

Nicholas J. Garber
Curriculum Vitae

Education:

Ph.D. Civil Engineering, Carnegie-Mellon University, 1971
M.S. Civil Engineering, Carnegie – Mellon University, 1969
B. Sc. Civil Engineering, University of London, 1961
Dip. Eng. Battersea College, University of London, 1961

Experience

Teaching

2005 – present Henry L. Kinnier Professor of Civil Engineering
1991 – 2005 Professor of Civil Engineering, University of Virginia
1996 – 2002 Chairman, Civil Engineering Department, University of Virginia
1981 – 1991 Associate Professor of Civil Engineering, University of Virginia
1980 – 1981 Visiting Associate Professor of Civil Engineering, University of Virginia
1978 – 1980 Dean, Faculty of Engineering, Fourah Bay College, University of Sierra Leone, West Africa
1972 – 1978 Associate Professor of Civil Engineering, Fourah Bay College, University of Sierra Leone
1970 – 1972 Assistant Professor of Civil Engineering, State University of New York at Buffalo

Industrial

1966 – 1967 Senior Executive Engineer, Ministry of Works, Sierra Leone
1964 – 1966 Executive Engineer, Ministry of Works, Sierra Leone
1963 – 1964 Engineer, Scott and Wilson Kirk Patrick, Consulting Engineers, London
1962 – 1963 Engineer, Randell, Palmer and Tritton, Consulting Engineers, London

Membership of Professional Committees:

Member, NAE Awards Committee,(2005 – present)
Chair, NAE Awards Committee (2007 - present)
Executive Committee Transportation Research Board (January 2005 - present)
Editorial Board, American Society of Civil Engineers, Journal of Transportation Engineering
American Society of Civil Engineers, Book Review Editor
Committee for a Study of the Feasibility of a Hazardous Materials Transportation Cooperative Research Program, Transportation Research Board of the National Academies (April 2004 –present)

- Committee on Commercial Truck and Bus Safety Synthesis Program,
Transportation Research Board of the National Academies (2002 –
present)
- Committee on Traffic Operation, American Society of Civil Engineers,
(1994 – present)
- Committee on Traffic Safety in Maintenance and Construction
Operations, (A3C04) Transportation Research Board,
Member (1988 – present)
- Committee on Truck Size and Weight, National Research Council,
Transportation Research Board of the National Academies, Policy
Study, Member, (1998 – 2000)
- Chairman, Sub-Committee on Traffic Operations and Safety, Truck Size
and Weight Committee, Transportation Research Board of the
Policy Study, (1998 – 2000)
- Committee for Guidance on Setting and Enforcing Speed Limits, National
Research Council, Transportation Research Board of the National
Academies, Policy Study, Member, (1996 –1998)
- Committee on Traffic Safety in Maintenance and Construction
Operations (A3CO4) Transportation Research Board,
Chairman (1988 – 1994)
- Planning Committee, Transportation Research Board 24th Annual
Workshop on Human Factors in Transportation, Chairman
- Committee on Traffic Records and Accident Analysis
(A3B11), Transportation Research Board, of the National
Academies
- Chairman, Committee on Traffic Safety in Maintenance and Construction
Operations (A3C04) Transportation Research Board (1988 – 1995)
- Chairman, Planning Committee, Transportation Research Board 24th Annual
Workshop on Human Factors in Transportation

Professional Societies:

- American Society of Civil Engineers - Fellow
- Institution of Civil Engineers (U.K.) - Fellow
- Institute of Transportation Engineers - Fellow
- American Society for Engineering Education - Member

Professional Registration:

- United Kingdom FICE, Chartered Engineer
- Member, Sierra Leone Institution of Engineers
- Commonwealth of Virginia, P.E

Honors and Awards:

- American Society of Civil Engineers, Wilbur S. Smith Award (2009)
- American Road and Transportation Builders S.S. Steinberg Outstanding
Educator Award (2006)
- US National Academy of Engineering, Member (2004)

Institute of Transportation Engineers, Edmund R. Ricker Transportation Safety Award (2003)
School of Engineering and Applied Science University of Virginia Distinguished Professor, (2002)
Civil Engineering Department, University of Virginia Outstanding Teaching Award, (2002)
Transportation Research Board, D. Grant Mickle Award, 1996
American Society of Civil Engineering (Virginia Section) Commemorative Award - Service as Chairman of the Civil Engineering Department, School of Engineering and Applied Science, University of Virginia:- (2002).
Who's Who in Science and Technology (1998, 19992008)
Pittsburgh Plate Glass Graduate Fellowship, 1967
National Scholarship of Sierra Leone (1957)

Dissertation and Theses Supervised

Anthony Amos Saka, "Optimal Allocation of Service Times for Vehicular Queues at Signalized Traffic Intersections," May 1987.
Sarith Chandrapala Joshua, "A Causal Analysis of Large Vehicle Accidents Through Fault Tree Analysis and Statistical Modeling," August 1989.
Mashrur Ahmed Chowdhury, "An Interactive Multiobjective Resource Allocation Methodology for Decision Making in Highway Safety Improvement," May 1995.
Mitsuru Saito, "Passing Zones and Sight Distance Requirements for 2-Lane, 2-Way Highways in Mountainous Areas, January 1983.
Tzong-Shiou Hugh Woo, "A Study of the Effectiveness of Traffic Control Devices at Urban Work Areas," May 1986.
Ravi Gadiraju, "The Effect of Truck Strategies on Traffic Flow and Safety on Multilane Highways," January 1990.
Raghavan Srinivasan, "Risk Assessment of Elderly Drivers and Pedestrians," January 1991.
Torsten Klaus Lienau, "Pedestrian Accident Characteristics," August 1992.
Kirsten Adele Black. "Advanced Technologies for Improving Large Truck Safety on Two-Lane Secondary Roads," May 1994.
Surbhi Thakor Patel, "Effectiveness of Changeable Message Signs in Controlling Vehicle Speeds and Speed Profiles in Work Zones," May 1994.
Timothy Earl White, "Guidelines for Commercial Driveway Spacing on Urban and Suburban Arterial Roads," May 1995.

- Michelle Joanne Smith, "The Operational and Safety Characteristics of the Single Point Urban Interchange," January 1996.
- John Samuel Ponder, II, "Evaluating the 1994 Highway Capacity Manual Methodology and Investigating the Relationship Between Safety and Level of Service at Unsignalized Intersections," May 1996.
- Srivatsan Srinivasan, "Impact of Exposure Time and Work Zone Length on Effectiveness of Changeable Message Signs in Reducing Speeds in Work Zones," January 1997.
- Michael Daniel Fontaine, "Guidelines for the Selection of the Optimum Interchange Type for a Specific Location," May 1998.
- Angela A. Ehrhart, "The Effect of Speed Flow and Geometric Characteristics on Crash Frequency on Different Types of Highways," May 1999.
- Robert Lai, Jr., "Computer Simulation of Traffic Flow Conditions on Arterial Roads," May 1999.
- Sankar P. Subramanyan, "The Feasibility of Developing Congestion Mitigation Measures that Incorporate Crash Risk, A Case Study: Hampton Roads Area," May 2000.
- Dares Charoenphol, "Demand Model Development of Commercial Vehicle Parking at Truck Stops Along Virginia Highways: A Case Study of I-81, August 2000.
- Ming Zhao, "Crash Characteristics at Work Zones," May 2001.
- Lei Wu, "Stochastic Models Relating Crash Probabilities with Geometric and Corresponding Traffic Characteristics," January 2002.
- Xin Sun, "Determining the Safety Effects of Differential Speed Limits on Rural Interstate Highways Using Empirical Bayes Method," May 2002.
- Bo Yuan, "Effects of Differential Speed Limits on Vehicle Speed and Crash Characteristics," May 2002.
- Hua Wang "A Methodology for estimating the Demand and Supply for Large Truck Parking Facilities on Interstate Highways" January 2003
- Yuan Lu "A proposed Methodology for Implementing and Evaluating a Truck Parking Information System" May 2004
- Andrew Beecher , ". Guidelines for Using Late Merge Work Zone Traffic Control" May 2004
- Rahul Khandelwal "Safety Impacts of Photo-Red Enforcement at Suburban Signalized Intersections", May 2005
- Lili Luo, "Identification of Traffic Patterns Associated with Crashes on Interstate Highways" January 2006

Qun Liu, Identifying the Impact of Truck-Lane Restriction
Strategies on Traffic Flow and Safety Using Simulation,
January 2007

Selected Publications and Presentations:

Refereed Publications

- Davies, E. J., Garber, N. J., and Harleston, A. E., "Design Storm Hyetograph from Studies of Rainfall in Western Area of Sierra Leone," Proceedings of Institution of Water Engineers, Vol. 20, No. 1, England, February 1966.
- Garber, N. J., "Transportation Planning Education for Africa," Journal-UNESCO Regional Centre for Science and Technology for Africa, Vol. VII, No. 4, December 1972.
- Garber, N. J., "Environmental Factors in Transportation Planning," Journal-UNESCO Regional Centre for Science and Technology for Africa, Vol. IX, No. 1, March 1974.
- Garber, N. J., "The Effect of Traffic Flow on Noise Pollution," Proceedings of the Biennial Conference-West African Science Association, Senegal, April 1974.
- Garber, N. J., "A Rational Method of Pavement Design," The Journal of Engineering Education and Research in Tropical Africa-CEEMA, Vol. 3, No. 1, January 1977.
- Garber, N. J., "A Model for Determining Priorities of Highway Maintenance in Urban Areas," Proceedings of the PTRC Annual International Conference, University of Warwickshire, England, June 1977.
- Garber, N. J., "Estimation of Trip Generation, Trip Purpose, and Model Choice of the Disadvantaged Group within the Urban Area of a Developing Country," Proceedings of PDP International Conference, University of Ghana Legon, January 1978.
- Garber, N. J., "Latent Demand and Urban Transportation Plannings," Proceedings of the 12th Biennial Conference on the West African Science Association Lome, Togo-13th-18th, March 1978.
- Garber, N. J. and Saito, M., "Passing Requirements for Two-Lane Highways in Mountainous Areas," Transportation Research Board, Transportation Research Record, No. 956, 1984.

- Garber, N. J., "Effect on Lane Markings on Accident Characteristics on Two-Lane Highways," Proceedings of the Second International Symposium on Transportation Safety, Athens, Greece, June 17-21, 1985.
- Garber, Nicholas J. and Saito, M., "Lane Markings and Traffic Characteristics on Two-Lane Highways," Institute of Transportation Engineers Journal, Vol. 55, No. 9, August 1985.
- Saka, Anthony, Anandalingam, G. and Garber, Nicholas J., "Traffic Signal Timing at Isolated Intersections Using Simulation Optimization," Proceedings of the Winter Simulation Conference, Washington, D.C., 1986.
- Garber, Nicholas J. and Bayat-Mokhtari, Faramarz, "A Computerized Highway Link Classification System for Traffic Volume Counts," Transportation Research Record, No. 1090, Transportation Research Board, 1987.
- Garber, Nicholas J. and Sarath, Joshua, "Characteristics of Large Truck Crashes in Virginia," Transportation Quarterly, ENO Foundation for Transportation, Vol. 43, No 1, January 1989.
- Garber, Nicholas J. and Gadiraju, R., "The Effect of Design Speed and Posted Speed Limit on Speed Variance and its Effect on Accident Rates," Transportation Research Record, No. 1213, 1989.
- Garber, Nicholas J. and Woo, T. H., "Accident Characteristics at Construction and Maintenance Zones in Urban Areas," Proceedings of Annual Conference of the Canadian Society of Civil Engineering, St. John's, Newfoundland, June 8-10, 1989.
- Garber, Nicholas J. and Ravi Gadiraju, "Effects of Truck Strategies on Traffic Flow and Safety on Multilane Highways," Transportation Research Record, No. 1256, Transportation Research Board, 1990.
- Joshua, Sarath and Garber, Nicholas J., "Estimating Truck Accident Rate and Involvements Using Linear and Poisson Regression Models," Transportation Planning and Technology, Vol. 15, 1990.
- Garber, Nicholas J. and Woo, T. S., "An Evaluation of Traffic Control Devices Used in Urban Work Zones," Transportation Quarterly, ENO Foundation for Transportation, Vol. 45, No. 2, April 1991.

- Garber, Nicholas J. and Raghavan Srinivasan, "Characteristics of Accidents Involving Elderly Drivers at Intersections," Transportation Research Record, No. 1325, 1992.
- Garber, Nicholas J. and Raghavan Srinivasan, "Risk Assessment of Elderly Drivers at Intersections Using Statistical Modelling," Transportation Research Record, No. 1325, 1992.
- Joshua, Sarath and Nicholas J. Garber, "A Causal Analysis of Large Truck Accidents Through Fault Tree Analysis," Risk Analysis, Vol. 12, No. 2, 1992.
- Garber, Nicholas J. and Gadiraju, Ravi, "Impact of Differential Speed Limits on the Speed of Traffic and the Rate of Accidents," Transportation Research Record, No. 1375, Transportation Research Board, 1993.
- Lynn, Cheryl, Garber, Nicholas J. and Ferguson, Wayne, "The Feasibility of Using Photo-Radar for Speed Monitoring on High-Speed, High-Volume Roads," Transportation Research Record, No. 1375, Transportation Research Board, 1993.
- Garber, Nicholas J. and Surbhi, Patel, "Controlling Vehicle Speeds in Work Zones Using Changeable Message Signs," Transportation Research Record, No 1509, Transportation Research Board, National Research Council, Washington, D.C., 1995.
- Kuczminski, P, Eisele, J. S., Garber, N. J., Schwing, R., Haimes, Y. Y., Li, D., and Chowdbury, M, "Improvement of Highway Safety I: Identification of Causal Factors Through Fault-Tree Modeling," Risk Analysis: An International Journal, Vol. N3, June 1995.
- Eisele, J. S., Haimes, Y. Y., Garber, N. J., Li, D., Lambert, J. H., Kuzminski, P. and Chowdhury, M., "The Impact of Improved Vehicle Design on Highway Safety," Reliability Engineering and System Safety 54, 1996.
- Garber, N. J. and Srivatsan Srinivasan, "Influence of Exposure Duration on the Effectiveness of Changeable Message Signs In Controlling Vehicle Speeds at Work Zones," Transportation Record, No.1650, pg. 62-71, Transportation Research Board, National Research Council, Washington, D.C., 1998.
- Miller, J. S. and Garber N. J. "Visualization as a Potential Instrument for Quantifying the Attractiveness of Pedestrian Facilities," Proceedings of the First International Conference on New

Information Technologies for Decision Making In Civil Engineering, Vol. II, pp. 1417-1428. Montreal Canada, October 11-13, 1998.

- Smith, Michelle, J. and Garber, N. J., "Guidelines for Selecting Point Urban and Diamond Interchanges," Transportation Research Record, No. 1612, pg. 48-55, Transportation Research Board, National Research Council, Washington, D.C., 1998.
- Garber, Nicholas J. and Ehrhart, Angela, "The Effect of Speed and Flow Characteristics on the Frequency of Crashes on Four-Lane Highways," Proceedings of the 10th International Conference on Traffic Safety on Two Continents, Malmö, Sweden, September 20-22, 1999.
- Miller, John S., Bigelow, Jeremy A., and Garber, Nicholas J., "Using 3-D Visualization to Calibrate Metrics for Pedestrian Level of Service," 79th Annual Meeting, Transportation Research Board, Washington, D.C., January 2000.
- Garber, Nicholas J. and Ehrhart, Angela, "The Effect of Speed, Flow and Geometric Characteristics on Crash Frequency on Two-Lane Highways," 79th Annual Meeting, Transportation Research Board, Washington, D.C., January 2000.
- Garber, N. J. and Fontaine, M., "Guidelines for Preliminary Selection of the Optimal Interchange Type for a Specific Location," Proceedings of the 2nd International Symposium on Highway Geometric Design, Mainz, Germany, June 14-16, 2000.
- Garber, Nicholas J. and Zhao, Ming, "Distribution and Characteristics of Crashes at Different Locations Within Work Zones in Virginia." Proceedings of the 11th International Conference on Transportation Research
- Chowdhury, M. and Garber, N. J., "An Interactive Multiobjective Resource Allocation Methodology for Decision Making in Highway Safety Improvement," ASCE, Journal of Infrastructure Systems, Vol. 6, No. 4, American Society of Civil Engineers, December 2000.
- Garber, Nicholas J., "The Effect of Speed, Flow and Geometric Characteristics on Crash Frequency on Two Lane Highways," Transportation Research Record, No. 1717, Transportation Research Board, Washington, D.C., 2000.

Miller, John S., Bigelow, Jeremy A., and Garber, N. J., "Using 3-D Visualization to Calibrate Metrics for Level of Service," Transportation Research Record, No. Transportation Research Board, Washington, D.C., 2000

Garber, Nicholas J., and Subramayan Sankar, Incorporating Crash Risk in Selecting Congestion-Mitigation Strategies: Hampton Roads Area (Virginia) Case Study Transportation Research Record, Journal of the Transportation Research Board, NO. 1746, Transportation Research Board, Washington D.C., 2000

Garber, Nicholas J. and Zhao, Ming "Distribution and Characteristics of Crashes at Different Locations within Work Zones in Virginia" Journal of the Transportation Research Board, Transportation Research Record No.1187 Transportation Research Board Washington DC, 2001

Garber Nicholas J. and Ehrhart, Angela "Combined Effect of Traffic and Geometric Characteristics on Crash Rates at Urban Interstate Highways"9th World Conference on Transportation Research, Seoul Korea, July 22 –27 2001.

Garber, Nicholas J. and Subramanyan, Sankar " A procedure for Incorporating Crash Risk in Selecting Congestion Mitigation Strategies" Journal of the Transportation Research Board, Transportation Research Record, No. 1347 Transportation research Board, Washington D.C., 2002

Garber, Nicholas J., John S. Miller, Bo Yuan and Xin Sun "safety Effects of Differential Speed Limits on Rural Interstate Highways, Journal of the Transportation Research Board, No. 1830, Transportation Research Board, Washington DC

Beacher, A.G., M.D. Fontaine, and N.J. Garber. Guidelines for Using Late Merge Work Zone Traffic Control: Results of a Simulation-Based Study. In *Transportation Research Record 1911*, Transportation Research Board, National Research Council, Washington, D.C., 2005

Beacher, A.G., M.D. Fontaine, and N.J. Garber. Field Evaluation of the Late Merge Work Zone Traffic Control. In *Transportation Research Record 1911*, Transportation Research Board, National Research Council, Washington, D.C., 2005.

Garber, N.J., Miller, J.S., Sun, X., and Yuan, B. The Safety Impacts of Differential Speed Limits for Trucks and Passenger Cars on Rural Interstate Highways: A Modified Empirical Bayes Approach,

ASCE's Journal of Transportation Engineering, Volume 132, No. 1, pp. 19-29, January 2006, ASCE, Reston, Virginia

John S. Miller, Rahul Khandelwal and Nicholas J. Garber, Safety Impacts of Photo-Red Enforcement at Suburban Signalized Intersections: An Empirical Bayes Approach *Transportation Research Record 1969*, pp. 27-34, TRB, Washington, D.C., 2006.

Lu, Yuan; Garber, Nicholas J.; and Luo, Lili. Classification of Precrash Traffic Characteristics to Identify Freeway Crash Conditions: Is a Pattern Recognition Approach Applicable? Presented at 86th TRB annual Meeting, 2007.

Garber, Nicholas J.; Liu, Qun. Identifying Impact of Truck-Lane Restriction Strategies on Safety by Using Simulation. Presented at 86th TRB annual Meeting, 2007.

Textbooks

Garber, Nicholas J. and Hoel, Lester A., Traffic and Highway Engineering, 4th Edition, CENGAGE Learning Company, 2008.

Hoel, Lester A. Garber, Nicholas J. and Sadat, Adel. Transportation Infrastructure Engineering: A multi-Modal Integration Thompson Publishing Company, 2007

Selected Research Reports

Garber, Nicholas J. and Saito, Mitsuru, "Centerline Pavement Markings on Two-Lane Mountain Highways, Volume II, Statistical Analysis of Field Data and Kinematic Pass Model," Virginia Highway & Transportation Research Council, Charlottesville, VA, September 1983.

Garber, Nicholas J. and Bayat-Mokhtari, Faramarz, "Optimizing Traffic Counting Procedures," Virginia Transportation Research Council, Charlottesville, VA, May 1986.

Garber, Nicholas J. and Joshua, Sarath, Addendum to "Optimizing Traffic Counting Procedures," Virginia Transportation Research Council, Charlottesville, VA, April 1987.

Garber, Nicholas J. and Gadiraju, Ravi, "Speed Variance and Its Influence on Accidents," AAA Foundation for Traffic Safety, Washington, D.C., July 1988.

- Garber, N. J. and Gadiraju, Ravi, "Factors Affecting Speed Variance and Its Influence on Accidents," AAA Foundation for Traffic Safety, Falls Church, VA, July 1988.
- Jernigan, J. D., Lynn, C. and Garber, N. J. "An Investigation of Issues Related to Raising the Rural Interstate Speed Limit in Virginia," Virginia Transportation Research Council, Charlottesville, VA, 1988.
- Garber, Nicholas J. and Srinivasan, Raghavan, "State of the Art Report: Risk Assessment of Elderly Drivers and Pedestrians," Mid-Atlantic Universities Transportation Center, The Pennsylvania Transportation Institute, University Park, PA, June 1989.
- Garber, N. J. and Gadiraju, Ravi, "The Effect of Truck Traffic Control Strategies on Traffic Flow and Safety on Multilane Highways," Virginia Transportation Research Council, Charlottesville, VA, 1989.
- Garber, Nicholas J. and Gadiraju, Ravi, "The Effect of Truck Traffic Control Strategies on Traffic Flow and Safety on Multilane Highways," AAA Foundation for Traffic Safety, Washington, D.C., September 1989.
- Garber, Nicholas J. and Woo, Tzong-Shiou Hugh, "Accident Characteristics at Construction and Maintenance Zones in Urban Areas," Virginia Transportation Research Council, Charlottesville, VA, January 1990.
- Lynn, Cheryl W., Garber, Nicholas J. and Ferguson, Wayne S., "Photo-Radar Automated Speed Enforcement: An Experimental Application on the Capital Beltway Around Washington, D.C.," Virginia Transportation Research Council, Charlottesville, VA, June 1990.
- Garber, Nicholas J. and Srinivasan, Raghavan, "Accident Characteristics and Risk Assessment of Elderly Drivers," Mid-Atlantic Universities Transportation Center, The Pennsylvania Transportation Institute, University Park, PA, October 1990.
- Garber, Nicholas J. and Srinivasan, Raghavan, "Accident Characteristics of Elderly Pedestrians," Mid-Atlantic Universities Transportation Center, The Pennsylvania Transportation Institute, University Park, PA, October 1990.

- Garber, Nicholas J. and Joshua, Sarath C., "Traffic and Geometric Characteristics Affecting the Involvement of Large Trucks in Accidents," Volume II, Virginia Transportation Research Council, Charlottesville, VA, November 1990.
- Garber, N. J. and Joshua, S. C., "Traffic and Geometric Characteristics Affecting the Involvement of Large Trucks in Accidents. Volume I: Accident Characteristics and Fault Tree Analysis," Virginia Transportation Research Council, Charlottesville, VA, 1990.
- Joshua, S. C. and Garber, N. J., "Estimating Truck Accident Rate and Involvements Using Linear and Poisson Regression Models," Virginia Transportation Research Council, Charlottesville, VA, 1990.
- Garber, Nicholas J. and Gadiraju, Ravi, "Impact of Differential Speed Limits on Highway Speeds and Accidents," AAA Foundation for Traffic Safety, Washington, D.C., February 1991.
- Garber, Nicholas J. and Gadiraju, Ravi, "Impact of Differential Speed Limits on Highway Speeds and Accidents," AAA Foundation for Traffic Safety, Washington, D.C., February 1991.
- Garber, Nicholas J., Chowdhury, Mashrur A. and Kalaputapu, Ravi, "Accident Characteristics of Large Trucks on Highway Ramps," AAA Foundation for Traffic Safety, Washington, D.C., August 1992.
- Lynn, C. W. and Garber, "Automated Speed Enforcement Pilot Project for the Capital Beltway: Feasibility of Photo-Radar," Virginia Transportation Research Council, Charlottesville, VA, 1992.
- Garber, Nicholas J. and Smith, Brian, "Computerized Methodology for Determining the Rate of Truck Accidents on Different Highway Configurations," Virginia Transportation Research Council, Charlottesville, VA, 1993.
- Garber, N. J., Patel, S. and Kalaputapu, R., "The Effect of Trailer Width and Length on Large-Truck Accidents," Virginia Transportation Research Council, Charlottesville, VA, 1993.
- Garber, Nicholas J. and Patel, Surbhi T., "Effectiveness of Changeable Message Signs in Controlling Vehicle Speeds in Work Zones," Virginia Transportation Research Council, Charlottesville, VA, September 1994.

- Garber, Nicholas J. and Black Kirsten, "Advanced Technologies for Improving Large-Truck Safety on Two-Lane Secondary Roads," Virginia Transportation Research Council, Charlottesville, VA, March 1995.
- Garber, Nicholas J. and Azubike, Kingsley M., "Causal Analysis of Single-Vehicle Accidents on Virginia Interstate Highways," Mid-Atlantic Universities Transportation Center, The Pennsylvania Transportation Institute, University Park, PA, May 1995.
- Garber, N. J. and White, T. B., "Guidelines for Commercial Driveway Spacing on Urban and Suburban Arterial Roads," Virginia Transportation Research Council, Charlottesville, VA, 1995.
- Garber, N. J. and Fontaine, M. D., "Controlling Vehicle Speeds in Work Zones: Effectiveness of Changeable Message Signs with Radar," Virginia Transportation Research Council, Charlottesville, VA, Federal Highway Administration No. ____, Washington, D.C., 1996.
- Garber, N. J. and Smith, M. J., "Comparison of the Operational and Safety Characteristics of the Single Point Urban and Diamond Interchanges," Virginia Transportation Research Council, Charlottesville, VA, 1996.
- Garber, Nicholas J. and Ponder, John S. II, "Safety and Level of Service: Evaluating the 1994 *Highway Capacity Manual* Methodology for Unsignalized Intersections," Mid-Atlantic Universities Transportation Center, The Pennsylvania Transportation Institute, University Park, PA, May 1996.
- Garber, N. J. and Ponder, J. S. II, "Safety and Level of Service: Evaluating the 1994 *Highway Capacity Manual* Methodology for Unsignalized Intersections," Virginia Transportation Research Council, Charlottesville, VA, 1996.
- Garber, N. J., and Srinivasan, S., "Effectiveness of Changeable Message Signs in Controlling Vehicle Speeds in Work Zones-Phase II," Virginia Transportation Research Council, Charlottesville, VA. Federal Highway Administration No. ____, Washington, D.C., 1998.
- Garber, Nicholas J. and Fontaine, Michael D., "Guidelines for Preliminary Selection of the Optimum Interchange Type for a Specific Location," Virginia Transportation Research Council, Charlottesville, VA, January 1999.

Garber, N. J. and Ehrhart, A. A., "The Effect of Speed, Flow and Geometric Characteristics on Crash Rates for Different Types of Virginia Highways," Virginia Transportation Research Council, Charlottesville, VA, Federal Highway Administration No. _____, Washington, D.C., 2000.

Invited Presentations

Garber, N. J., "Factors Affecting Large Trucks Involvement in Serious Accidents," Virginia Department of Transportation-Task Force on Large Truck Accidents Workshop, Richmond, VA, September 1985.

Garber, N. J., "Geometric Characteristics and Posted Speed Limits on Rural Highways," Meeting of the Research Board of AAA Foundation of Traffic Safety, Florida, January 1987.

Garber, N. J., "Traffic Volume Counts by a Sampling Process Using Automatic Counters," Workshop of Virginia Department of Transportation for District Traffic Engineers, Richmond, VA, February 1987.

Garber, N. J., "Safety in Work Zones: Past, Present and Future," Key Note Address, the National Conference on Work Zone Safety, Renaissance Hotel, Washington, D.C., December 5-7, 1994.

Garber, Nicholas J., "The Future of Transportation Engineering in the 21st Century," Plenary Lecture, University of Dayton, Dayton, Ohio, March 22, 2001.

Garber, Nicholas J., "The Safety of Differential Speed Limit," Plenary Lecture, North American Conference on Speed Management: Implications for Public Policy, Quebec City, Canada, June 3-5, 2001.

Garber, Nicholas J., "Speed Characteristics and Crash Rates," Plenary Lecture, Hanyang University, Kyunggi Do., South Korea, July 20, 2001.

Garber, Nicholas J. "The Influence of Differential Speed Limits on Speed and Crash Characteristics," Civil Engineering Department, University of Canterbury, Christchurch, New Zealand, March 25, 2003

- Garber, Nicholas J. "The Pros and Cons of Differential Speed Limits"
Plenary Lecture Land Transport Safety Authority, Wellington New Zealand, Friday 4th April, 2003
- Garber, Nicholas J. "Does Differential Speed Limit Improve Safety on High Speed Roads?" Plenary Lecture, Center for Transport Studies, Civil Engineering Department, University College London, University of London, June 25, 2003

Other Selected Papers

- Garber, N. J., "Trip Production Forecasting Models for the Freetown Urban Area," Sierra Leone Institution of Engineers, Technical Meeting, October 1977.
- Garber, N. J., "Use of Appropriate Technology in Road Development in Developing Countries," presented at the International Seminar on Appropriate Technology for Development, Arizona State University, Phoenix, AZ, April 1981.
- Garber, N. J., "Major Causative Factors in Large Truck Crashes," presented at the 23rd Annual Military/Civilian Workshop held at Fort Eustis, VA, June 19-20, 1986.
- Garber, N. J. and Sarath, J., "Large Truck Accidents in Virginia Before and After the 1982 Surface Transportation Act," presented at the 57th Annual Meeting of the Institute of Transportation Engineers, New York, NY, August 16-20, 1987.
- Garber, N. J., "Issues of Training and Research Relating to Maintenance of High Volume Roads," presented at the FHWA Tri-Regional Workshop, Sheridan South Hotel, April 11-13, 1988.
- Garber, N. J., "Factors Affecting Large Truck Crashes," presented at the 25th Annual Military/Civilian Transportation Safety Workshop, Fort Eustis, VA, June 9-10, 1988.
- Garber, N. J., "A Computerized Highway Link Classification System," presented at the Annual Meeting of the Virginia Section of the Institute of Transportation Engineers, Richmond, VA, Omni Hotel, June 15-17, 1988.
- Joshua, Sarath and Garber, Nicholas J., "A Causal Analysis of Accident Occurrence Using Fault Tree Analysis," presented at the 69th Annual Meeting of the Transportation Research Board, Washington, D.C., 1990.

- Garber, N. J. and Surbhi, Patel, "Effectiveness of Changeable Message Signs in Reducing Vehicle Speeds in Work Zones," Proceedings of the International Conference on Highway Safety, University of Lille, Lille, France, September 26-28, 1994.
- Garber, N. J. and White, T., "Guidelines for Commercial Driveway Spacings," Second Annual National Access Management Conference, Vale, Colorado, August 11-14, 1996.
- Chowdhury, M. and Garber, N. J., "An Interactive Multi Objective Resource Allocation Method for Highway Safety Programs," ITS World Congress, Orlando, FL, October 1996.
- Miller, J. S. and Garber N. J. "Visualization as a Potential Instrument for Quantifying the Attractiveness of Pedestrian Facilities," Proceedings of the First International Conference on New Information Technologies for Decision Making In Civil Engineering, Vol. II, pp. 1417-1428. Montreal Canada, October 11-13, 1998.
- Miller, J. S., Bigelow, J. and Garber, N. J., "Using 3D Visualization to Calibrate Pedestrian Level of Service Matrix," Proceedings of the TRB 3D in Transportation Symposium, May 26-29, 1999.
- Garber, N. J. and Ehrhart, Angela A., "The Effect of Flow and Speed Characteristics on Crash Rates on Rural Interstate Highways," 69th ITE (Institute of Transportation Engineers) Annual Meeting, Las Vegas, NV, August 1-4, 1999.
- Garber, Nicholas J., and Srinivasan, Srivatsan, "Effectiveness of Changeable Message Signs in Controlling Vehicle Speeds in Work Zones-Phase II," Virginia Transportation Research Council Report No. VTRC 98-R10, January, 1998.

Selected Research Project Reports

- Garber, N. J. and Chang, Hsin Kang, "Western New York School Districts, Population Analysis for Transportation Planning," Final Report for New York State Urban Development Corporation, Engineering Department, State University of New York at Buffalo, June 1971.
- Garber, N. J., et al, "Seismic and Resistivity Study of a Portion of the Amherst New Community Project," Final Report Project No. 1-

C001-02; State University of New York at Buffalo, December 1971.

Garber, N. J. and Saito, M., "Centerline Pavement Markings on Two-Lane Mountain Highways," Volume 1, Virginia Transportation Research Council, Report No. VTRC 84-R9, September 1983.

Garber, N. J. and Saito, M., "Centerline Pavement Markings on Two-Lane Mountain Highways, Volume II," Virginia Transportation Research Council, Report No. VTRC 84-R8, September 1983.

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