitra, B., Sikdar, P.K., and Dhingra, S. L. (2002). "Estimation of Traffic and Toll Sensitivity for a Proposed Major Urban Transport Infrastructure." *Journal of Indian Roads Congress*, 63 (1), 195-235.
- Sarkar, J. R., and Maitra, B. (2001). "Critical Considerations of Travel Demand Forecasting at National Highways: A Case Study." *Journal of Indian Roads Congress*, 6 (3), 531-549.

### 9.5 Proceedings of International Conferences/Seminars

- Chandrappa, A. K., Bhattacharyya, K., and Maitra, B. (2015): Measures for Improving Pedestrian Crossing Facilities Based on Perceptions of Urban Commuters: An Experience in Kolkata, TRB 94th Annual Meeting Compendium of Papers, 15-2605
- Ghosh, S., Maitra, B., and Das, S. S. (2013): Effect of Distributional Assumption of Random Parameters of Mixed Logit Model on Willingness-to-Pay Values, Proc. of 2nd Conference of Transportation Research Group of India, Agra, December 11-15, 2013, *Procedia - Social and Behavioral Sciences*, 104 (2013) 601–610 (<http://authors.elsevier.com/sd/article/S187704281304545X>)
- Maitra, B., Padwal, R., Boltze, M., and Das, S. S. (2012): A Simulation Based Approach for Design of Rural Feeder Service with Fixed-Route Fixed-Schedule Form of Operation, CD Proc. of *Int. Symposium on Engineering under Uncertainty: Safety Assessment and Management*, Bengal Engineering and Science University, Shibpur, Howrah, January 4-6, 2012, 1035-1048.
- Dandapat, S., and Maitra, B. (2011): Selection of Optimal Headway and Fare for Bus Services in Rural Areas, Proc. of the *First Conference of the Transportation Research Group of India (CTRG)*, Bangalore, December 7-10, 2011.
- Maitra, B., Ghosh, S., and Sadhukhan, S. (2011): Public Transport System in the Context of Urbanization and Environment: Emerging Issues and Research Needs in India, Proc. of *International Humboldt Kolleg*, ISEC, Bangalore, October 2011.
- Phani Kumar, C. V. and Maitra, B. (2010): Improvement Planning of Rural Bus System: A Case Study in India, General Proceedings of the *12th World Conference on Transportation Research (WCTR)*, Lisbon, Portugal, July 2010
- Maitra, B., Ghosh, S., Das, S. S. and Boltze, M. (2009): Effect of Model Specification on Valuation of Travel Attributes: A Case Study of Rural Feeder Service to Bus Stop, *12th International Conference of the International Association for Travel Behaviour Research*, Jaipur, December 2009
- Das, S. S. and Maitra, B. (2009): Trip Characteristics of Rural Trip Makers and Their Willingness-to-pay for Feeder Service to Bus Stop. *Proc. of International Conference*

- on *Pavement Engineering (ICPE-09)*, Civil Engineering Department, College of Engg. & Tech., B.P.U.T., Bhubaneswar, February 2009, 225-236.
- Basu, D. and Maitra, B. (2009): Temporal Congestion Management using Real Time VMS Based Traffic Information: A Case Study. *Proc. of International Conference on Pavement Engineering (ICPE-09)*, Civil Engineering Department, College of Engg. & Tech., B.P.U.T., Bhubaneswar, February 2009, 281-288.
  - Maitra, B. and Ghosh, S. (2008): Public Transport in India. *Proc. of International Workshop and Congress on Traffic and Transport 2030: Visions, Concepts and Technologies*, TU Darmstadt, February 2008, 95-100.
  - Reddy, D. Sita Rami, Maitra, B. and Reddy, K. S. (2008): An Approach for Estimating Overloading Charges of Commercial Vehicles. *Proc. CD of International Conference on Transportation Planning and Implementation Methodologies for Developing Countries (TPMDC-08)*, IIT Bombay, December 2008.
  - Ghosh, S., Das, S. S. and Maitra, B. (2008): Accounting for Mean and Variance Heterogeneity in Willingness-To-Pay Estimates: A Case Study of Rural Feeder Service. *Proc. CD of International Conference on Transportation Planning and Implementation Methodologies for Developing Countries (TPMDC-08)*, IIT Bombay, December 2008.
  - Agrawal, M.L., Maitra, B. and Ghose, M.K. (2007): A Spatial Assessment of Air Pollution Impact of a Highway Project Using GIS. *Proc. of International Conference on Information Technologies in Environmental Engineering*, University of Oldenburg, Germany, 29<sup>th</sup> March- 2<sup>nd</sup> April 2007, 11-20.
  - Agrawal, M.L. Maitra, B. and Ghose, M.K. (2007): Spatial Quantitative Approach for Assessment of Impacts on Water Quality Due to Highway Development Project. *Proc. CD of International Conference on "Civil Engineering in the New Millennium: Opportunities and Challenges"*, Bengal Engineering and Science University, Shibpur, January 2007.
  - Pal, S., Phanikumar, C. V. and Maitra, B. (2007): Optimizing Generalized Cost of Travel: An Approach for Improvement Planning of Rural Bus Service. *Proc. CD of International Conference on "Civil Engineering in the New Millennium: Opportunities and Challenges"*, Bengal Engineering and Science University, Shibpur, January 2007.
  - Basu, D. and Maitra, B. (2007): Evaluating an Enhanced Travel Time Description as Traffic Information on Route Choice Behavior of Taxi Users in Kolkata. *Proc. CD of International Conference on "Civil Engineering in the New Millennium: Opportunities and Challenges"*, Bengal Engineering and Science University, Shibpur, January 2007.
  - Das, S. S. and Maitra, B. (2007): Effect of Tree Structure on Nested Logit Model for Choice of Rural Feeder Service to Bus Stop. *Proc. CD of International Conference on "Civil Engineering in the New Millennium: Opportunities and Challenges"*, Bengal Engineering and Science University, Shibpur, January 2007.
  - Sarkar, J. R. and Maitra, B. (2005): A Few Practical Hints in Preparation of Highway Engineering Projects. *Proc. of International Conference on Structural and Road Transportation Engineering (START)*, IIT Kharagpur, January 2005, 133-140.
  - Phani Kumar, C. V. and Maitra, B. (2005): Modelling Travel Behaviour of Rural Bus Users for Various Trip Purposes. *Proc. of International Conference on Structural and Road Transportation Engineering (START)*, IIT Kharagpur, January 2005, 603-610.
  - Mitra, S., Reusswig, A., Boltze, M. and Maitra, B. (2005): Design of Traffic Signals at Urban Intersections – A Rational Approach. *Proc. of International Conference on Structural and Road Transportation Engineering (START)*, IIT Kharagpur, January 2005, 681-689.
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- Agrawal, M.L., Maitra, B. and Ghose, M.K. (2004): GIS Based Soil Erosion Impact Analysis for Highway Projects - A Case Study. *Proc. of International Conference on Innovative Techniques in Soil Resource Inventories*, Cha-am, Thailand, 257-262.
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- Maitra, B. (2002): Critical Considerations of Parking Control in Urban Areas. *Proc. of International Conference on Advances in Civil Engineering (ACE-2002)*, IIT Kharagpur, January 2002, 986-994.
- Nair, G. S., Basu, D. and Maitra, B. (2002): Modelling of Passenger Car Equivalency on Urban Mid-Blocks. *Proc. CD of International Workshop on Transportation Methodologies for Developing Countries (TPMDC-2002)*, IIT Bombay, December 2002.
- Maitra, B., Sikdar, P.K. and Dhingra, S.L. (1997): Modelling of Congestion : A Tool for Urban Traffic Management. *Proc. of International Conference on Computers in Urban Planning and Urban management (CUPUM-97)*, Indian Institute of Technology, Bombay, December 1997, 244-256.
- Maitra, B., Sikdar, P.K. and Dhingra, S.L. (1996): Modelling Urban Area Traffic Congestion and Policy Issues. *Proc. of International Workshop on Transportation Methodologies for Developing Countries (TPMDC-1996)*, IIT Bombay, December 1996, IX 5-7.
- Maitra, B., Sikdar, P.K. and Dhingra, S.L. (1995): Level of Service in Urban Roads Through Congestion as Measure of Effectiveness. *Proc. of International Conference on Roads and Road Transport Problems (ICORTS)*, New Delhi, December 1995, 1093-1105.

#### **9.6 Proceedings of National Conferences/Seminars**

- Maitra, B. and Bhattacharyya, K. (2014): Emerging Issues in Indian Urban Public Transportation Systems and Recent Initiatives by IIT Kharagpur, *Proceedings of National Workshop on Recent Advances in Civil Engineering (RACE-2014)*, VSSUT, Burla, Odisha, October 25, 2014,
- Dandapat, S., and Maitra, B. (2013): Trip Makers' Perception towards Bus System Attributes in Kolkata, *Proceedings of Symposium on Sustainable Infrastructure Development (SID)*, February 8-9, 2013, 346-353.
- Bhattacharyya, K., Maitra, B., and Boltze, M. (2013): Qualitative Approach for Selection of a Suitable Bus Priority Technique in Indian Scenario, *Proceedings of*

- Symposium on Sustainable Infrastructure Development (SID)*, IIT Bhubaneswar, February 8-9, 2013, 354 – 360.
- Maitra, B., and Basu, D. (2011): VMS Based Traffic Information: Research Needs in India, *Second National Conference on Intelligent Transportation System*, IIT Bombay, August, 2011.
  - Das, S. S. and Maitra, B. (2008): Generalized Cost Saving: A Measure of Transport Improvement. *Proc. CD of National Conference on Emerging Trend in Civil Engineering for Infrastructure Development*, NIT Raipur, February 2008.
  - Das, S. S. and Maitra, B. (2007): An Application of Stated Choice Approach for Valuing Attributes of Rural Feeder Service to Bus Stop. *Proc. of National Conference on Recent Advances in Civil Engineering*, CET Bhubaneswar, March 2007, 208-212.
  - Pal, S., Phani Kumar, C. V. and Maitra, B. (2006): Evaluation of Alternative Improvement Proposals for Rural, Bus Service - A case Study. *Proc. CD of National Conference on Civil Engineering Systems (CES)*, Osmania University, Hyderabad, May 2006.
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  - Phani Kumar, C. V. and Maitra, B. (2005): Perceived Values of Travel Attributes in Rural regions. *Proc. of National Conference on Advances in Road Transportation (ART)*, NIT Rourkela, 125-131.
  - Das, S. S. and Maitra, B. (2005): An Approach for Planning of Passenger Transportation System in Rural India. *Proc. of National Conference on Advances in Road Transportation (ART)*, NIT Rourkela, February 2005, 132-137.
  - Basu, D. and Maitra, B. (2004): An Off-Line Modeling of Stream Speed in Heterogeneous Traffic Environment using Ann. *Proc. of National conference on Traffic Engineering and Road Safety in India (TRAFFICON) – Problems and Prospects*, Bangalore, November 2004.
  - Maitra, B., Sarkar, J. R. and Sikdar, P.K. (2002): Road Transportation in India: Emerging Issues and Challenges. *Proc. of National Seminar on Road Transportation in India: Emerging Trends and Techniques (ROTRAN 2002)*, IIT Kharagpur, September 2002, 4.87-4.94.
  - Azmi, M., Maitra, B. and Pandey, R.S. (2002): Prioritization of Road Improvements- A Case Study. *Proc. of National Seminar on Road Transportation in India: Emerging Trends and Techniques (ROTRAN 2002)*, IIT Kharagpur, September 2002, 4.95-4.102.
  - Rao, K.V. K., Maitra, B., Sikdar, P.K. and Dhingra, S. L. (2002): Upgradation and Forecasting of Urban Travel Pattern – A Case Study. *Proc. of National Seminar on Road Transportation in India: Emerging Trends and Techniques (ROTRAN 2002)*, IIT Kharagpur, September 2002, 4.103-4.115.
  - Sarkar, J.R., Maitra, B., Phani Kumar, C.V. and Dasgupta, A. K. (2002): Station Area Traffic Problems and Approach to Solutions. *Proc. of National Seminar on Road Transportation in India: Emerging Trends and Techniques (ROTRAN 2002)*, IIT Kharagpur, September 2002, 5.53-5.62.
  - Sikdar, P. K. and Maitra, B. (2002): Institutional Strengthening Required for Sustainable Road System in India. *Proc. of National Seminar on Financial Management and Institutional Reforms*, Indian Roads Congress, New Delhi, II, 71-78.
  - Sikdar, P. K. and Maitra, B. (2001): Procurement Issues in Preparation and Execution of Road Projects. *Proc. of Conference on Infrastructure Development in India*, Kolkata, November 2001, IV 21-28.

- Maitra, B., Sikdar, P.K. and Dhingra, S.L. (1997): Modelling Congestion: A tool for Assessing LOS under Different Carriageway Width. *Proc. of Conference on Trend and Techniques in Transportation (TERTA-97)*, Centre for Transportation Engineering, Warangal, II: 93-110.
- Maitra, B., Sikdar, P.K. and Dhingra, S.L. (1996): Effect of On-street Parking on Traffic Congestion. *Proc. of National Conference on Transportation System Studies (NCOTSS)*, University of Mumbai, December 1996, 127-144.
- Maitra, B., Sikdar, P.K. and Dhingra, S.L. (1995): Modelling Congestion Under Mixed Traffic Environment. *Proc. of National Seminar on Emerging Trends in Highway Engineering (NASET)*, Bangalore, March 1995, T1. 1-1.13.
- Maitra, B., Sikdar, P.K. and Dhingra, S.L. (1993): Quantification of Congestion and its Prediction. *Proc. of 3rd National Conference on Transportation Systems Studies (NCOTSS)*, Vishakhapatnam, December 1993, VI 22-29.

### 9.7 Magazine

- Maitra, B., and Sadhukhan, S. (2013). "Public transport in the context of urban mobility in India." *Shelter, HUDCO/HSMI*, 14(2), 52–56.
- Maitra, B. and Basu, D. (2012). "Reducing journey time through VMS." *TrafficInfraTech*, 2(6).
- Maitra, B. and Ghosh, S. (2008). *Public Transport in India*, Thema Forschung, Das Wissenschaftsmagazin der Technischen Universitat Darmstadt, ISSN 1434-7768, 72-74.
- Agrawal, M.L., Maitra, B., and Ghose, M.K. (2005). Use of Public Perception and GIS for Analysis of Ecological Impacts due to a Highway Development Project. *GIS@developments*, 9 (3), 32-33.

## 10. Research Guidance

### 10.1 Research Scholar

- *Shubhajit Sadhukhan*: Planning of Transfer Facilities in and around Metro Stations (Jointly with Prof. U. K. Banerjee) (*On-going*)
- *Saurabh Dandapat*: Guidelines for Use of Different Types of Road Based Public Transportation System in India (*On-going*)
- *Bhaskar Paul*: Development of Warrants for Selection of Coordinated Signal System In Urban India (Jointly with Dr. S. Mitra) (*On-going*)
- *Santanu Ghosh*: Trip Makers' Perception towards Hard and Soft Factors of Bus Service and the Impact of these Factors on Bus Ridership in Urban areas (*On-going*)
- *Kinjal Bhattacharyya*: Evaluation of Passive Bus Priority Strategies with Queue Jump Lane and Development of Guidelines for Its Implementation in Indian Scenario (Jointly with Prof. Manfred Boltze) (*On-going*)
- *Prashant Prasad*: Improvement of Safety of School Trips and Traffic Management around Schools in Urban Areas: Kolkata as a Pilot Study (*Ongoing*)
- *Kaniska Ghosh*: Artificial Intelligence driven Real Time Traffic Management during Disaster or Major Traffic Incidents (*Ongoing*)
- *Munavar Fairouz C*: Design of Urban Bus Service with Segmentation (*Ongoing*)
- *Annam Sai Kiran*: Design and Evaluation of Composite Transportation Network in a Multimodal System for Travel Demand Management (*Ongoing*)
- *An Minh Ngoc (2014)*: "Quality Management for Public Transport in Motorcycle Dependent Cities" (Jointly with Dr. M. Boltze of TU-Darmstadt, Germany) (*Awarded*)

- *Nguyen Van Nam (2013):* Bus Prioritization in Motorcycle Dependent Cities (Jointly with Dr. M. Boltze of TU-Darmstadt, Germany) (*Awarded*)
- *Tumpa Hazra (2012):* Improvement of Solid Waste Management System Considering Direct and Indirect Costs (Jointly with Dr. S. Goel) (*Awarded*)
- *C. V. Phani Kumar (2011):* Modelling Generalized Cost of Travel and Policy Issues (*Awarded*)
- *D. Basu (2008):* Congestion Management at Corridor Level: Traffic Information as a Policy Measure (*Awarded*)
- *S. S. Das (2008):* Planning of Rural Feeder Service to Bus Stop (*Awarded*)
- *M. L. Agrawal (2006):* A Spatial Quantitative Approach for Environmental Impact Assessment of Highway Projects (*Awarded*)

## 10.2 Post-graduate Student

- Palak Maheshwary (2015): Development of a Methodology to calibrate Vehicle class-wise driver behavior in VISSIM Microscopic Simulator (Jointly with M. Boltze of TU-Darmstadt under DAAD)
- Abhishek Ashish (2015): Calibration of Robertson's Platoon Dispersion Model for an Urban Roadway Scenario in India
- Sunaram Marndi (2015): Development of physical facilities and traffic management strategies for better access to Ghats in Varanasi
- Patil Karan Suresh (2015): Measures for improving safety and efficiency of traffic and pedestrian movements around Gariahat, Kolkata
- Sunny Bansal (2014): Comparison of Food Logistics in India and Germany (Jointly with H. Friedrich of TU-Darmstadt under DAAD)
- Sai Kiran (2014): Speed Control Measures for Urban and Non-urban Roads in India (Jointly with M. Boltze of TU-Darmstadt under DAAD)
- Fairouz Munavar (2014): Measures for Improving Safety of Bus Users around the Bus Stop in Urban Areas (Jointly with M. Boltze of TU-Darmstadt under DAAD)
- Bandi Satishkumar. (2014): Perception to Trip Makers towards Attributes of Feeder Service in Rural Area
- Anush K. C. (2014): Planning of Cross Pedestrian Facilities in Urban areas
- Siri Aparna Bulusu (2014): Trip Characteristics of Households in Rural Areas
- Jahnavi (2014): Measures for Improving Safety of Different User groups at Signalized Intersections
- *Prashant Prasad (2013):* Evaluation of Existing Routes of Small Feeder vehicles in Urban India (Jointly with M. Boltze of TU-Darmstadt under DAAD)
- *Pranav Mishra (2013):* A Quality Management Framework for Public Transport Information System (Jointly with M. Boltze of TU-Darmstadt under DAAD)
- *Roshan Jose (2013):* Effect of Traffic Characteristics on Bus Priority Measures at Isolated Urban Intersections (Jointly with M. Boltze of TU-Darmstadt under DAAD)
- *Kaustubh Chuke (2013):* Selection of Bus Stops and Cross Pedestrian Facility at Urban Mid-blocks
- *Vijay Kumar G (2012):* Measures for Improvement of safety and Mobility along an Urban Traffic Corridor

- Kinjal Bhattacharyya (2012): Evaluation of Bus Priority at an Isolated Urban Intersection using Simulation Technique (Jointly with M. Boltze of TU-Darmstadt under DAAD)
- Krithika S. (2012): Development of Level of Service (LOS) Framework for Rural Feeder Service (Jointly with M. Boltze of TU-Darmstadt under DAAD)
- *Madhuri Jalli (2012): Assessment of Emergency Transportation Needs with Respect to Road Accident*
- *Rahul Padwal (2012): Comparison of Different Forms of Operation of Rural Feeder Service.*
- *Nilay Mallick (2012): A Comparison of Models for Estimating Delay at an Isolated Signalized Intersection*
- *Saurabh Dandapat (2011): Effect of Route Characteristics and Demand Level on Selection of Optimal Bus Type and Service Attributes in Urban Areas (Jointly with Dr. S. Mitra)*
- *Ravinder Bhandari (2011): Measures for Improving Safety and Efficiency of Traffic Movements on Upgraded National Highways: A Case Study of NH-6 Between Kharagpur and Dankuni (Jointly with Dr. S. Mitra)*
- *Dharma Tudu (2011): Analyzing Travel Characteristics of Commuters and Assessing the Need for Augmentation of Transport Supply: A Case Study of IIT Kharagpur Campus (Jointly with Dr. S. Mitra)*
- *Ashish Kothari (2011): Evaluation of Public Transportation System and Related Infrastructure following JNNURM Initiatives (Jointly with Prof. U.K. Banerjee)*
- *S. Z. Ali Nawaz (2011): Warrants for Operation of Small Feeder Vehicles (Jointly with M. Boltze of TU-Darmstadt under DAAD)*
- *Biswarup Das (2010): Effect of Transportation Developments on Travel Behaviour in Rural Areas*
- *Atanu Shit (2010): Selection of Optimum Bus Characteristics and Service Attributes along Bus Route*
- *Shubhajit Sadhukhan (2010): Planning and Management of Facilities around Selected Metro-Station Areas on East-West Metro Corridor in Kolkata (Jointly with Prof. U. K. Banerjee)*
- *Satheesh Babu (2010): Design of Fixed-Route Fixed-Schedule Rural Feeder Service*
- *Arul Stephen (2010): Bus Priority Measure for Isolated Urban Intersection (Jointly with M. Boltze of TU-Darmstadt under DAAD)*
- *M. Aditya Sarweswara Sarma (2009): Accident Modelling: A Case Study of NH-6 in West Bengal*
- *D. Sita Rami Reddy (2008): Effect of Overloading on Operational Life of Pavement and Determination of Overloading Charges*
- *Santa Suman Dutta (2008): Effect of Distributional Assumption of Random Parameters on Valuation of Travel Attributes in Mixed Logit Models*
- *Santanu Ghosh (2008): Effect of Model Specification and Socioeconomic Characteristics on Valuation of Travel Attributes*
- *Barun Halder (2008): Improvement of Road Transportation System in Rishra*
- *C.V.D. Prasanth (2007): Effect of Road Improvement, Fuel Price and Toll on Trip Making Behaviour of Car Trip Makers*

- *A. Maheshwari (2007): Enhancement of Road Safety on National Highway: A Case Study*
- *R. Misra (2006): Modelling Users' Willingness-to-Pay for Different Attributes of an Improved Roadway System*
- *S. Pal (2006): Optimizing Generalized Cost of Travel: An Approach for Improvement Planning of Rural Bus Service*
- *K. Donboklang (2005): Modelling Route Choice Behavior of Private Vehicle and Taxi Users: A. Case Study*
- *P. Ranjeeta (2005): Improvement of Traffic Demand via Vidyasagar Setu*
- *P. Ravi Kumar (2005): Modelling Generalized Cost of Travel for Urban Bus Users*
- *P. Yuwaraj (2005): GIS Based Transportation Logistic for Disaster Management*
- *S. Mitra (2004): An Analytical Approach for Design of Isolated Traffic Signals (Jointly with M. Boltze of TU-Darmstadt under DAAD)*
- *M. Sah (2003): Modelling Road Traffic Congestion and its Cost for Rural Highways*
- *S. K. Suman (2003): Rural Road Network Planning*
- *A. K. Sandra (2003): Analytical Evaluation of German Flexible Pavement Designs (jointly with Dr. K. S. Reddy and M. Boltze of TU-Darmstadt under DAAD)*
- *T. S. De (2003): Traffic Simulation at Signalized Intersection (2002-03) (jointly with Dr. K. S. Reddy)*
- *P. Srinivas (2003): Effect of Aggregate Gradation on Permanent Deformation Characteristics of Bituminous Mixes.*
- *M. Azmi (2002): A Computer Model for Simulation of Traffic Movements on Urban Corridor.*

### **10.3 Graduate Student**

- *Rajan Bajaj (2014): Assessment of Car Pooling Services for School Children- A Case Study in Kolkata.*
- *Vivek Kumar (2014): Effect of Socio-Economic and Trip Characteristics of Trip-Makers on Their Perception toward Bus System Attributes*
- *Abhishek Ashish (2014): Design of Coordinated Signal Systems for Urban Traffic Corridor in India*
- *Sourabh Jain (2013): Effect of Route Characteristics and Demand on Design of Rural Feeder Service with Fixed Route Fixed Schedule Form of Operation*
- *Aayush Agarwal (2012): Development of a Taxi Fare Model with due Consideration to Traffic Congestion and Vehicle Operating Cost*
- *Rahul Padwal (2011): Comparison of Different Forms of Operation of Feeder Vehicles in Rural Areas*
- *Rohit Rout (2011): Selection of Optimal Service Attributes of Small Feeder Vehicles in Rural Areas*
- *Sai Ram (2010): Effect of Lane Discipline on Operational Characteristics of Traffic Stream*



- *Shrey Modi (2009): Selection of Optimal Bus Characteristics and Service Attributes at a Route Level (Recognized as the best Project in the Department in 2009)*
- *Pradeep O. P (2009): Lane Behaviour of Vehicles on Multi-lane Highways and its Impact on Design Life of Pavement*
- *Varun Mangal (2008): Measures for Improving Road Safety: A Case Study of National Highway-6*
- *Rachit Srivastava (2008): SOM Based Classification of Data for Valuation of Travel Attributes (Jointly with Dr. Sudhir V Barai)*
- *Gaurav Manoj Chowdhary (2008): Estimation of Saturation Flow at Signalized Intersections*
- *Amritanshu Kumar (2007): Effect of Traffic Information on Route Switching*
- *P. Vinay Sastry (2007): Simulation of Bus Routes at a Corridor Level: A Case Study*
- *G. Batchu (2007): Modelling Passenger Car Equivalency at an Urban Mid-block using Congestion as Measure of Equivalence*
- *K. Jacques (2006): Transportation Logistics for Supply Management*
- *A. Anand (2006): An Application of Analytical Hierarchy Process for Prioritization of Road Projects*
- *Anurag (2005): Effect of On-Street Parking on Passenger Car Equivalency*
- *S. Johari (2005): Stochastic Dynamic Traffic Assignment at Corridor Level (Recognized as the best Project in the Department in 2005)*
- *N. K. Sharma (2004): Travel Demand Forecasting Model for Non-urban Roads*
- *V. Sinha (2004): Development of a Model for Transportation Logistics*
- *R. Roy (2004): Rural road Network Planning*
- *G. Panwar (2003): Modelling Generalized Cost of Travel and Related policy Issues*
- *G. S. Nair (2002): Evaluation of Dynamic Passenger Car Units using Artificial Neural Networks*
- *N. Kumar(2002): Traffic Simulation Model for Analysis and Evaluation of Urban Corridors with and without flyover*

## 11. Sponsored Research and Industrial Consultancy

March 2001 – till date

*Assistant/Associate Professor/Professor, Civil Engineering Department, IIT Kharagpur*

### On-going Projects

**Evaluation of Passive Bus Priority Techniques with Queue Jump Lane and Development of Guidelines for Its Implementation in Indian Scenario (Principal Investigator: Prof. Bhargab Maitra), SERB, Govt. of India (June 2014 to June 2017) (Research Project)**

With rapid urbanization and growth of private vehicles, it has become increasingly important to improve bus ridership as an instrument for demand management in urban India. As substantial delay to traffic occurs at urban intersection, it is also meaningful to give priority to buses at traffic signals and improve the bus journey

time in order to make buses an attractive alternative to car users. There are several issues and challenges related to implementation of bus priority techniques in urban India, which have not been investigated adequately. The proposed research project aims to investigate various aspects of providing passive bus priority techniques with queue jump lane at signalized intersections and develop guidelines for its implementation in urban India. The proposed research includes theoretical modelling (in a micro-simulation framework) as well as field implementation and evaluation.

**Future of Cities (Coordinator: Prof. Bhargab Maitra; Principal Investigators: Prof. Bhargab Maitra and Prof. Joy Sen; Co-Investigators: 57 Faculty Members of IIT Kharagpur and other Institutes in India and Abroad), MHRD/IIT Kharagpur, Govt. of India (January 2014 to December 2019) (Research Project)**

**Segmentation and Design of Bus Services in Urban India: Kolkata as a Pilot Study (Principal Investigators: Prof. Bhargab Maitra and Prof. Biswajit Mahanty; Co-Investigators: Prof. Arindam Basu, Prof. Pulak Mishra, Prof. Rudra Prakash Pradhan, Dr. Phani Kumar Chintakayala, Prof. Pabitra Mitra), MHRD/IIT Kharagpur, Govt. of India (April 2014 to March 2018) (Research Project)**

A recent study carried out by IIT Kharagpur indicates that captive and choice riders are distinctly different groups in terms of their Willingness-to-Pay (WTP) for bus service attributes. The study also indicates that the present bus service even with more number of buses is unlikely to be instrumental in arresting the shift of choice riders to private vehicles. A distinct segmentation of bus service in urban India is proposed as a solution for making the bus service an attractive alternative to choice riders without imposing additional financial burden to the economically weaker section (in terms of increase in fare) and the Government (in terms of increase in the subsidy). The present project aims to investigate various issues related to segmentation of bus service and suggest suitable action plan for its effective implementation. It is proposed to demonstrate the work with reference to bus system in the Kolkata city. An action plan will be developed for effective implementation of 'segmentation of bus service' in the Kolkata city giving due considerations to various issues pertaining to service providers, users, and the Government. Two major components of the work include: (i) Strategies and action plan for carrying out segmentation of bus service from organizational or service providers' perspective where there are multiple service providers (both Government and Private) and there are substantial variations in the quality of buses (e.g. vehicle characteristics, age, etc.) operating in the city, and (ii) Design of bus services with segmentation considering the requirements of various user groups, route and demand characteristics, user costs, operator costs, effective utilization of available subsidies, operational viability, etc. It is proposed to select a pilot route for implementation of recommended bus services with segmentation and carry out a post-implementation evaluation.

**Improvement of Safety of School Trips and Traffic Management around Schools in Urban Areas: Kolkata as a Pilot Study (Principal Investigator: Prof. Bhargab Maitra; Co-Investigators: Dr. S.Velmurugan, Prof. Akhilesh Kumar Maurya, Prof. Dr.-Ing. Manfred Boltze, Prof. Uday Shankar, Prof. Pabitra Mitra), MHRD/IIT Kharagpur, Govt. of India (April 2014 to March 2018) (Research Project)**

The imbalance between demand and supply of transport has aggravated traffic congestion and pollution in urban India. Over years, a large number of schools which

were established in open areas with low traffic intensity have gradually become parts of dense urban development and alongside busy traffic corridors. The three most significant modes used in the transfer of school children are school bus, pool-cars and private vehicles. Among the three modes, a significant portion of school trips are now made using private vehicles. The reason behind such modal preferences may primarily be attributed to the poor quality and security concerns associated with pool-cars and school buses. Due to increasing use of private vehicles, the roads in the influence zone of the schools are severely affected during the school opening and closing hours. Consequently, this is aggravating the traffic congestion, emission and safety problems around schools. The present project aims to (i) Investigate issues related to safety and security of school trips and formulate measures for improvement, (ii) Understand present modal share and formulate measures for discouraging the use of private vehicles in favour of carpools and school buses as a demand management strategy, (iii) Review traffic operations around schools in urban areas and recommend suitable traffic management plans including dynamic speed management, (iv) Identify gaps in terms of training needs for drivers and suggest suitable training programme for improving the driving performance for school trips, and (v) Identify gaps in terms of safety awareness of school children and suggest suitable measures for improvement. The work will be demonstrated with reference to 5 to 10 schools in the Kolkata city.

**Design and Evaluation of Composite Networks in a Multimodal System for Travel Demand Management in Urban Areas (Principal Investigator: Prof. Bhargab Maitra; Co-Investigators: Prof. Debasis Basu, Prof. K. V. Krishna Rao, Prof. Abhijit Mukherjee), MHRD/IIT Kharagpur, Govt. of India (April 2014 to March 2018) (Research Project)**

Realizing the magnitude of various transport related problems in urban India, the Central and State Governments have taken up several initiatives to achieve sustainability in urban transport. In all these initiatives, major emphasis has been given on improving the quality and quantity of urban public transport service. However, the success of public transportation does not only depend on the quality of public transport service alone. As public transport does not provide door-to-door travel, hence, in order to ensure a self-sustainable transportation infrastructure in urban India, one of the most important requirements is to introduce a comprehensive planning of a well networked public transportation system, giving due consideration to access and egress to public transport services and integration with other modes in a multi-modal urban transportation environment. The present project aims to (i) Design and develop an optimal composite network consisting of primary public transport service and other feeder modes including non-motorized transport (walk and bi-cycle) for the purpose of introducing a convenient and sustainable door-to-door travel concept of urban commuters, and (ii) Evaluate the impacts of the proposed optimal network on commuters. The work will be demonstrated with reference to two case studies: (i) A town, where major emphasis will primarily be laid on para- public transportation services such as auto-rickshaws, tempos instead of town-buses: say, Kharagpur or Midnapore town in West Bengal, and (ii) A city, where bus service, as a part of primary public transportation service, has recently been introduced. The city does not have a good-networked public transportation service and over a period of time, autos and personalized vehicles were the major transportation modes: say, the Bhubaneswar City in Orissa.

**Artificial Intelligence Driven Real Time Traffic Incident Prediction and Traffic Management (Principal Investigators: Prof. Bhargab Maitra, Prof. Sudeshna Mitra and Prof. Sudeshna Sarkar; Co-Investigators: Prof. Partha Pratim Chakrabarti, Prof.**

Pabitra Mitra, and Prof. Soumya Kanti Ghosh), **MHRD/IIT Kharagpur**, Govt. of India (April 2014 to March 2018) **(Research Project)**

The traffic state in the surrounding road network of the location of disaster or traffic incident may vary widely depending on the time of occurrence. The spatial impact is a function of traffic state and several other factors such as location of incident, nature of incident, network geometry, traffic management action, etc. The traffic management actions during such situations are required to satisfy primarily two objectives. First, traffic management should ensure early arrival of vehicles which are necessary for relief and evacuation at the incident location. Secondly, traffic management should ensure smooth dispersal of other vehicles in the influence area network with minimum impact of the incident. This task relates to efficient spatial and temporal management of traffic congestion through traffic diversions. Rational decision making to satisfy the dual objectives is a complex task due to several reasons and such decision making needs to be done on a real time basis. The data available or likely to be available are vast and include both static and dynamic data. It is aimed to identify the segment of data which are important for the context specific real time decision making, use them for evaluation of alternative solutions and make recommendations keeping in mind the dual objectives. It is proposed to take Kolkata Metro City as the case study of the proposed research.

**Urban - Design, Planning & Urban Engineering Exploration of Varanasi (Principal Investigators:** Prof. Partha Pratim Chakraba and Prof. Joy Sen; **Co-Investigators:** Prof. Bhargab Maitra, Prof. Pallab Dasgupta, Prof. Priyadarshi Patnaik, Prof. Haimanti Banerji, and Prof. Abhijit Mukherjee), **MHRD/IIT Kharagpur**, Govt. of India (January 2014 to December 2017) **(Research Project)**

**Assessing the Current & Future Creative Economic Regeneration Scope of Traditional River -Based Heritage & Eco-Tourism Networks in KMA, Bengal (Principal Investigators:** Prof. Joy Sen and Prof. Saikat Kumar Paul; **Co-Investigators:** Prof. Somnath Sen, Prof. Bhargab Maitra, Prof. Haimanti Banerji, and Prof. Pulak Mishra), **MHRD/IIT Kharagpur**, Govt. of India (January 2014 to December 2018) **(Research Project)**

**A creative economic & urban redesign based pilot project of Gariahat Area (Principal Investigators:** Prof. Joy Sen and Prof. Koumudi Patil; **Co-Investigators:** Prof. Bhargab Maitra, Prof. Haimanti Banerji, and Prof. Pulak Mishra), **MHRD/IIT Kharagpur**, Govt. of India (January 2014 to December 2018) **(Research Project)**

**Trip Makers' Perception towards Hard and Soft Factors of Bus Service and the Impact of these Factors on Bus Ridership in Urban areas (Principal Investigator:** Prof. Bhargab Maitra), **Human Settlement Management Institute, HUDCO, New Delhi** (February 2013 to December 2015) **(Research Project)**

Identifying hard and soft factors of bus service which are relevant to urban trip makers, estimating importance these factors from trip makers' point of view, design of travel behavior instruments, collection of stated preference (SP) and Revealed Preference (RP) data, analysis of SP data by developing econometric models, calculation of willingness-to-pay (WTP) values, development of a combined model using both SP and RP data and evaluation of the effect of hard and soft factors of bus service on trip makers' mode choice behavior and bus ridership, and formulating user requirement driven policies for improvement of bus system and bus patronage in urban India

**Safety Consultancy Service for the Construction of New Bridge/Structure, Repair of Existing 4-Lane Highway from Baleswar to Kharagpur Section of NH-60 (km0.00 to km119.30) in the States of Odisha and West Bengal and Its Operation and Maintenance under NHDP Phase-I to be Executed at BOT (Toll) on DBFOT Pattern (Consultant-in-Charges: Prof. Bhargab Maitra and Prof. Sudeshna Mitra, Co-Consultants: Prof. Jhareswar Mati, Prof. K. S. Reddy, Prof. M. A. Reddy and Prof. K.P. Biligiri), NHAI, Govt of India (August 2014 to August 2018) (Consultancy Project)**

Carrying out road safety audit during construction, Analysis of accident and monthly report submission, Examine if suggestion have been implemented, Submission of Final Gap report, Review of safety plan prepared by concessionaire, and Submission of Final Report and Recommendations

**Safety Consultancy Service for the Stretch of Four Laning of Sambalpur-Baragarh-Chattisgarh/Odisha Border Section of NH-6 From Km 0.00 to Km 88.00 in the State of Odisha (Consultant-in-Charges: Prof. Bhargab Maitra and Prof. Sudeshna Mitra, Co-Consultants: Prof. Jhareswar Mati, Prof. K. S. Reddy, Prof. M. A. Reddy and Prof. K.P. Biligiri), NHAI, Govt of India (September 2014 to September 2017) (Consultancy Project)**

Carrying out road safety audit during construction, Analysis of accident and monthly report submission, Examine if suggestion have been implemented, Submission of Final Gap report, Review of safety plan prepared by concessionaire, and Submission of Final Report and Recommendations

**Safety Consultancy Services for Six Laning of Dankuni-Kharagpur Section of NH-6 from Km 17.6 to Km 129 in West Bengal (Consultant-in-Charges: Prof. Sudeshna Mitra and Prof. Bhargab Maitra; Co-Consultants: Prof. Nirjhar Dhnag, Prof. K. S. Reddy, Prof. Jhareswar Mati, Prof. M. A. Reddy and Prof. K.P. Biligiri), NHAI, Govt of India (September 2013 to August 2016) (Consultancy Project)**

During Detailed Design Check: Preparation and submission of Inception Report, Methodology and implementation plan finalization and training, Collection of accident data from primary and secondary sources and compilation, Collection of geometric and traffic data, Comprehensive analysis of accident data, Further inspection of high crash locations, Recommendations from RSA of detailed design and Submission of Final Report and Recommendations

During Construction Stage: Analysis of accident and monthly report submission, Examine if suggestion have been implemented, Submission of Final Gap report, Review of safety plan prepared by concessionaire, Review of worker safety plan, Review of fire, electrical and mechanical safety plan, Conducting workshop, and Submission of Final Report and Recommendations

**Advisory Services for Consultancy Service for Preparation for Formulation of Base-line Master Plan and Strategic Option Study for Prioritization for Development of State Highways (Consultant-in-Charge: Prof. Bhargab Maitra; Co-Consultants: Prof. K. S. Reddy, Prof. Sudeshna Mitra, and Prof. K. P. Biligiri), (May 2013 onwards) (Consultancy Project)**

Advisory inputs related to methodology for field survey, traffic analysis and projection including O-D zoning, traffic diversion, methodology for prioritization, improvement options, etc.

**Review of Traffic Demand Projection and Transportation design for Dankuni Chandannagar-Kalyani More under WBHDCL, WBHDCL (Consultant-in-Charge: Prof. Bhargab Maitra; Co-Consultants: Prof. K. S. Reddy, and Prof. Sudeshna Mitra), ((May 2013 onwards) (Consultancy Project)**

Analysis of primary and secondary data, estimation of ADTs and AADTs for various homogeneous sections, derivation of traffic growth factors and forecasting of AADTs in horizon years, capacity analysis and recommendations, location of toll plaza, improvement of intersections and suggested layout, and traffic management and safety measures incorporated in the design

**Travel Demand Forecasting for Selected State Highways in West Bengal, RITES LIMITED/WBHDCL (As Expert Adviser to RITES Limited) (Consultant-in-Charge: Prof. Bhargab Maitra; Co-Consultants: Prof. K. S. Reddy, Prof. M. A. Reddy and Prof. Sudeshna Mitra) (September 2012 onwards) (Consultancy Project)**

Methodology for traffic forecasting, data requirements, estimation of traffic growth factors, capacity analysis, recommendation with respect to road widening, and providing traffic input for economic and financial analysis.

### **Completed Projects**

**Traffic Analysis for Developmental Traffic of Urbana Township of Bengal NRI Complex Limited, Bengal NRI Complex Limited (February 2013 to April 2013)**

Updating the estimation of developmental traffic and forecasted traffic volumes on road network in the influence area of the Urbana Township of Bengal NRI Complex.

**Development of Public Transport for Hail City, Saudi Arabia, Gulf Engineering House, Saudi Arabia (July 2012 to December 2012)**

Design of Travel Behaviour Instrument, Analysis of Stated Preference Data, Estimation of Willingness to Pay Values, Generalized cost model, Demand Model, etc.

**Detailed Study of Traffic Movements Inside and Outside Haldia Dock Complex and Recommendation for Improvement of Traffic Dispersal System, RITES Limited/ HDA (As Advisor to RITES Limited) (March 2012 to September 2012)**

Identifying the primary and secondary data requirement, Developing the methodology for analyzing data, Guiding RITES team for framing the recommendations, etc.

**Traffic Impact Study and Planning of Transportation Facilities for the Proposed SMART CITY in Kochi, CANNON Design (February 2012 to March 2014)**

Preliminary movement and transport strategy, Conceptual circulation, access and road network with typical cross sections and indicative road corridors considering accessibility and connectivity to the site from existing road networks, Estimations of traffic generated by the project and road parking requirements, Parking strategy,

Traffic count surveys and analysis of the findings, Off site highway network data, studies and future projection, Public and non-motorized transportation, On site traffic generation and off site impact, Demand management, Parking demand and supply, Develop different proposals for the access points, development of a site circulation plan for each exit and entrance, etc.

**Planning and Design of Transportation Facilities with the Premises of the Proposed Info Park at Kochi, CANNON Design (January 2011 to November 2011)**

Traffic assessment and estimates in terms of estimated population and relative traffic volume, ownership pattern, modal split, vehicle occupancy, and staff shift patterns, transport planning, parking estimates, road network, cross sections, and pavement type.

**Planning of Transportation Facilities within the Premise of the Proposed IT Campus of TCS at Bhubaneswar, CANNON Design (January 2011 to August 2011)**

Recommendations with respect to traffic circulation plan, planning of road network, geometric design of roads, road furniture, parking facilities, pedestrian facilities, planning of entry/exit gate and security check lanes; estimation of the developmental traffic and design peak hour traffic volumes on internal roads; recommendation on required carriageway widths for different hierarchies of road based on design peak hour traffic volume and desired level of service; estimation of parking demands for different categories of vehicle within the proposed development premise; and recommendation on parking capacity and parking provision

**Development of Public Transport for Dammam Urban Area, Saudi Arabia, Gulf Engineering House, Saudi Arabia (January 2010 to September 2011)**

Design of Travel Behaviour Instrument, Analysis of Stated Preference Data, Estimation of Willingness to Pay Values, Generalized cost model, Demand Model, etc.

**Development of Guidelines for Use of Different Types of Bus in India- Phase I, HUBNER, Germany (January 2010 to January 2014)**

Review of Bus Transportation Systems and Bus Projects in India, Review of Relevant Bus Characteristics and Comparison of Different Types of Bus, Estimation of Trip Makers' Willingness-to-Pay with Respect to Bus Characteristics and Service Attributes in an Urban Context, Development of a Model for Simulation of Bus Passenger Movements and Identifying Optimal Bus Characteristics and Service Attributes, Development of Guidelines for Suitability of Different Types of Bus in Urban Areas

**Consulting Opinion for Construction of a Rotary in front of Raj Bhawan Square, Bhubaneswar, D.P.I & Roads, Govt. of Orissa (January 2009 to March 2009)**

Review of design and drawing, site visit, identifying issues related to proposed development, make suitable recommendations.

**Development of Public Transport for Zajan Territory, Saudi Arabia, Gulf Engineering House, Saudi Arabia (October 2008 to September 2009)**

Design of Travel Behaviour Instrument, Analysis of Stated Preference Data, Estimation of Willingness to Pay Values, Generalized cost model, Demand Model, etc.

**Study the Ramps on Bally Side from Old G. T. Road to Sister Nivedita Bridge on NH-2 near Kolkata in West Bengal**, NHAI, Govt. of India (June 2008 to September 2009)

Review of site and proposal for layout/plan of the ramps including location of toll plaza duly meeting all technical and safety aspects, Carrying out various traffic studies, Assessment and projection on the likely traffic on ramps and thereby the additional traffic, and Formulation of traffic management measures.

**Feasibility Study for Proposed Grade Separated Intersection at the Junction of Belghoria Expressway and Kalyani-Dumdum Expressway**, KMDA, Govt. of West Bengal (June 2008 to August 2009)

Reconnaissance and identification of traffic study locations, carrying out traffic studies, estimation and forecasting of travel demand for 20 years, suggesting technically feasible layout for grade separator, geometric design of grade separator, design of traffic control measures, and economic evaluation.

**Travel Demand Forecasting for Kolkata Elevated Ring Road Project**, J. R. Sarkar and Associates, Kolkata (June 2008 to August 2008)

Formulating suitable methodology and logit model for travel demand forecasting, Assessing the data needs, Identifying survey locations and Review of work/ analysis.

**Improvement of Road Connectivity, Traffic Mobility and Safety in the Influence Area of Keventer Premises in Barasat**, KEVENTER Fresh Limited, Kolkata (February 2008 to November 2008)

Carrying out classified traffic volume study at selected locations, Estimation of developmental traffic, Forecasting of existing as well as developmental traffic for the next 10 years, Analyzing impacts of traffic growth alongwith developmental traffic on Barasat-Barakpore road over a span of 10 years, Identifying and evaluating alternative routes/roads for improving connectivity between Keventer premises and Barasat-Barakpore road, Suggesting improvement measures with due consideration to traffic mobility and safety

**Measures for Improving Traffic Mobility around the Proposed Mixed Use Development at Rishra**, KEVENTER Projects Limited, Kolkata (January 2008 to August 2008)

Identifying the influence area of the proposed development, Carrying out various traffic studies, Estimation of the developmental traffic, Forecasting of existing as well as developmental traffic for the next 10 years, Analyzing impacts of traffic growth alongwith developmental traffic on influence area road links and intersections over a span of 10 years, Suggesting suitable measures for improving traffic mobility around the proposed development, Assessing the parking demand and suggesting guidelines for safe and efficient circulation of traffic within the premises of the proposed development



**Traffic Study for Project- ITC East India, Kolkata, ITC Limited Kolkata (July 2007 to October 2008)**

Carrying out traffic volume and parking studies, estimation of developmental traffic, forecasting of traffic, analyzing impact of traffic growth alongwith developmental traffic on the surrounding road network, suggesting suitable transportation improvement measures, traffic management, etc.

**Traffic Study for the Proposed Mixed Use Township Complex in Kasba Area, Kolkata, Bengal NRI Complex Limited, Kolkata (July 2007 to July 2008)**

Carrying out traffic volume study, estimation of developmental traffic, forecasting of traffic, analyzing impact of traffic growth alongwith developmental traffic on the surrounding road network, suggesting suitable transportation improvement measures, traffic management, etc.

**Traffic Studies for Development of Spencer Mall, Kolkata, SYSTRA Consulting (India) Pvt. Ltd. (May 2007 to August 2007)**

Carrying out various traffic studies including traffic volume, saturation flow, control delay, parking, and trip generation from commercial establishments; Assessment of Level of Service, Estimation of growth factor, Participation in formulation of traffic management and road Improvement Measures, etc.

**Planning of Public Transportation System in the City of Buraida, Saudi Arabia, Gulf Engineering House, Saudi Arabia (December 2005 to September 2006)**

Formulation of the methodology for the overall work, evaluation of existing public transportation system, mode choice modeling using Revealed/ Stated preference data, and demand estimation.

**FS and DPR for 4/6 Laning of NH 37 from Nagaon to Jorhat in the State of Assam, Length 170 Km. Wilbur Smith Associates/ NHAI, Govt. of India (November 2005 to August 2006)**

Carry out traffic engineering components including data requirements, identification of survey locations, formulation of methodology, estimation of ADT, seasonal factors and AADT, estimation of traffic growth factors, forecast traffic volumes, capacity analysis, analysis of alternative routes, etc.

**Transportation Study for Increase in Traffic Level and Revenue via Vidyasagar Setu", HRBC, Govt. of West Bengal (October 2004 to December 2005)**

Suggest measures for increasing traffic level via Vidyasagar Setu through (i) improvement in dispersal network at Howrah end including the improvement of Santragachi station area, and (ii) suitability of toll rates for different vehicle types. Work includes use of stated and revealed preference data, development of utility models, forecasting of traffic and analysis of different alternative network scenarios and toll rates.

**FS and DPR for 4/6 Laning of Itanagar-Halem Section of NH52/NH52A in the States of Arunachal Pradesh and Assam, Length 92.0 Km., Wilbur Smith Associates/NHAI, Govt. of India (August 2004-August 2005)**

Carry out traffic engineering components including data requirements, identification of survey locations, formulation of methodology, estimation of ADT, seasonal factors and AADT, estimation of traffic growth factors, forecast traffic volumes, capacity analysis, analysis of alternative routes, etc.

**Modelling Generalised Cost of Travel and Studying the Sensitivity of its Components using SP and RP Data, DST, Govt. of India (August 2002 to April 2006)**

Formulation of methodology, design of RP and SP experiments, carry out primary surveys including boarding and alighting surveys, origin-destination surveys, SP and RP surveys, cross-classification of data, model development, analysis, estimation of perceived values associated with various travel attributes like travel time, headway, discomfort, etc., and carry out sensitivity analysis.

**Pradhan Mantri Gram Sadak Yojana, West Bengal and Mizoram, NRRDA, Ministry of Rural Development, Govt. of India. (As a member of State Technical Agency/ Principal Technical Agency) (2001 onwards)**

Review of traffic, safety, planning and design considerations of rural roads. Also responsible for providing training and guidance to engineers involved in preparation and execution of PMGSY projects

**Jul. 1999 – Feb. 2001                      *Manager (Highway and Transportation), Gherzi Eastern Limited, Mumbai***

**MUTP-II, Phase 2 (Non\_Rail Component), Feasibility & DPR of Anik- Panjerpole Link Road, Mumbai, MMRDA (*Funded by* World Bank)**

Carry out traffic surveys, development of trip matrices, Analysis of transportation network, traffic forecasting, traffic dispersal and network improvement and economic inputs for understanding economic viability of new 4-lane road.

**Traffic and Transportation Study for Worli-Bandra Sea Link Project, Mumbai, MSRDC**

Four Stage Transportation Modelling, Traffic Forecasting, Generalised Cost Modelling, Analysis of Stated Preference Survey Data, Toll Sensitivity, Dispersal of Traffic at both ends of Sea Link, Network improvement and safety considerations, Economic Analysis and Financial Inputs for the Proposed Project

**Four Lanning and strengthening of the Existing Two Lane Section of NH2 (Aurangabad to Barwa Adda), NHAI**

Specialist input for Traffic Forecasting, Highway Design using INROADS and overall coordination of highway, traffic and pavement related aspects of the project. Also responsible for junction design, economic inputs, preparing alternatives for economic analysis using HDM-III.

**Feb. 1998 to Jun. 1999**      **Senior Transportation Engineer**, Transport and Planning Group, Mumbai

**Improvement of Road Network Around Bandra-Kurla Complex, Mumbai, MMRDA**

Traffic Survey, Analysis of Survey Data, Network Development Proposals, Improving Traffic and Parking Management

**Package 4 of MUTP-II, Phase 2 (Non\_Rail Component), Parking Demonstration Plan in Mumbai City, MMRDA (*Funded by*: World Bank)**

Parking Surveys, Estimation of Parking Demand, Detailed Road Inventory and Estimation of Suitable Supply Level, Distribution of Parking Spaces, Signs and Markings, Safety issues related to on-street parking, Tools and Techniques for Demand Management and Parking Enforcement, Parking Voucher Systems and Various Operational Aspects of Parking Demonstration Plan

**Package 3 of MUTP-II, Phase 2 (Non\_Rail Component), Three Road Over Rail Bridges Including Approaches: Jogeswari (N), Jogeswari (S) & Vikhroli, Mumbai, MMRDA (*Funded by*: World Bank)**

Traffic Surveys, Traffic Forecasting, Traffic Dispersal Schemes and Design of junctions and Traffic Signals.

**Package 2 of MUTP-II, Phase 2 (Non\_Rail Component), Upgrading of Existing 15 Km Long, 2 Lane Jogeswari-Vikhroli Link Road to 6 Lane Standard, Mumbai, MMRDA (*Funded by*: World Bank)**

Traffic Survey, Analysis, Traffic Forecasting, Layout of Junctions and Design of Signals; and Road Signs and Markings.

Feb. 1997 to Jan. 1998      **Lecturer, Department of Civil Engineering**, Bengal Engineering College, Howrah

**July 1992 to Jan 1997**      **Research Scholar, Department of Civil Engineering, IIT Bombay**

**Modelling of Travel Demand Forecast for the 6<sup>th</sup> and 7<sup>th</sup> Rail Corridor as Underground Metro System and Estimation of Section and Station Loading, Mumbai Metro Planning Group (MMPG)**

Collection of primary and secondary data, travel demand modelling and analysis of Stated Preference Survey data, network analysis.

**GIS Database for Planning and Monitoring of Regional Road Network, NRDMS, (DST), New Delhi**

Collection of secondary information from various agencies, making the database compatible for TRANSCAD, analysis of data and addressing safety issues.

**GIS Technology for Transportation Engineering, (AICTE), New Delhi**

Collection of secondary information, identification of attributes and frameworks for GIS application, analysis.

**Review of Land-use Transport Modelling for Indian Cities, (RITES), New Delhi**

Review of selected categories of Land-Use Transport models and suggesting the applicability for various city sizes in India.

**Improvement of Traffic Circulation Around Ghatkopar Railway Station, Bombay, (BMRDA)**

Collection of Traffic Data, Analysis and Development of Alternative Traffic Management Schemes.

**Strategic Land-use Transport Model for Madras Metropolitan Area, Madras, MMDA (*Funded by*: World Bank)**

Review of traditional land-use transport models and formulating and developing a strategic land-use transport model for Madras Metropolitan Area.

**Jul. 1991 to Jun. 1992** *Senior Project Associate (SPA)/ Project Associate (PA), Department of Civil Engineering, IIT Kanpur*

**Computer Aided Design and Drafting of Geometric Elements of Highways, Sponsored by MHRD, Govt. of India (MHRD/CE/8512)**

Development of Computer Aided Design and Drafting (CADD) of various geometric elements of Highways including horizontal and vertical curves, super-elevation etc. as per IRC/MOST specifications.

## 12. Other Academic/Professional Activities

### 12.1 Development of Courses

- “Introduction to Transportation Engineering” -Jointly with Prof. K. S. Reddy (September 2004 to May 2006) (Video-based, Phase-I of NPTEL)
- “Introduction to Transportation Engineering” -Jointly with Dr. Sudeshna Mitra and Dr. M. A. Reddy) (Completed partially under Pilot Phase of Pedagogy Project)

### 12.3 Media/Social Interactions for Safety and Efficiency of Transportation System

Interview in Ei Samay (The Times of India Group's Bengali daily) related to Safety and Efficiency of Transportation System in Kolkata (*Published on 20.12.2012*)

Participation as a Traffic and Transportation Specialist in ‘Dial-100’ (an Interactive Programme with the public) on “Kolkata Doordarshan’ regarding “Road Traffic Accident and Remedies” *on 03.05.2012* (on Invitation from Kolkata Police)

### 12.4 Member-STA / PTA for Pradhan Mantri Gram Sadak Yojana

Actively involved in technical scrutiny of road development proposals and providing technical support to engineers involved in the implementation of Pradhan Mantri Gram Sadak Yojana (PMGSY) in the states of West Bengal and Mizoram. IIT

Kharagpur has been recognized by NRRDA, Govt. of India, as a State Technical Agency (STA) for West Bengal and Mizoram; and also as Principal Technical Agency (PTA) for some of the eastern/ northeastern states. (2001 onwards)

### 12.5 Conference/ Seminar/ Short-Term Course Organized

- **Coordinator for the 9<sup>th</sup> International Doctoral Seminar on Traffic and Transportation Engineering (IDS-2013)** during December 6-11, 2013 at IIT Kharagpur, which was attended by 30 participants from various academic institutes in India and abroad.
- Member Secretary for the **International Conference on “Structural and Road Transportation Engineering (START)”** during 3-5 January, 2005 at IIT Kharagpur, which was attended by about 100 participants from academic institutions, Govt. organizations and industries.
- Coordinator (joint responsibility) for the **Training Programme for Engineers on “Implementation of Pradhan Mantri Gram Sadak Yojana (PMGSY)”** during January 5-7, 2004 at IIT Kharagpur, which was attended by 42 Engineers from various districts of West Bengal.
- Treasurer and Organizing Committee member for the **International Workshop and Conference on “Construction Management and Materials (CONMAT)”** during 9-11 January 2003 at IIT Kharagpur, which was attended by about 100 participants from academic institutions, Govt. organizations and industries.
- Organizing Secretary (joint responsibility) for the **National Seminar on “Road Transportation in India: Emerging Trends and Techniques (ROTRAN)”** during 12-13 September 2002 at IIT Kharagpur, which was attended by about 125 participants from academic institutions, Govt. organizations and industries.
- Coordinator (joint responsibility) for the **Short Term course on “Advanced Road Infrastructure Planning and Development (ARIPAD)”** during 17-23 July 2002 at IIT Kharagpur, which was attended by about 75 participants from industries and academic institutions.
- Treasurer and Organizing Committee member for the **International Conference on “Advanced in Civil Engineering (ACE 2002)”** during 3-5 January 2002 at IIT Kharagpur, which was attended by about 150 participants from academic institutions, Govt. organizations and industries.

### 12.6 Department/Institute Assignments

- In-Charge, Seminar, 2016-17
- In-Charge, M. Tech Examination (Jointly with Dr. S. K, Dash), 2012-13 and 2013-14
- In-Charge, M. Tech Examination (Jointly with Dr. N. Mitra), 2011-12
- Section-in-Charge (Transportation Engineering), Civil Engineering Department (2009-10, 10-11, 11-12, 12-13, 13-14)
- In-charge, Computer Laboratory, Civil Engineering Department (2007-08)
- In-charge, Time Table, Civil Engineering Department (Joint Responsibility with Dr. S. V. Barai) (2006-07)
- Secretary, Civil Engineering Department (since 2001-06)
- In-charge, Computer Laboratory, Civil Engineering Department (Joint Responsibility with Dr. D. J. Sen) (2005-06)

*Dr. Bhargab Maitra, IIT Kharagpur, India*

- Institute representative for GATE examination at Kakinada (2005)
- Faculty Advisor for 2001 batch B.Tech and Dual Degree M.Tech students of Civil Engineering Department (2001-05).
- Institute representative for GATE examination at Kakinada (2004)
- Institute representative for GATE examination at Visakhapatnam (2003)
- Faculty Counsellor for Counselling of the qualified candidates in JEE (2003)
- Institute Representative for JEE Main Examination at Bhilai (2003)
- In-charge, M. Tech Exam, Civil Engineering Department (Joint Responsibility with Prof. S. K. Kar) (2002-03).
- Faculty Counsellor for Counselling of the qualified candidates in JEE (2002)
- Institute representative for GATE examination at Warrangal (2002)

**(Dr. Bhargab Maitra)**