PAUL M. SCHONFELD, PH.D., P.E.

PROFESSOR
DEPARTMENT OF CIVIL AND ENVIRONMENTAL ENGINEERING
UNIVERSITY OF MARYLAND
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Revised on July 9, 2020

PROFESSIONAL REGISTRATION

- Maryland Professional Engineering License #14013 [1984]

MAIN RESEARCH INTERESTS

- Transportation Systems Analysis
- Urban Public Transportation Systems
- Road Location and Design
- Inland Waterways
- Air Transportation
- Transportation Economics
- Freight Logistics
- Maintenance Planning and Scheduling

EDUCATION

- B.S. Civil Engineering, Massachusetts Institute of Technology [1974]
- M.S. Civil Engineering, Massachusetts Institute of Technology [1974]
- Ph.D. Civil Engineering, University of California, Berkeley [1978]
  Minor Areas: Economics and Business Administration

ACADEMIC EXPERIENCE

- **University of Maryland, College Park, MD**
  Assistant Professor of Civil Engineering [1978]
  Associate Professor [1984]
  Professor [1993]
- **University of California, Berkeley, CA**
  Research Assistant (then Research Specialist) [1975 - 1977]
- **Massachusetts Institute of Technology, Cambridge, MA**
  Teaching Assistant [1972 - 73]

PROFESSIONAL EXPERIENCE

PRIVATE SECTOR EMPLOYMENT

- **Transportation Engineer, IBM Scientific Center, Cambridge, MA.** Development of simulation, evaluation, optimization, and control techniques for innovative transportation systems, including automated personal rapid transit systems, demand-responsive ride sharing and automatic vehicle location and control, 1973 - 1975.
- **Student Engineer, General Motors Research Labs, Warren, MI.** Development of evaluation and optimization methods for automated transportation systems, 1972.
- **Consulting Technician, Peat, Marwick, Mitchell & Company, Boston, MA.** Modal split forecasting for the Boston area, 1971.

SELECTED CONSULTING WORK

- **The World Bank.** St. Vincent port study, 2018
- **National Institutes of Health, Bethesda, MD.** Review of logistics aspects of proposals, 2013.
- **Information Technology Curves, Gaithersburg, MD.** Methods for Managing Ridesharing Operations, 2011.
- **CDM - Federal Programs Corporation, Carbondale, IL.** Review of waterway research reports, 2005.
- **National Institute of Standards and Technology Gaithersburg, MD.** Assessments of various inventions, 1997 - 1998.

- **SoHaR, Inc., Los Angeles, CA.** Review of Air Traffic Reliability Analysis for the Federal Aviation Administration 1997 - 1998.
- **U.S. Army Corps of Engineers - Baltimore District.** Review of Study on Baltimore Harbor Anchorages and Channels, 1995 - 1996.
- **COMSIS Inc., Silver Spring, MD.** Public Transportation Planning for Tianjin, China, 1994.
- **Martin Guerin & Associates, Inc., Arlington, VA.** Automated Vehicle Location and Control for Public Transportation, 1993.
- **VITECH.** Traffic Impacts of School Consolidation in Easton, MD, 1988.
- **Louis Berger International, Seoul, Korea.** Traffic engineering study for the U.S. Army's Yongsan Base, 1987.
- **Byrd, Tallamy, MacDonald and Lewis, Falls Church, VA.** Highway Maintenance Standards for the Virginia Department of Highways and Transportation, 1986.
- **DMJM, Inc., Washington DC.** Evaluation of Highway Alignment Alternatives for Maine DOT, 1984.
- **AMAF, Inc., Columbia, MD.** Safety and Cost Effectiveness of Textured Shoulder Treatments on Highways, 1984.
- **J.A. Reyes & Co., Washington, DC.** Insurance Coverage Requirements for Motor Carriers, 1980 - 1981.
- **System Design Concepts, Inc., Washington, DC.** Transportation Energy Contingency Planning for N.Y. State DOT, 1980.
- **Urban Mass Transit Administration, Washington, DC.** Cost Effectiveness of Exclusive Lanes for High Occupancy Vehicles, 1979.

PROFESSIONAL AND HONOR SOCIETIES

- **American Society of Civil Engineers**
  Fellow since August 1994; Member since 1983.
  Awarded ASCE's 2018 James Laurie Prize for career contributions in transportation engineering.
  Editor, Journal of Transportation Engineering, ASCE Air Transport Division, Feb. 1991 – Oct. 1994.
  Chairman, Publications Committee of the Air Transport Division, Feb. 1991 - Oct. 1994. Member 1990 – 2008.
  Chairman, Planning Committee of the Air Transport Division, 1996 – 1998; Vice Chairman, 1992 – 1996; Member since 1979.
  Vice Chairman of Air Cargo Subcommittee. 1986 - 1991. Secretary 1988 – 1992; Member 1981 - 1995.
  Member of Steering Committee and Proceedings Editor of the 1997 Conference on Aviation Simulation and Modeling.
  Chairman, Waterways Committee of the Waterways, Port, Coastal and Ocean Engineering Division, 1996 - 1998. Vice Chairman, 1995 – 1996; Secretary, 1994 – 1995; Member since 1993.
  Member of the Governing Board of the Coasts, Oceans, Ports and Rivers Institute, 2017-2019.
- **Institute of Transportation Engineers**
  Fellow since January 1998; Member since 1979.
  Chairman, International Committee 6A-26 on Travel Reduction Options. 1981 - 1985. Prepared ITE report on the effectiveness of travel reduction options.
  Chairman, International Committee 6Y-45 on Transportation Demand Reduction Measures, May 1988 - January 1990.
  Faculty Advisor to the ITE Student Chapter at the University of Maryland, 1979 - 1991, 1996 - 2003, 2015 - 2016
  Chairman, Washington, DC Section Education Committee. 1980 - 1984.
  Chairman, Washington, DC Section Technical Affairs Committee. 1987 - 1988.
- **Advanced Transit Association**
  Editor, Journal of Advanced Transportation, Jan. 2003 – Feb. 2012; Associate Editor March 1990 – Jan. 2003.
- **Transportation Research Board**
  Member, Aircraft-Airport Compatibility Committee. 1980 - 1985.
  Member, Ports and Waterways Committee. 1983 - 1989.
  Chairman, Subcommittee on Air Traffic Management Performance. March 1997 - January 2001.
  Member, Committee on Rail Transit Systems. March 2010 – 2019.
  Member, Committee on Intermodal Freight Terminal Design and Operation (AT050), April 2016 – Jan. 2020.
  Member, Committee on Intermodal Freight Transport (AT045), from Jan. 2020.
  TRB Representative of the University of Maryland, December 1998 - present.
- **Operations Research Society of America (now INFORMS)**

Chairman, Urban Transportation Session. May 1984 ORSA Meeting, San Francisco, CA.
Chairman, Public Transportation Session. May 1990 ORSA Meeting, Las Vegas, NE.
Chairman, Public Transportation Session. October 1990 ORSA Meeting, Philadelphia, PA.

- **IVHS America (IVHS = Intelligent Vehicle Highway Systems; now ITS America)**
  Member, Systems Architecture Committee. 1991-2001.
  Member, Advanced Public Transportation Systems Committee. 1991-2001.
- **Urban Rail Transit Journal**
  Associate Editor, Sept. 2015 - Feb. 2020.
- **Tau Beta Pi**
- **Chi Epsilon**
- **Sigma Xi**

GRADUATE ADVISEMENT

PH.D. DISSERTATIONS SUPERVISED

1. Shou-min Tsao, "Analysis of Zonal Transit Service," Dec. 1981, (Professor, Civil Engineering Department, National Taiwan University, Taipei, Taiwan).
2. Yi-chin Hu, "Traffic Flow Optimization on Rural Networks," June 1983.
3. Georgine Glatz, "Design and Performance Evaluation of an Attenuating Highway Barrier," Dec. 1988.
4. Osama Sharafeldien, "Hierarchical Traffic Flow Optimization for Congested Networks," Dec. 1988.
5. Jason S.K. Chang, "Analytic Optimization of Bus Systems in Heterogeneous Environments," May 1990, (Professor, Civil Engineering Department, National Taiwan University, Taipei, Taiwan).
6. Melody D.M. Dai, "Delay Estimation on Congested Waterways," Aug. 1991, (Associate Professor, Dept. of Transportation Management & Communication, National Cheng Kung University, Tainan, Taiwan).
7. David Martinelli, "Investment Planning of Interdependent Waterway Projects," Aug. 1991, (Professor, Civil Engineering Department and Director of Transportation Center, West Virginia University, Morgantown, WV).
8. Kurt K.T. Lee, "Transfer Coordination in Transportation Terminals," Feb. 1993, (Associate Professor, Civil Engineering Department, Feng Chia University, Taipei, Taiwan).
9. Louis C.H. Wei, "Neural Network Applications in Priority Programming for Congested Transportation Networks," Aug. 1993, (Professor, Dept. of Transportation & Communication Management, National Cheng Kung University, Tainan, Taiwan).
10. Henry Lieu, "An Integrated Diversion Control System for Freeway Corridors," Dec. 1993.
11. Chin Chang, "Flight Sequencing and Gate Assignment in Airport Hubs," May 1994, (Associate Professor, Dept. of Transportation Technology & Logistics Management, Chung Hua University, Hsin Chu, Taiwan).
12. Steven Chien, "Optimization of Coordinated Intermodal Transit Networks," Oct. 1995, (Professor, Civil Engineering Department, N. J. Inst. of Technology, Newark, NJ).
13. Yeon Myung Kim, "Methodology for Design and Evaluation of Airport Terminal Configuration," May 1997. (Aviation Director, Korea Transport Institute).
14. Ching Jung Ting, "Transfer Coordination in Transit Networks," Dec. 1997, (Professor, Yuan Ze University, Chung-Li, Taiwan).
15. Jyh-Cherng Jong, "Optimizing Highway Alignments with Genetic Algorithms," June 1998.
16. Manoj Jha, "A Geographic Information Systems-based Model for Highway Design Optimization," May 2000.
17. Shiaau Lir Wang, "Simulation and Optimization of Interdependent Waterway Improvement Projects," May 2001.
18. Sze-Wei Chang, "Integrated Flight Scheduling and Fleet Assignment," Aug. 2001, (Major General ROC Air Force and Assistant Professor, China University of Science and Technology, Taiwan).
19. Eungcheol Kim, "Intersections in Highway Alignment Optimization," Dec. 2001, (Professor and Chairman, Division of Urban and Environmental Engineering Department, Incheon National University, Incheon, Korea).
20. Jasenka Rakas, "Models for Air Traffic Management Performance during Equipment Outages," Dec. 2001.
21. Peter Chen, "Integrated Management of Highway Maintenance and Traffic," Dec. 2002.
22. Xianding Tao, "Parallel Genetic Algorithms for Selection and Scheduling of Interdependent Transportation Projects," May 2003.
23. Ying Luo, "Heuristics and Performance Metamodels for the Dynamic Dial-A-Ride Problem," May 2006, (Associate Professor, Chongqing University, Chongqing, China).
24. Somnuk Ngamchai, "Air Express Network Design with Hub Sorting," Sept. 2007.

25. Min Wook Kang, "An Alignment Optimization Model for a Simple Highway Network," May 2008, (Associate Professor, Univ. of South Alabama, Mobile, AL).
26. Ning Yang, "Optimization of Highway Work Zone Decisions Considering Short-Term and Long-Term Impacts," May 2010.
27. Alex Tien, "Demand-Responsive Airspace Sectorization and Air Traffic Controller Staffing," Sept. 2010.
28. Frank Chen, "Intermodal Transfer Coordination in Logistic Networks," Dec. 2010, (Associate Professor, National Dong Hwa University, Taiwan).
29. Zichuan Li, "An Integrated Control Model for Freeway Interchanges," Dec. 2011.
30. Xiaorong Lai, "Optimization of Station Locations and Track Alignments for Rail Transit Lines," for Rail Transit Lines," May 2012.
31. Edward Kim, "Optimization Models for Improving Bus Transit Services," May 2013, (Assistant Professor, Western New England University).
32. Nikola Markovic, "Evasive Flow Capture," Dec. 2013, (Assistant Professor, University of Utah).
33. Yanshuo Sun, "Stochastic Models for Airport Facility Development," Aug. 2016, (Assistant Professor, Florida State University).
34. Elham Shayanfar, "Planning and Scheduling Interrelated Road Network Projects by Integrating Cell Transmission Model and Genetic Algorithm," Dec. 2018.
35. Dongwook Kim, "Multimodal Road Space Allocation and Network Evolution," expected Aug. 2020.
36. Youngmin Choi, "Analysis of Freight Deliveries in Urban and Rural Areas," expected Dec. 2020.
37. Linxi Chen, "Analysis of Delay Propagation in Logistic Networks," expected Dec. 2020.
38. Fei Wu, "Optimized Development of Multi-modal Transportation Networks," expected May 2022.

M.S. THESES SUPERVISED

1. Dan Takacs, "An Analysis of the Maryland Demonstration Bikeway Projects," July 1979.
2. James Cardenas, "Optimum Traffic Flow Assignment Model" March 1981.
3. Warren Hughes, "Analysis of Recreational Travel Management Alternatives," May 1981.
4. Farid Khorsandian, "Evaluation of Crash Attenuators," Dec. 1984.
5. Chung-sue Chen, "Effects of Vehicle Size on Parking Facility Design," June 1985.
6. Lazar Spasovic, "Optimization of Public Transportation System Coverage," Dec. 1986.
7. Abdulrahman Al-Mesainid, "Comparison of Alternative Highway Maintenance Strategies," Dec. 1987.
8. Rahul Trivedi, "A Methodology for Estimating Truck Volumes," June 1988.
9. Natacha Thomas, "The Effects of Additional Through Lanes on Intersection Performance," Dec. 1989.
10. Xu Fang, "Operating Strategies for Containerport Storage Yards," Dec. 1989.
11. Mamadou Sevede, "Analysis of Air Cargo Transfer Operations," May 1990.
12. Lu Bin, "Coordination Options for Intersecting Bus Routes," May 1990.
13. Lori Lehnerd, "Base Airport Selection for General Aviation Aircraft," Dec. 1990.
14. Li Hsin Wang, "Simulation of Curbside Transfer of Passengers and Baggage at Transportation Terminals," Dec. 1990.
15. Steven Chien, "Joint Optimization of Rail Transit Lines and Feeder Bus Networks," Dec. 1991.
16. Sharon Kuo, "Optimal Mixed Bus Fleets for Urban Operations," May 1992.
17. Jiangeng Song, "A Method for Fitting Rail Transit Modes in Urban Areas," Dec. 1992.
18. Kang-Min Xu, "Optimal Road Space Allocation among Competing Transportation Modes," Dec. 1993.
19. Kangzhi Liang, "Optimal Maintenance Cycles for Single Track Railroads," Dec. 1993.
20. Peter Shen, "Real-time Control of Flight Departures from Hub Airports," May 1994.
21. Ping Liang, "Control of Service Reliability for Bus Transit Systems," May 1994.
22. Ramanathan Venkatesh, "Optimal Inspection and Maintenance Scheduling for Waterway Locks," Aug. 1994.
23. Dong Keun Seo, "Optimal Traffic Signal Adjustments to Assist Bus Operations," May 1997.
24. Jasenka Rakas, "Terminal Airspace Route Design for Tiltrotor Aircraft," Dec. 1997.
25. Sonia Viera-Colon, "Highway Maintenance Procedures and Schedules," Dec. 1999.
26. Allen Proper, "Arterial Signal Control for Bus Operations," May 2000.
27. Daliborka Stanojevic, "Scheduling of Waterway Lock Operations," Aug. 2001.
28. Lulu Mao, "Synchronized Optimization of Multiple Intersections Using Dynamic Programming," Dec. 2001.
29. Liang Zhu, "Performance Analysis for Automated Intersections," Aug. 2002.
30. Shu-ta Yeh, "Integrated Optimization of Kinematics and Vertical Alignment for Rail Transit," Dec. 2003.

31. Hyunah Kim, "Effects of Subsidies on Bus Transportation Optimization," Aug. 2004.
32. Sangjae Park, "Scheduling and Coordination of Bus Routes with Genetic Algorithms," May 2005.
33. Sameer Kamble, "Relations among Traffic, Staffing and Performance in Air Traffic Management Systems," Dec. 2005.
34. LaToya Johnson, "Optimization Models for Comparing Conventional Bus, Dial-A-Ride and Taxi Systems in Rural Areas," Aug. 2006.
35. Wei-Chen Cheng, "Phased Implementation of Rail Transit Lines," Aug. 2007.
36. Nikola Markovic, "Scheduling under Uncertainty for a Single-hub Intermodal Freight System," Dec. 2010.
37. Zun Wang, "Geometric and Environmental Considerations in Highway Alignment Optimization," June 2011.
38. Ammara Asif, "Environmental Cost Estimation for Highway Alignment Evaluation," Sep. 2012.
39. Reuben Juster, "A Trip Time Comparison of Automated Guideway Transit Systems," May 2013.
40. Tong Zhou, "Optimization Models for Runway Location, Orientation and Longitudinal Grade Design," May 2014.
41. Han Dong, "Real-Time Control Model for Airline Delay Management," Dec. 2014.
42. Elham Shayanfar, "Prioritizing and Scheduling Interrelated Road Projects using Metaheuristic Algorithms," May 2015.
43. Yanshuo Sun, "Holding Decisions for Correlated Vehicle Arrivals at Intermodal Freight Transfer Terminals," May 2016.
44. Kai Zhao, "Network Development with Bicycle Lanes," Aug. 2016.
45. Zach Vander Laan, "Modeling Heterogeneous Traffic with Cooperative Adaptive Cruise Control Vehicles," March 2017.
46. Rahil Saeedi, "Analysis of Slack Times for Dynamic Ridesharing," Aug. 2017.
47. Uros Jovanovic, "Network Development Models with Intersections," Dec. 2017.
48. Garima Sharma, "A Method for Integrating Multi-region Flexible-route Bus Services," Aug. 2018.
49. Shiyi Liu, "Effects of Driverless Vehicles on the Competitiveness of Public Transportation Systems," May 2019.
50. Fei Wu, "Optimized Phased Development of a Pre-designed Rail Transit Line, May 2020.

M. S. SCHOLARLY PAPERS SUPERVISED

1. Michael Jobanek, "The Benefits of Implementing a Microwave Landing System," Aug. 1978.
2. John Moeller, "Citizen Participation in Transportation Decisions," May 1979.
3. Gary Johnson, "Carpooling Experiences in Prince George's County," July 1979.
4. Ray Benaquista, "Airport Location and Access," April 1980.
5. Ron Boenau, "Driver Eye Height and Changing Vehicle Dimensions," July 1980.
6. Richard Baker, "Temporary Noise Abatement for Three Sites in Baltimore," Aug. 1980.
7. Norman Bellamy, "Highway Safety Implications of Changes in Maryland's Vehicle Fleet," Dec. 1981.
8. John St. Louis, "Transportation Planning for the Elderly and Handicapped," Dec. 1981.
9. Jannie Lathan, "Automobile Travel Reduction Options," Aug. 1982.
10. Abdulla Meer, "Models for Optimizing Zonal Transit Service," Dec. 1982.
11. Feng Lee Lin, "Models of Search Time and Walk Distance for Parking," Jan. 1983.
12. Steven Frank, "An Analysis of Ship Loading Operations," May 1983.
13. Sokari Bob-Manuel, "Data Needs for Air Cargo Planning," Oct. 1983.
14. Hani Maghrabi, "Analysis of Storage Arrangements in Containerports," June 1985.
15. Gary Luczak, "The Cost Effectiveness of High Speed Exits for Airport Runways," June 1987.
16. Ghazi Barrawi, "Analysis of Methods to Reduce Skidding Accidents," June 1987.
17. Steven Lucchesi, "Selection of Design Aircraft for Runway Length Decisions" Dec. 1987.
18. Mohammed Al-Nayel, "Statistical Estimation of Urban Bus Service Costs," Dec. 1987.
19. Matt Storck, "Safety Evaluation of Walking Routes to Schools," Aug. 1988.
20. Obi Chukuka, "Cargo Transfer Optimization in Airport Hubs," Aug. 1992.
21. Mazen Dawoud, "Phased Development of a Rail Transit Line," Dec. 1993.
22. Ping-Hsiu Ho, "Scheduling of Airline Hub Operations," May 1995.
23. Jiung Ting Ke, "Hub Location Decisions in Airline Planning and Scheduling," Aug. 1996.
24. Kuangda Hsu, "Coordination of Crane and Truck Operations in Container Ports," Dec. 1996.
25. Guang-Chen Zhou, "Maintenance Scheduling on Two-Lane Roads," Dec. 1996.
26. Panja Hanjongkol, "Toll Plaza Operating Strategy Analysis," Jan. 1997.

27. Shiaaulir Wang, "Waterway Queuing Delays with Equilibrium Demand," Aug. 1997.
28. Don Stefanick, "Automated People Mover Systems for Airports," Dec. 1997.
29. Ying Zhou, "Tradeoffs in Bus Transit Systems between Subsidies and Welfare Maximization," Dec. 2000.
30. Shirlene Cleveland, "An Analysis of Unseparated High Occupancy Toll Lanes," Dec. 2001.
31. Jothsna Rao, "Effect of Accessibility to a Transit Station on Land Use," May 2004.
32. Serese Aranha-Scott, "Construction Time versus Cost Tradeoffs in Pavement Resurfacing," Aug. 2004.
33. Ming-Yu Chien, "Optimization of Runway Exit Locations," May 2005.
34. Ravi Amin, "Determination of Parking Facility Location and Configuration with a GIS," March 2006.
35. Koffi Amefia, "Noise Analysis of Aircraft Arrival Trajectories," Aug. 2006.
36. Sun Ho Kwak, "Minimization of User Delays in Freeway Work Zones based on Optimized Diversion Rates," Dec. 2006.
37. Min Wook Kang, "Highway Alignment Optimization through Feasible Gates," Dec. 2007.
38. Robert Smythe, "Maintenance Optimization for 2-Lane 4-Way Intersections," Dec. 2011.
39. Edward Kim, "Analysis of Vertical Alignments for Rail Transit," Nov. 2012.
40. Aphisit Phoowarawutthipanich, "Effects of Attitudes toward a Car Rental System on Mode Choice in Bangkok," Dec. 2013.

RESEARCH PROJECTS DIRECTED AT THE UNIVERSITY OF MARYLAND

1. **A Systems Analysis of Recreational Travel to Maryland's Eastern Shore Network**, Federal Highway Administration and Maryland State Highway Administration, 1979 - 1983, $230,000.
2. **System Optimization Models for Air Transportation**, Minta Martin Fund, 1978, $4,000.
3. **Intercampus Transportation Study**, Office of the President, University of Maryland, 1979.
4. **Seatbelt Usage Study**, Maryland Department of Transportation, Safety Division, 1979, $2,500.
5. **The Efficiency Implications of Aircraft Size**, Minta Martin Fund, 1979, $2,200.
6. **Highway Safety Training Needs Study**, Maryland Department of Transportation, Safety Division, 1979 - 1980, $30,000.
7. **Air Cargo Market for the Baltimore - Washington International Airport**, Maryland Aviation Administration, 1980 - 1981, $30,000, Co - directed with Dr. Thomas Corsi.
8. **Statistics for Traffic Safety Analysis**, Maryland Department of Transportation, 1980 - 1981, $15,000.
9. **Implications of Changes in Maryland's Vehicle Fleet**, Maryland Department of Transportation, Safety Division, 1981 - 1982, $35,000.
10. **Evaluation of Crash Attenuators**, Maryland State Highway Administration, 1983 - 1985, $30,000.
11. **Analysis Methods for Weaving Traffic on Arterial Streets**, Maryland State Highway Administration, 1986, $5,000.
12. **Truck Lane Restrictions on Freeways**, Maryland State Highway Administration, 1986, $8,200.
13. **Analysis and Forecasting of Truck Traffic Volumes**, Maryland State Highway Administration, 1986, $30,000.
14. **Safety Benefits of Highway Lighting**, Maryland State Highway Administration, 1986 - 1987, $6,030.
15. **Intersections and Driveways near Freeway Ramps**, Maryland State Highway Administration, 1986 - 1987, $8,850.
16. **Defining Trucks for Highway Engineering Purposes**, Maryland State Highway Administration, 1986 - 1987, $5,840.
17. **Service Levels for Different Interchange Configurations**, Maryland State Highway Administration, 1986 - 1987, $7,500.
18. **Increasing Intersection Capacity With Additional Through Lanes**, Maryland State Highway Administration, 1986 - 1987, $6,500.
19. **Commercial Driveways and Median Openings on Arterial Streets**, Maryland State Highway Administration, 1986 - 1987, $7,000, Co - directed with Dr. E.C. Carter.
20. **Removal of Non - applicable Pavement Markings in Work Zones**, Maryland State Highway Administration, 1986 - 87, $7,000, Co - directed with Dr. E.C. Carter.
21. **Study of Offset T Intersections**, Maryland State Highway Administration, 1986 - 1987, $6,030.
22. **Flashing Operation of Traffic Signals**, Maryland State Highway Administration, 1986 - 1987, $5,900, Co - directed with Dr. E.C. Carter.
23. **Warrants for Firehouse Signals**, Maryland State Highway Administration, 1987, $5,000.
24. **Effectiveness of Word and Symbol Pavement Markings**, Maryland State Highway Administration, 1987,

$5,100, Co - directed with Dr. E.C. Carter.

25. **Shoulder Surface Treatment and Use**, Maryland State Highway Administration, 1987, $6,350, Co - directed with Dr. E.C. Carter.
26. **Traffic Response to Variable Message Signs**, Maryland State Highway Administration, 1986 - 1987, $7,400, Co - directed with Dr. E.C. Carter.
27. **Guidelines for Effective Use of Delineation**, Maryland State Highway Administration, 1986 - 1987, $5,270.
28. **Evaluation of Maryland's Seat Belt Use Law**, Maryland Department of Transportation, Office of Transportation Planning, 1986 - 1987, $97,100, Co - directed with Dr. E.C. Carter.
29. **Analysis of Dundalk Containerport Crane Operations**, Maryland Port Administration, 1987, $7,000.
30. **Anne Arundel County Airport Study**, Anne Arundel County, Maryland 1989, $18,000, Co - directed with Dr. E.C. Carter.
31. **Analysis of the Brakemaster Truck Braking System**, Maryland Industrial Partnerships Program, 1989 - 1990, $30,000, Co - P. I. with Dr. E.C. Carter.
32. **Selection and Scheduling of Transportation Corridor Improvements**, Office of Transportation Planning, Maryland Department of Transportation, 1989 - 1990, $33,000.
33. **Lock Performance Evaluation**, U. S. Army Corps of Engineers, 1989 - 1990, $48,000.
34. **Economic Evaluation Methods for Waterway Improvements**, U. S. Army Corps of Engineers, 1987 - 1991, $322,000.
35. **Expert System Development for Isolated Intersection Signalization**, Federal Highway Administration, 1989 - 1991, $87,000, Co - P. I. with Drs. G.L. Chang and E.C. Carter.
36. **Integration of Geographic Information Systems in Transit Planning**, Maryland Mass Transit Administration, 1990 - 1991, $50,000, Co - P. I. with Dr. G.L. Chang.
37. **Methods for Analyzing Weaving Flows on Arterials**, Maryland State Highway Administration, 1990 - 1992, $49,000.
38. **Priority Programming for Congested Networks**, Maryland State Highway Administration, 1990 - 91, $58,250.
39. **The Joint Cost of Highway Maintenance and Traffic Operation**, Maryland State Highway Administration, 1991 - 1992, $10,000.
40. **Non - motorized Transportation for Asian Cities**, World Bank, 1991 - 92, $8,000.
41. **Waterway Network Performance**, U. S. Army Corps of Engineers and U. S. Department of Agriculture, 1991-1992, $60,000.
42. **Control Systems for Waterway Operations**, U. S. Army Corps of Engineers and U. S. Department of Agriculture, 1992 - 1995, $352,000.
43. **College Park Campus Access Study**, University of Maryland Administration, 1993, $5,000.
44. **Adaptive Control of Transit Operations**, Federal Transit Administration, 1993 - 1995, $85,000.
45. **Analysis Methods for Vertiport Capacity and Delays**, Federal Aviation Administration, 1994 - 1995, $25,000.
46. **Civil Tiltrotor Air Traffic Control**, Federal Aviation Administration, through CSSI, Inc., 1994 - 1995, $35,000.
47. **Compensating for Missing Accident Data**, Federal Highway Administration Eisenhower Fellowship for Julie Zhu, 1994 - 1996, $30,000.
48. **Integration of Traffic Simulation and Planning Models**, Federal Highway Administration Eisenhower Fellowship for Ping Liang, 1994 - 1996, $30,000.
49. **Evaluation of DARTS Transportation Services**, Charles County Department of Community Services, 1995 - 1996, $5,000.
50. **Waterway Network Planning and Operations**, U. S. Army Corps of Engineers and U. S. Department of Agriculture, 1995 - 1996, $125,000.
51. **Airspace System Performance during Equipment Outages**, Federal Aviation Administration, 1996 - 1997, $58,000.
52. **Development of CADD Software for Highway Design**, Maryland State Highway Administration, 1996, $30,000.
53. **BWI Airport Capacity and Delay Analysis**, Maryland Aviation Administration, 1996, $10,500.
54. **Analysis Methods for Inland Waterway Transportation**, U. S. Army Corps of Engineers and U. S. Department of Agriculture, 1996 - 2000, $310,000.
55. **Development of CADD Software for Highway Design-Phase II**, Maryland State Highway Administration, 1997 - 1998, $150,000, Co - directed with Dr. A. Haghani.
56. **Preliminary Optimization with the SIMMOD Air Traffic Model**, Federal Aviation Administration, 1997, $13,000, Co - directed with Dr. M. Fu.

57. **Systems Analysis of Air Traffic Management Reliability**, Federal Aviation Administration, 1996 - 1999, $63,000.
58. **Noise Analysis with SIMMOD and INM**, Maryland Aviation Administration, 1997 - 2001, $153,000.
59. **CADD Software for Highway Design Automation and Optimization**, Maryland State Highway Administration, 1998 - 1999, $227,000, Co - directed with Dr. A. Haghani.
60. **Human and Automated Decisions in Traffic Management**, Maryland State Highway Administration, May - Dec. 1999, $51,000.
61. **Detailed Highway Design Optimization**, Maryland State Highway Administration, 1999 - 2000, $92,000.
62. **Intersection Evaluation and Optimization Methods**, Maryland State Highway Administration, 2000 - 2001, $50,000.
63. **Integrated Management of Maintenance and Traffic**, Maryland State Highway Administration, 2001 - 2004, $177,000.
64. **Airport Development Analysis with INM and GIS**, Maryland Aviation Administration, 2001 - 2002, $78,000.
65. **Development of Strategic Simulator**, Federal Aviation Administration, 2002 - 2007, $180,000.
66. **Statistical Analysis of Maryland Accidents**, Maryland State Highway Administration, 2003 - 2004, $98,100.
67. **Alignment Optimization for Brookeville Bypass**, Maryland State Highway Administration, 2003 - 2004, $25,000.
68. **Improvements to IWR Simulation Models**, U. S. Army Corps of Engineers, 2003 - 2005, $185,000.
69. **Optimization of Work Zone Decisions through Simulation**, Maryland State Highway Administration, 2004 - 2006, $80,000.
70. **Simulation-Based Optimization Models for Waterway Project Planning**, U. S. Army Corps of Engineers, 2005 - 2007, $247,900.
71. **Statistical Analyses of Maryland Accidents - Phases 5 & 6**, Maryland State Highway Administration, 2005 - 2007, $92,496.
72. **Improved Alignment Evaluation and Optimization Model**, Maryland State Highway Administration, 2006 - 2007, $59,500.
73. **Port Operations and Security Analysis**, Center for Intermodal Freight Transportation, 2006 - 2 007, $87,000.
74. **Development of Detailed Lock Model**, U.S. Army Corps of Engineers, 2007 - 2008, $304,461.
75. **Software-Simulated Test and Evaluation of Positioning and Routing Algorithms,** TRMC, U. S. Dept. of Defense, 2007 - 2010, $223,000.
76. **Transfer Coordination in Freight Terminals,** Center for Intermodal Freight Transportation, 2008, $18,000.
77. **A Multi-Objective Bilevel Approach to Highway Alignment Optimization,** National Science Foundation, Jan. 1, 2008 – June 30, 2009, $80,000.
78. **Intermodal Transfer Coordination in Logistic Networks,** USDOT, Nov. 2008 - Nov. 2011, $255,000.
79. **Analysis of Lock Control Policies,** U.S. Army Corps of Engineers, 2009 - 2010, $20,000.
80. **Integration of Conventional Transit and Paratransit Services,** USDOT, Nov. 2009 – Nov. 2011, $127,000.
81. **Application of Highway Alignment Optimization Model to U.S. Route 220 Project,** Maryland State Highway Administration, 2010 - 2011, $5,000.
82. **Development and Testing of Ridesharing Algorithms**, IT Curves, Jan. 2011 – Jan. 2012, $37,000, Co-directed with Dr. E. Miller-Hooks.
83. **Smart Ridesharing Algorithms,** Maryland Industrial Partnerships Program and Information Technology Curves, July 2011 – June 2012, $120,000, Co-directed with Dr. E. Miller-Hooks.
84. **Flexibility and Responsiveness in Public Transportation Systems,** USDOT, Oct. 2011 – Oct. 2012, $85,000.
85. **Improved Methods for Operating Public Transportation Services,** Mid-Atlantic University Transportation Center, Jan. – Dec. 2012, $75,000.
86. **Integration of Multi-modal Public Transportation Systems,** Mid-Atlantic University Transportation Center, June 2012 – May 2013, $50,000.
87. **BWI Airport Internal Circulation Analysis,** Maryland Aviation Administration, June 2012 – May 2013, $44,024.
88. **Next Generation Algorithms and Decision Support Tools for Managing Ridesharing Services,** Maryland Industrial Partnerships Program and Information Technology Curves, July 2012 – June 2013, $140,000, Co-directed with Dr. E. Miller-Hooks.
89. **Needs, Barriers and Analysis Methods for Integrated Urban Freight Transportation,** Mid-Atlantic University Transportation Center, Oct. 2012 – Jan. 2015, $37,459.

90. **Phased Development of Transportation Facilities,** Mid-Atlantic University Transportation Center, Dec. 2012 – Aug. 2015, $93,752.
91. **Integration of Multimodal Transportation Services,** Mid-Atlantic University Transportation Center, May 2013 – June 2015, $76,550, Co-directed with Dr. E. Miller-Hooks.
92. **Smarter Algorithms for Managing Ridesharing Services,** Maryland Industrial Partnerships Program and Information Technology Curves, July 2013 – Sept. 2014, $135,000, Co-directed with Dr. E. Miller-Hooks.
93. **Evasive Flow Capture Problem: Optimal Allocation of Weigh-in-Motion Stations and Security Checkpoints,** National Science Foundation, Sept. 2013 – Aug. 2016, $220,000.
94. **Estimating the Economic Impacts of Multimodal Transportation Improvements,** Maryland State Highway Administration, Oct. 2013 – Dec. 2015, $150,000, Co-directed with Dr. Lei Zhang.
95. **Efficiency and Reliability in Freight Transportation Systems,** National University Transportation Center for Economic Competitiveness, Oct. 2013 – Sep. 2017, $80,000.
96. **Safe Accommodation of Bicyclists on High-Speed Roadways in Maryland**, Maryland State Highway Administration, Feb. 2015 – Dec. 2016, $133,000.
97. **Improving the Reliability of Freight Transportation,** National University Transportation Center for Economic Competitiveness, Jan. 2015 – Sep. 2017, $120,000.
98. **Market Opportunity Assessment for the Eastern Shore Short-Line Rail in Maryland,** Maryland Department of Transportation, April –Sept. 2015, $133,000, Co-directed with Drs. Cinzia Cirillo and Lei Zhang.
99. **Methods for Improving the Reliability of Freight Transportation Systems,** National University Transportation Center for Economic Competitiveness, Jan. 2016 – Sep. 2017, $120,000.
100. **ADHS NTC Research Fellowship,** Appalachian Regional Council and National University Transportation Center for Economic Competitiveness, June 2016 – Oct. 2018, $122,950, Co-directed with Dr. Lei Zhang.
101. **Research to Support Ex-post Analysis for Transportation Economics: AASHTO EconWorks,** AASHTO, Nov. 2016 – Nov. 2017, $500,000, Co-directed with Drs. Lei Zhang and Qingbin Cui.
102. **Optimized Development of Urban Transportation Networks,** Urban Mobility and Equity Center, June 2017 – June 2020, $116,000.
103. **Optimization with Data Acquisition in Transportation Engineering,** National Science Foundation, Aug. 2017 – July 2018, $150,000.
104. **Innovative Methods for Delivering Fresh Foods to Underserved Populations,** Urban Mobility and Equity Center, Oct. 2017 – Sept. 2018, $140,000, Co-directed with Drs. Hyeon-Shic Shin and Young-Jae Lee of Morgan State University.
105. **Information Source for Major Transportation Projects,** Federal Highways Administration, June 2018 – May 2019, Co-directed with Drs. Qingbin Cui and Lei Zhang.
106. **ADHS NTC Research Fellowship,** Appalachian Regional Council and Maryland Transportation Institute, Oct. 2018 – Oct. 2020, $130,000, Co-directed with Dr. Lei Zhang.
107. **Methods for Evaluating, Selecting and Scheduling Interrelated Alternatives for Network Development,** Maryland Transportation Institute, Jan.2020 – Dec. 2020, $25,000.
108. **Topology-based Freight System Resilience Evaluation and Network Improvement,** Federal Railroad Administration, June 2020 – June 2021, $89,000.
109. **Equitable Complete Streets: Data and Methods for Optimal Design Implementation,** Urban Mobility and Equity Center, Sept. 2020 – Sept. 2021, $120,000, Co-directed with Drs. Cinzia Cirillo and Mansoureh Jeihani.

WORK ON OTHER SPONSORED PROJECTS AT THE UNIVERSITY OF MARYLAND

1. **I-70 Corridor Study**, Maryland State Highway Administration, Interstate Division, 1979.
2. **Washington Area External Origin - Destination Survey**, Maryland Dept. of Transportation, 1980 - 1981.
3. **Evaluation of Selective Enforcement of Speeds and Drunk Driving on Maryland Highways**, Maryland State Police, 1982.
4. **Evaluation of the Metrobus Revenue Allocation Process**, Washington Metropolitan Area Transit Authority, 1982.
5. **Hyattsville Traffic Study**, City of Hyattsville, MD 1988.
6. **Integrated, Personalized, Real-time Traveler Information and Incentive Technology for Optimizing Energy Efficiency in Multimodal Transportation Systems,** U.S. Dept. of Energy, 2015-2018.
7. **Autonomous Technology Center Feasibility Study for the Greater Cumberland Regional Airport**, Potomac Highlands Airport Authority, MD, 2018.

SELECTED SERVICES TO THE UNIVERSITY OF MARYLAND

- **Transportation Program Director.** Civil Engineering Department, Aug. 1979 - Aug. 1980, Aug. 1981 - June 1994, July 2003 – Aug. 2007.
- **Director, Center for Intermodal Freight Transportation,** Aug. 2007 – 2011.
- **Faculty Advisor of the Institute of Transportation Engineers Student Chapter**. June 1979 - June 1991, Jan. 1997 - Feb. 1999, Sept. 2015 – present.
- **Faculty Advisor of the Intelligent Transportation Systems & Institute of Transportation Engineers Student Chapter**. From Sept. 2015 – present..
- **Faculty Advisor.** Delta Kappa Epsilon Fraternity. 1991 - 1996.
- **Representative of the Civil Engineering Department on the Engineering School's Appointments, Promotions and Tenure Committee.** 1993 - 1995 and 2001 - 2003.
- **Instructor and developer of continuing education courses for the UM Transportation Studies Center.** 1978 - 1997.
- **Instructor in EIT Exam review course for undergraduates.** 36 times since Spring 1987.
- **Member of UMD Campus Transportation Advisory Committee.** Starting in 2018.
- **Director of unfunded Intercampus Transportation Study for the Office of the President.** 1979 – 1980.
- **Member of Civil Engineering Department Executive Committee.** 2003 - 2009.
- **Member of Civil Engineering Department Undergraduate Education Committee.** 2007 – 2019.
- **Member of Civil Engineering Department Faculty Development Committee.** 2013 - 2019.
- **Member of Civil Engineering Department Curriculum Development Committee.** 2019.
- **Chairman of Civil Engineering Department Committee on Ph.D. Degree Requirements.** 1987 - 1988.
- **Chairman of Civil Engineering Department Graduate Committee.** 2002 - 2003, Member 1999 - 2002.
- **Chairman of Transportation Faculty Search Committees.** 1988, 2000-2001, 2001-2, 2005-6, 2007-8.
- **Chairman of Civil Engineering Department Organization Committee.** 2001 - 2002.
- **Chairman of Civil Engineering Department Faculty Evaluation Committee.** 2004
- **Chairman of Civil Engineering Department Committee on Teaching Workload.** 2005.
- **Chairman of Civil Engineering Department Faculty Merit Pay Committee.** 2007, 2014.
- **Member of 36 Doctoral Committees in the College of Business and Management.** 1980 – 2019.
- **Member of 10 Doctoral Committees in the Applied Math Program.** 1980 – 2017.
- **Member of 8 Doctoral Committees in the Urban Studies Program.** 2005 – 2019.
- **Member of 140 other UMD Doctoral Committees (38 as Chair)**, mostly in Civil Engineering, 1978 – 2019.
- **Member of 11 Doctoral Committees at other universities, including Virginia Tech (3), Indian Institute of Technology Kanpur (1), George Mason University (1), New Jersey Institute of Technology (1), Morgan State University (3) and University of Calgary (2)**, 1991 – 2017.
- **Member of 167 M.S. Thesis Committees (52 as Chair) and 94 M.S. Scholarly Paper Committees (40 as Chair) at UMD**, 1978 – 2019.

COURSES TAUGHT

UNIVERSITY OF MARYLAND UNDERGRADUATE COURSES [JAN 1978 – MAY 2019]

- ENCE 370 - Fundamentals of Transportation Engineering - 17 times in 1978 - 2019
- ENCE 463 - Engineering Economics and Systems Analysis - 13 times in 1978 - 2002
- ENCE 466 - Design of Civil Engineering Systems (Capstone) - 6 times in 2001 - 2012
- ENCE 472 - Transportation Engineering - 25 times in 1996 - 2020
- ENCE 473 - Air and Water Transportation Engineering - 2 times in 1978 - 1995
- ENCE 474 - Rail and Mass Transit Engineering - 14 times in 1978 - 1995
- Over 30 independent study courses

UNIVERSITY OF MARYLAND GRADUATE COURSES [JAN 1978 – MAY 2019]

- ENCE 670 - Highway Traffic Characteristics and Measurements - 1 time in 1978 - 1990
- ENCE 672 - Regional Transportation Planning - 36 times in 1978 - 2019
- ENCE 674 - Public Transportation Planning - 24 times in 1978 - 2020

- ENCE 675 - Airport Planning and Design - 27 times in 1978 – 2018
- ENCE 681 – Freight Transportation Analysis – Fall 2015, Fall 2017 and Spring 2019
- Over 60 independent study courses

UNIVERSITY OF MARYLAND CONTINUING EDUCATION COURSES [JAN 1978 – MAY 2018]

- Urban Transportation Planning - 5 times
- Traffic Engineering - 15 times
- Basic Statistics for Traffic Safety Analysis: 4 times in 1980 - 1981
- Energy Conservation in Transportation - once in 1979
- Engineering Economics Review for the EIT Exam - 36 times
- Highway Design Review for PE Exam - 22 times since Sept 2004
- Transportation Engineering Review for PE Exam - 3 times since Sept 2015
- Analysis and Optimization of Transportation Systems – July 2017 and Sept 2018

MASSACHUSETTS INSTITUTE OF TECHNOLOGY (AS TEACHING ASSISTANT)

- Information Systems (Computer Science): 2 sections in Fall 1972
- Transportation Economics: Spring 1973
- Transportation Systems Analysis: Spring 1973

BECHTEL COMPANY, GAITHERSBURG, MD

- Engineering Economics Review for P.E. Exam: 6 times in 1979 - 1982

NORTHERN JIAO TONG UNIVERSITY, BEIJING, CHINA

- Analysis and Optimization of Transportation Systems: Aug 3 - 15, 1987

MARYLAND STATE HIGHWAY ADMINISTRATION

- Engineering Economics and Transportation Engineering Review for P.E. Exam: Fall 1987, Spring 1989

CHINA DEPARTMENT OF TRANSPORTATION, BEIJING, CHINA

- Planning and Design of Freeway Facilities: Jan. 1990

UNIVERSITY OF MARYLAND - BALTIMORE COUNTY

- Highway Engineering Review for P.E. Exam: 46 times in 1994 – 2010, in several locations.

POLYTECHNIC UNIVERSITY OF TORINO, ITALY

- GIS-based Evaluation and Optimization of Highway Alignments: May 2014.

UNIVERSITY OF NEVADA, LAS VEGAS

- Public Transportation, Dec. 16-17, 2015.

PUBLICATIONS

SELECTED ARTICLES IN REFEREED JOURNALS

1. Tsao, S.M., and Schonfeld, P. "Optimization of Zonal Transit Service," *J. of Transp. Engineering*, ASCE, 109-2, March 1983, pp. 257-272.
2. Tsao, S.M., and Schonfeld, P. "Branched Transit Services: An Analysis," *J. of Transp. Engineering*, ASCE, 110-1, Jan. 1984, pp. 112-128.
3. Carter, E., Chadda, H., and Schonfeld, P. "A Comparison of Transportation Planning in Developed and Developing Countries," *Transp. Quarterly*, Jan. 1984, pp. 69-86.
4. Meer, A., and Schonfeld, P. "Small Cars: Problems and Opportunities," *ITE Journal*, March 1984, pp. 49-53.
5. Hu, Y.C., and Schonfeld, P. "Simulation and Optimization of Regional Networks," *J. of Transp. Engineering*, ASCE, 110-4, July 1984, pp. 431-443.
6. Hu, Y.C., and Schonfeld, P. "Optimizing Traffic Diversion Around Bottlenecks," *Transp. Research Record 957*, 1984, pp. 22-27.

7. Schonfeld, P., and Frank, S. "Optimizing the Utilization of a Containership Berth," *Transp. Research Record 984*, 1984, pp. 50-63.
8. Chadda, H., and Schonfeld, P. "Are Pedestrians Safe at Right on Red Intersections?" *J. of Transp. Engineering*, ASCE, 111-1, Jan. 1985, pp. 1-16.
9. Schonfeld, P., and Chadda, H. "Automobile Travel Reduction Options for Urban Areas," *ITE Journal*, April 1985, pp. 44-48.
10. Schonfeld, P. and Chadda, H. "An Assessment of Urban Travel Reduction Options," *Transp. Quarterly*, July 1985, pp. 391-406.
11. Schonfeld, P., and Sharafeldien, O. "Optimal Berth and Crane Combinations in Container Ports," *J. of Waterway, Port, Coastal and Ocean Engineering*, ASCE, 111-6, Nov. 1985, pp. 1060-1072.
12. Chen, C.S., and Schonfeld, P. "Optimum Stall Angle for Large Parking Lots," *J. of Transp. Engineering*, ASCE, 114-5, Sept. 1988, pp. 574-583.
13. Chang, S.K. and Schonfeld, P. "Optimization Models for Comparing Conventional and Subscription Bus Feeder Services," *Transp. Science*, 25-4, Nov. 1991, pp. 281-298.
14. Chang, S.K. and Schonfeld, P. "Multiple Period Optimization of Bus Transit Systems," *Transp. Research Part B: Methodological*, 25B-6, Dec. 1991, pp. 453-478.
15. Lee, K.T. and Schonfeld, P. "Optimal Slack Times for Timed Transfers at a Transit Terminal," *J. of Advanced Transp.*, 25-3, Fall 1991, pp. 281-308.
16. Chang, S.K. and Schonfeld, P. "Integration of Fixed and Flexible Route Bus Systems," *Transp. Research Record 1308*, 1991, pp. 51-57.
17. Dai, D.M. and Schonfeld, P. "Simulation of Waterway Transportation Reliability," *Transp. Research Record 1313*, 1991, pp. 98-105.
18. Carter, E., and Schonfeld, P. "Safety Belt Use and Highway Safety in Maryland," *Transp. Research Record 1325*, 1991, pp. 45-50.
19. Wei, C.H., Dai, D.M. and Schonfeld, P. "Computational Characteristics of a Numerical Model for Series of Waterway Queues," *Transp. Research Record 1333*, 1992, pp. 45-54.
20. Martinelli, D., Dai, D.M., Schonfeld, P. and Antle, G. "A Methodology for Planning Interdependent Waterway Improvements," *Transp. Research Record 1383*, June 1993, pp. 49-57.
21. Chang, S.K. and Schonfeld, P. "Optimal Dimensions of Bus Service Zones," *J. of Transp. Engineering*, ASCE, 119-4, July/Aug. 1993, pp. 567-585.
22. Wei, C.H. and Schonfeld, P. "An Artificial Neural Network Approach for Evaluating Transportation Network Improvements," *J. of Advanced Transp.*, Vol. 27-2, Summer 1993, pp. 129-152.
23. Chang, S.K. and Schonfeld, P. "Welfare Maximization with Financial Constraints for Bus Transit Systems," *Transp. Research Record 1395*, Aug. 1993, pp.48-57.
24. Spasovic, L.N. and Schonfeld, P. "A Method for Optimizing Transit Service Coverage," *Transp. Research Record 1402*, Oct. 1993, pp. 28-39.
25. Ramanathan, V. and Schonfeld, P. "Approximate Delays Caused by Lock Service Interruptions," *Transp. Research Record 1430*, Jan. 1994, pp. 41-49.
26. Lee, K.T. and Schonfeld, P. "Real - time Dispatching Control for Coordinated Operations in Transit Terminals," *Transp. Research Record 1433*, Sept. 1994, pp. 3-9.
27. Wei, C.H. and Schonfeld, P. "Multi - period Network Improvement Model," *Transp. Research Record 1443*, Oct. 1994, pp. 110-118.
28. Kim, Y.M. and Schonfeld, P. "Neural Network Estimation of Lock Service Times," *Transp. Research Record 1497*, July 1995, pp. 36-43.
29. Lee, K.T., Kuo, H.F. and Schonfeld, P. "Optimal Mixed Bus Fleet for Urban Operations," *Transp. Research Record 1503*, July 1995, pp. 39-48.
30. Chang, C. and Schonfeld, P. "Flight Sequencing in Airport Hub Operations," *Transp. Research Record 1506*, July 1995, pp. 26-33.
31. Martinelli, D. and Schonfeld, P. "Approximating Delays at Interdependent Locks," *J. of Waterway*, *Port, Coastal and Ocean Engineering*, ASCE, 121-6, Nov. 1995, pp. 300-307.
32. Ting, C.J. and Schonfeld, P. "Effects of Tow Sequencing on Lock Capacities and Service Times," *J. of Waterway*, *Port, Coastal and Ocean Engineering*, ASCE, 122-1, Jan./Feb. 1996, pp. 16-26.
33. Kim, D.N. and Schonfeld, P. "Benefits of Dipped Vertical Alignments for Rail Transit Routes," *J. of Transportation Engineering*, ASCE, 123-1, Jan./Feb. 1997, pp. 20-27.
34. Chien, S. and Schonfeld, P. "Optimization of Grid Transit Systems in Heterogeneous Urban Environments," *Journal*

of Transportation Engineering, ASCE, 123-1, Jan./Feb. 1997, pp. 28-35.

35. Dai, D.M. and Schonfeld, P. "Metamodels for Estimating Delays through Series of Waterway Queues," *Transp. Res. Part B: Methodological*, 32B-1, Jan. 1998, pp. 1-19.
36. Wei, C.H. and Schonfeld, P. "A Research Framework for Cost-Effective Highway Maintenance Planning," *Public Works Management and Policy*, 2-4, April 1998, pp. 340-349.
37. Ting, C.J. and Schonfeld, P. "Optimization through Simulation of Waterway Transportation Investments," *Transp. Research Record 1620*, 1998, pp. 11-16.
38. Chien, S. and Schonfeld, P. "Joint Optimization of a Rail Transit Line and its Feeder Bus System," *J. of Advanced Transp.*, 32-3, Fall 1998, pp. 253-284.
39. Ting, C.J. and Schonfeld, P. "Integrated Control for Series of Waterway Locks," *J. of Waterway*, Port, Coastal and Ocean Engineering, ASCE, Vol. 124-4, July/Aug. 1998, pp. 199-206.
40. Schonfeld, P. and Chien, S. "Optimal Work Zone Length for Two-Lane Highways," *J. of Transp. Engineering*, ASCE, Vol. 125-1, Jan./Feb. 1999, pp. 21-29.
41. Ting, C.J. and Schonfeld, P. "Effects of Speed Control on Tow Travel Costs," *J. of Waterway*, Port, Coastal and Ocean Engineering, ASCE, 125-4. July/Aug. 1999, pp. 203-206.
42. Jong, J.C. and Schonfeld, P. "Cost Functions for Optimizing Highway Alignments," *Transp. Research Record 1659*, Aug. 1999, pp. 58-67.
43. Zhu, L, Schonfeld, P., Kim, Y. M. Flood, I. and Ting C. J. "Waterway Network Analysis with Artificial Neural Networks," *Artificial Intelligence for Engineering Design, Analysis and Manufacturing*, v13, 1999, pp. 365-375.
44. Jong, J.C., Jha, M. and Schonfeld, P. "Preliminary Highway Design with Genetic Algorithms and Geographic Information Systems," *Computer - aided Civil and Infrastructure Engineering*, 15-4, 2000, pp. 261-271.
45. Jha, M. and Schonfeld, P. "Integrating Genetic Algorithms and GIS to Optimize Highway Alignments," *Transp. Research Record 1719*, 2000, pp. 233-240.
46. Jha, M. and Schonfeld, P. "GIS-based Analysis of Right-of-way Cost for Highway Optimization," *Transp. Research Record 1719*, 2000, pp. 241-249.
47. Jong, J.C. and Schonfeld, P. "A Genetic Algorithm for Selecting and Scheduling Interdependent Projects," *J. of Waterway*, Port, Coastal and Ocean Engineering, ASCE, 127-1, Jan./Feb. 2001, pp. 45-52.
48. Ting, C.J. and Schonfeld P. "Control Alternatives at a Waterway Lock," *J. of Waterway, Port, Coastal and Ocean Engineering*, 127-2, March/April 2001, pp. 89-96.
49. Ting, C.J. and Schonfeld, P. "Efficiency Versus Fairness in Priority Control: A Waterway Lock Case," *J. of Waterway*, Port, Coastal and Ocean Engineering, ASCE, 127-2, March/April 2001, pp. 82-88.
50. Chien, S. and Schonfeld, P. "Optimal Work Zone Lengths for Four - lane Highways," *J. of Transp. Engineering,* ASCE, 127-2, March/April 2001, pp. 124-131.
51. Jha, M., McCall, C. and Schonfeld, P. "Using GIS, Genetic Algorithms and Visualization in Highway Development," *Computer - aided Civil and Infrastructure Engineering*, 16-6, 2001, pp. 399-414.
52. Kim, E. and Schonfeld, P. "Estimating Highway Earthwork Cross Sections Using Vector and Parametric Representation," *Transp. Research Record 1772*, 2001, pp. 48-54.
53. Chien, S., Tang Y., and Schonfeld, P. "Optimizing Work Zones for Two - lane Highway Maintenance Projects," *J. of Transp. Engineering*, ASCE, 128-2, March/April 2002, pp.145-155, (awarded Best Paper of 2002 in the ASCE Journal of Transportation Engineering).
54. Jong, J.C. and Schonfeld, P. "An Evolutionary Model for Simultaneously Optimizing Three-dimensional Highway Alignments," *Transp. Research Part B: Methodological*, 37B-2, Feb. 2003, pp. 107-128.
55. Jha, M. and Schonfeld, P. "Tradeoffs between Initial and Maintenance Costs of Highways in Cross - slopes," *J. of Infrastructure Systems*, ASCE, 9-1, March 2003, pp. 16-25.
56. Jha, M. and Schonfeld, P. "A Highway Alignment Optimization Model Using Geographic Information Systems," *Transp. Research*, Part A, 38A-6, July 2004. pp. 455-481.
57. Kim, E., Jha, M. and Schonfeld, P. "Intersection Construction Cost Functions for Alignment Optimization," *J. of Transp. Engineering*, ASCE, 130-2, March/April 2004, pp. 194-203.
58. Chang, S.W. and Schonfeld, P. "Optimized Schedules for Airline Routes," *J. of Transp. Engineering*, ASCE, 130-4, July 2004, pp.412-418.
59. Rakas, J. and Schonfeld, P. "Deterministic Models for Degraded Airside Capacity and Delays," *J. of Transp. Engineering*, ASCE, 130-5, September 2004, pp. 545-554.
60. Kim, E., Jha, M., Lovell, D., and Schonfeld, P. "Intersections Modeling for Highway Alignment Optimization," *Computer Aided Civil and Infrastructure Engineering*, v19, 2004, pp. 119-129.
61. Chen, C.H. and Schonfeld, P. "Work Zone Optimization for Two-lane Highway Maintenance Projects," *Transp.*

Research Record 1877, 2004, pp. 95-105.

62. Wang, S., and Schonfeld, P. "Scheduling Interdependent Waterway Projects through Simulation and Genetic Optimization, *J. of Waterway, Port, Coastal and Ocean Engineering,* ASCE 131-3, May/June 2005, pp. 89-97.
63. Ting, C.J. and Schonfeld, P. "Schedule Coordination in a Multiple - hub Transit Network," *J. of Urban Planning and Development*, ASCE, 131-2, June 2005. pp. 112-124.
64. Kim, E., Jha, M. and Schonfeld, P. Closure to "Intersection Construction Cost Functions for Alignment Optimization," *J. of Transp. Engineering*, ASCE, 131-9, Sept. 2005, p. 723.
65. Chen, C.H. and Schonfeld, P. "Work Zone Lengths for a Four - lane Road with an Alternate Route," *J. of Transp. Engineering*, ASCE, 131-10, Oct. 2005, pp. 780-789.
66. Chen, C.H., Schonfeld, P. and Paracha, J. "Work Zone Optimization for Two - lane Highway Resurfacing Projects with an Alternate Route," *Transportation Research Record 1911*, October 2005, pp. 51-66.
67. Pathomsiri, S., Schonfeld, P., and Haghani, A. "Vehicle Miles Traveled in Multi - vehicle Households," *Transp. Research Record 1926*, Dec. 2005, pp. 198-205.
68. Tao, X., and Schonfeld, P. "Lagrangian Relaxation Heuristic for Selecting Interdependent Transportation Projects under Cost Uncertainty," *Transp. Research Record 1931*, 2005, pp. 74-80.
69. Wang, S., Tao, X., and Schonfeld, P. "Modeling Shippers' Response to Scheduled Waterway Lock Closures," *Transp. Research Record 1963*, Oct. 2006, pp. 33-43.
70. Tao, X., and Schonfeld, P. "Selection and Scheduling of Interdependent Transportation Projects with Island Models," *Transp. Research Record 1981,* Dec. 2006, pp. 133-41.
71. Kim, E., Jha, M., Schonfeld, P. and Kim, H.S., "Highway Alignment Optimization Incorporating Bridges and Tunnels," *Journal of Transportation Engineering*, ASCE, 133-2, Feb. 2007, pp. 71-81.
72. Kang, M.W., Schonfeld, P. and Jong, J.C., "Highway Alignment Optimization through Feasible Gates," *J. of Advanced Transp.,* 41- 2, Spring 2007, pp. 115-144.
73. Ting, C.J. and Schonfeld, P. "Dispatching Control at Transfer Stations in Multi-Hub Transit Networks," *J. of Advanced Transp.,* 41-3, Fall 2007, pp. 217-243.
74. Luo, Y. and Schonfeld, P., "A Rejected-Reinsertion Algorithm for the Static Dial-A-Ride Problem", *Transp. Research - Part B: Methodological,* 41B-7*,* Aug. 2007, pp. 736-755.
75. Jha, M., Schonfeld, P. and Samanta, S., "Optimizing Rail Transit Routes with Genetic Algorithms and GIS," *J. of Urban Planning and Development,* ASCE, 133-3, Sept. 2007, pp. 161-171.
76. Wang, S., and Schonfeld, P. "Demand Elasticity and Benefit Measurement in a Waterway Simulation Model," *Transp. Res. Record 2033*, Dec. 2007, pp. 53-61.
77. Tien, S.L. and Schonfeld, P. "Passenger Market Equilibrium for Competing Airports in a Multiple Airport Region," *Transp. Res. Record* 2007, Dec. 2007, pp. 13-21.
78. Tao, X. and Schonfeld, P. "Island Models for a Stochastic Problem of Transportation Project Selection and Scheduling, *Transp. Res. Record 2039*, Dec. 2007, pp. 16-23.
79. Wang, S. and Schonfeld, P., "Scheduling of Waterway Projects with Complex Interrelations," *Transp. Research Record 2062,* Oct. 2008, pp. 59-65.
80. Zhou, Y., Kim, H.S., Schonfeld, P. and Kim, E., "Subsidies and Welfare Maximization Tradeoffs in Bus Transit Systems," *Annals of Regional Science,* 42-3, Nov. 2008, pp. 643-660.
81. Kim, D. and Schonfeld, P. "Integrated Analysis of Toll Lanes and Bus Priority Lanes," *Transp. Res. Record 2076*, Nov. 2008, pp. 70-80.
82. Yang, N., Schonfeld, P. and Kang, M.W. "A Hybrid Methodology for Freeway Work Zone Optimization with Time Constraints," *Public Works Management and Policy*, 13-3, Jan. 2009, pp. 253-264.
83. Kang, M., Schonfeld, P. and Yang, N. "Prescreening and Repairing in Highway Alignment Optimization," *Computer-Aided Civil and Infrastructure Engineering,* 24-2, Feb. 2009, pp. 109-119.
84. Bilbrey, J. and Schonfeld, P. "The Development of an Online Simulation Model for Managing Inland Waterway Fleets," *International J. of Management,* 26-1, Apr. 2009, pp. 115-126.
85. Wang, S., Yang, N. and Schonfeld, P. "Simulation-based Network Maintenance Planning and Scheduling," *Transp. Res. Record 2100*, July 2009, pp. 94-102.
86. Chen, C.C. and Schonfeld, P. "Modeling and Performance Assessment of Intermodal Transfers at Cargo Terminals," *Transp. Res. Record 2162*, Oct. 2010, pp. 53-62.
87. Kang, M., Yang, N., Schonfeld, P. and Jha, M., "Bi-level Highway Route Optimization," *Transp. Res. Record 2197*, Dec. 2010, pp 107-117.
88. Luo, Y. and Schonfeld, P. "Online Rejected-Reinsertion Heuristics for the Dynamic Multi-Vehicle Dial-a-Ride Problem," *Transp. Res. Record 2218*, Sep. 2011, pp. 59-67.

89. Markovic, N. and Schonfeld, P. "Scheduling under Uncertainty for a Single-Hub Intermodal Freight System," *Transp. Res. Record 2238*, Dec. 2011, pp.24-31.
90. Chen, C.C. and Schonfeld, P. "Alleviating Schedule Disruptions at Intermodal Freight Transfer Terminals: Real-Time Dispatching Control," *Transp. Res. Record 2238*, Dec. 2011, pp. 32-43.
91. Kim, M. and Schonfeld, P. "Conventional, Flexible and Variable-type Bus Services," *J. of Transp. Engineering*, ASCE, 138-3, March 2012, pp. 263-273.
92. Kang, M., Jha, M. and Schonfeld, P. "Applicability of Highway Alignment Optimization Models," *Transp. Research Part C: Emerging Technologies, 21-1C,* Apr. 2012, pp. 257-286.
93. Wang, S. and Schonfeld, P. "Simulation-based Scheduling of Mutually Exclusive Projects with Precedence and Regional Budget Constraints," *Transp. Res. Record 2273*, 2012, pp. 1-9.
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234. Choi, Y.M., Schonfeld, P., Lee, Y.J. and Shin, H.S. "Innovative Methods for Delivering Fresh Food to Underserved Populations," TSC Report 2018-3, Univ. of Maryland, College Park, Aug. 2018.
235. Choi, Y.M. and Schonfeld, P. "Dockless Bike Fleet Optimization with User Mode Choice and Random Bike Distribution," TSC Report 2018-4, Univ. of Maryland, College Park, Aug. 2018.
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238. Schonfeld, P. "Optimized development of Urban Transportation Networks," Report to the Urban Mobility and Equity Center, May 2019.
239. Wu, F. and Schonfeld, P. "Phased Development Optimization for a Rail Transit Line," TSC Report 2019-1, Univ. of Maryland, College Park, Aug. 2019.
240. Choi, Y. and Schonfeld, P. "Analytic Approximations of Realistic Tour Distances: Case Studies for Deliveries by Robots and Drones," TSC Report 2019-2, Univ. of Maryland, College Park, Aug. 2019.
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242. Wu, F. and Schonfeld, P. "Optimized Two-directional Phased Development of a Rail Transit Line," TSC Report 2020-1, Univ. of Maryland, College Park, May 2020.

SELECTED CONFERENCE PRESENTATIONS

1. Schonfeld, P. "Aircraft-Airport Compatibility Tradeoffs," Annual TRB Meeting, Washington DC, January 1980.
2. Schonfeld, P. "A Transportation System Optimization Model," Second ASCE Conference on Computing in

Civil Engineering, Baltimore, MD, June 1980.

3. Schonfeld, P. "Efficiency Implications of Aircraft Size," Annual TRB Meeting. Washington, DC, Jan. 1982.
4. Hu, Y., and Schonfeld, P. "Flow Optimization on Intercity Road Networks," Annual ITE Meeting, London, UK, Aug. 1983.
5. Schonfeld, P., and Frank, S. "Optimizing the Utilization of a Containership Berth," Annual TRB Meeting, Washington DC, Jan. 1984.
6. Hu, Y., and Schonfeld, P. "Optimizing Traffic Diversion around Bottlenecks," Annual TRB Meeting, Washington DC, Jan. 1984.
7. Schonfeld, P., and Sharafeldien, O. "Containerport Sizing," ORSA Meeting, Operations Research Society of America. San Francisco, CA, May 1984.
8. Schonfeld, P. "Optimization Guidelines for Urban Transit Systems," ORSA Meeting, San Francisco, CA, May 1984.
9. Schonfeld, P., and Sirisoponsilp, S. "Optimizing Container Handling in Ports," Annual TRB Meeting, Washington DC, Jan. 1987.
10. Schonfeld, P. "Railroad Transportation Developments in the United States," China Railway Administration, Chengdu, China, Aug. 1987.
11. Chadda, H., Schonfeld, P., and Carter, E. "Criteria for Pedestrian Overpasses and Underpasses," Annual ITE Meeting, New York, NY, Aug. 1987.
12. Schonfeld, P. and Carter, E. "Optimal Timing of Airport Facility Development," 20th International Air Transportation Conference, Orlando, FL, June 1988.
13. Lee, K. and Schonfeld, P. "Influence of Belly and All-cargo Operations on Airport Design," Annual TRB Meeting, Washington DC, Jan. 1989.
14. Dai, M.D.M. and Schonfeld, P. "Simulation of Waterway Transportation Reliability," Annual TRB Meeting, Washington DC, January 1989.
15. Chang, S.K. and Schonfeld, P. "Optimization of Feeder Bus Services," ORSA Meeting, New York, NY, October 1989.
16. Dai, M.D.M. and Schonfeld, P. "Analysis of Service Time Reliability on Waterways," ORSA Meeting, New York, NY, Oct. 1989.
17. Martinelli, D.R., Dai, D.M. and Schonfeld, P. "Interdependencies of Serial Locks on Waterways," ORSA Meeting, New York, NY, Oct. 1989.
18. Chang, S.K. and Schonfeld, P. "Optimization of Feeder Bus Systems with Unsteady and Elastic Demand," Annual TRB Meeting, Washington DC, Jan. 1990.
19. Chang, S.K. and Schonfeld, P. "Analytic Optimization of Integrated Bus Systems," ORSA Meeting, Las Vegas, NV, May 1990.
20. Schonfeld, P. and Chang, S.K. "Public Transit Optimization Guidelines," ORSA Meeting, Philadelphia, PA, Oct. 1990.
21. Chang, S.K., and Schonfeld, P. "Integration of Fixed and Flexible Route Bus Systems," Annual TRB Meeting, Washington DC, Jan. 1991.
22. Carter, E. and Schonfeld, P. "Safety Belt Use and Highway Safety in Maryland," Annual TRB Meeting, Washington DC, Jan. 1991.
23. Chang, S.K. and Schonfeld, P. "Analytic Optimization of Bus Routes With Time Dependent Equilibrium," Annual TRB Meeting, Washington DC, Jan. 1991.
24. Dai, M.D.M. and Schonfeld, P. "Metamodels for Estimating Waterway Delays through Series of G/G/1 Queues," Annual TRB Meeting, Washington DC, Jan. 1992.
25. Dai, M.D.M. and Schonfeld, P. "Approximation Methods for Queuing Delays in Waterway Networks," World Transportation Research Conference, Lyon, France, June 1992.
26. Chang, S.K. and Schonfeld, P. "Welfare Maximization with Financial Constraints for Bus Transit Systems," Annual TRB Meeting, Washington DC, Jan. 1993.
27. Dai, M.D.M., Schonfeld, P. and Antle, G. "Optimal Speeds on Waterways with Lock Congestion and Unreliability," Annual TRB Meeting, Washington DC, Jan. 1993.
28. Spasovic, L.N. and Schonfeld, P. "A Method for Optimizing Transit Service Coverage," Annual TRB Meeting, Washington DC, Jan. 1993.
29. Lee, K.T. and Schonfeld, P. "Schedule Optimization for Multiple-Route Timed-transfer Terminals," Annual TRB Meeting, Washington DC, Jan. 1993.
30. Martinelli, D.R., Dai, M.D.M., Schonfeld, P. and Antle, G. "A Methodology for Planning Interdependent

Waterway Improvements," Annual TRB Meeting, Washington DC, Jan. 1993.

31. Wei, C.H. and Schonfeld, P. "An Artificial Neural Network Approach for Estimating Multiperiod Travel Times in Transportation Networks," Annual TRB Meeting, Washington DC, Jan. 1993.
32. Schonfeld, P. "A Queuing Model for Optimizing Containerport Operations," Baltimore Port Operations Conference, Feb. 1992.
33. Schonfeld, P. "Queuing and Simulation Methods for Analyzing Inland Waterway Improvements," Baltimore Port Operations Conference, Feb. 1993.
34. Lee, K.T. and Schonfeld, P. "Real - time Control for Coordinated Operations in Transit Terminals," Annual TRB Meeting, Jan. 1994.
35. Dai, M.D.M. and Schonfeld, P. "Metamodeling Approach for Approximating Series of G/G/1 Queues on Congested Waterways," First ASCE Congress on Computing in Civil Engineering, Washington, DC, June 1994.
36. Schonfeld, P., Lee, K.T. and Chang, C. "Scheduling and Real-Time Dispatching of Flights in Hub Operations," Annual ASCE Meeting, Atlanta, GA, Oct. 1994.
37. Chang, C. and Schonfeld, P. "Efficient Gate Assignment for Airport Hub Operations," Annual ASCE Meeting. Atlanta, GA, Oct. 1994.
38. Schonfeld, P. "Management of Airport Hub Operations," 30th Annual Transportation Symposium. Tainan, Republic of China, Dec. 1994.
39. Chang, C. and Schonfeld, P. "Flight Sequencing in Hub Airports," Annual TRB Meeting, Jan. 1995.
40. Kim, Y.M. and Schonfeld, P. "Neural Network Estimation of Lock Service Times," Annual TRB Meeting, Jan. 1995.
41. Wei, C.H. and Schonfeld, P. "Computational Issues in Neural Network Applications to Multiperiod Network Design," National INFORMS Meeting, Los Angeles, CA, April 1995.
42. Wei, C.H. and Schonfeld, P. "Research Framework for Cost Effective Highway Maintenance Planning," Annual TRB Meeting, Jan. 1996.
43. Schonfeld, P. "Optimization Options with SIMMOD," Annual Meeting of the North American SIMMOD Users Group. Washington, DC, March 1997.
44. Schonfeld, P. "Analysis of Hub Terminal Operations," ASCE Aviation Simulation and Modeling Conference. Rosslyn, VA, Aug. 1997.
45. Zhu, L. Schonfeld, P., Kim, Y.M., Flood, I. and Ting, C.J. "An Artificial Neural Network Analyzer for Waterway Traffic," Annual TRB Meeting, Jan. 1998.
46. Ting, C.J. and Schonfeld, P. "Optimization through Simulation of Waterway Transportation Investments," Annual TRB Meeting, Jan. 1998.
47. Jong, C.J. and Schonfeld, P. "Optimizing Vertical Alignments for Highways with Genetic Algorithms," Annual TRB Meeting, Jan. 1999 (99-0719 on CD-ROM).
48. Jong, J.C. and Schonfeld, P. "Cost Functions for Optimizing Highway Alignments," Annual TRB Meeting, Jan. 1999, (99-0700 on CD-ROM).
49. Ting, C.J. and Schonfeld, P. "Optimal Headways for Transit Networks with Coordinated Transfers," Annual TRB Meeting, Jan. 1999 (99-0701 on CD-ROM).
50. Jha, M. and Schonfeld, P. "Integrating Genetic Algorithms and GIS to Optimize Highway Alignments," Annual TRB Meeting, January 2000.
51. Rakas, J. and Schonfeld, P. "Air Traffic Management Performance during Equipment Outages," Annual TRB Meeting, Jan. 2000 (00-0954).
52. Jha, M. and Schonfeld, P. "GIS - based Analysis of Right-of-Way Cost for Highway Optimization," Annual TRB Meeting, Jan. 2000 (00-1065).
53. Rakas, J. and Schonfeld, P. "Airspace Reliability Models," NEXTOR Symposium, Washington DC, Nov. 2000.
54. Ting, C.J. and Schonfeld, P. "Optimal Scheduling in Multiple-hub Transit Networks," 5th Annual International Conference on Industrial Engineering Theory, Applications and Practice, Hsinchu, Taiwan, Dec. 13-15, 2000.
55. Jha, M. and Schonfeld, P. "Considering Maintainability in Highway Alignment Optimization," Annual TRB Meeting, Jan. 2001 (01-3170).
56. Kim, E. and Schonfeld, P. "Estimating Highway Cross Section Using Vector and Parametric Representation," Annual TRB Meeting, Jan. 2001 (01-2682).
57. Kim, E., Jha, M., and Schonfeld, P. "Intersection Cost Modeling for Highway Alignment Optimization," 9th World Conf. on Transp. Research. Seoul, Korea, July 2001.
58. Kim, E., Jha, M., Lovell, D., and Schonfeld, P. "Local Optimization of Intersections for Highway Alignments," Annual TRB Meeting, Jan. 2002 (02-2712)

59. Wang, S. and Schonfeld, P. "Development of Generalized Waterway Simulation Model," Annual TRB Meeting, Jan. 2002 (02-2194).
60. Jha, M. and Schonfeld, P. "Transit Line Optimization with Genetic Algorithms and GIS," Annual TRB Meeting, Jan. 2003 (03-4383).
61. Chen, C.H.P. and Schonfeld, P. "Work Zone Lengths for a Four - lane Road with an Alternate Route," Annual TRB Meeting, Jan. 2003 (03-2944).
62. Schonfeld, P. "Selection and Scheduling of Interdependent Projects," Korea Transport Inst. Inchon. ROK, Aug. 6, 2003.
63. Chen, C.H.P. and Schonfeld, P. "Work Zone Optimization for Two - lane Highway Maintenance Projects," Annual TRB Meeting, Jan. 2004 (04-3898).
64. Tao, X. and Schonfeld, P. "A Simulation Method for Selecting and Scheduling Waterway Projects," Annual TRB Meeting, Jan. 2004 (04-2899).
65. Tao, X. and Schonfeld, P. "Parallel Genetic Algorithms for Selecting and Scheduling Interdependent Transportation Projects," INFORMS Meeting. Denver, Oct. 27, 2004.
66. Pathomsiri, S., Haghani, A. and Schonfeld, P. "Operational Efficiency of Airports in Multiple Airport Systems," Annual TRB Meeting. Jan. 2005, (05-0495).
67. Luo, Y. and Schonfeld, P. "Tour Length of Many-to-One Dial-A-Ride Service," Annual TRB Meeting, Jan. 2005 (05-0561).
68. Chen, C.H.P., Schonfeld, P. and Paracha, J. "Work Zone Optimization for Two-lane Highway Work Zone Projects with an Alternate Route," Annual TRB Meeting, Jan. 2005 (05-1820).
69. Tao, X., and Schonfeld, P. "A Lagrangian Relaxation Algorithm for Selecting Interdependent Projects under Cost Uncertainty," Annual TRB Meeting, Jan. 2005 (05-0565).
70. Pathomsiri, S., Haghani, A. and Schonfeld, P. "Vehicle Miles Traveled in Multi - vehicle Households," Annual TRB Meeting, Jan. 2005, (05-0494).
71. Kim, E., Schonfeld, P., Kim, H.S. and Jha, M.K. "Highway Alignment Optimization Incorporating Bridges and Tunnels," Annual TRB Meeting, Jan. 2005, (05-2574).
72. Wang, S. and Schonfeld, P. "Genetic Algorithms for Selecting and Scheduling Waterway Projects," NETS Symposium. Salt Lake City, Jan. 12-14, 2006.
73. Kang, M., Jha, M., and Schonfeld, P. "Three- Dimensional Highway Alignment Optimization for the Brookeville Bypass," Annual TRB Meeting, Jan. 2006, (06-1023).
74. Tao, X., and Schonfeld, P. "Selection and Scheduling of Interdependent Transportation Projects with Island Models," Annual TRB Meeting, Jan. 2006, (06-1105).
75. Wang, S., Tao, X., and Schonfeld, P. "Modeling Shippers' Response to Scheduled Waterway Lock Closures," Annual TRB Meeting, Jan. 2006, (06-1833).
76. Chen, C.H.P., and Schonfeld, P. "Work Zone Optimization for Multiple - Lane Highway Resurfacing Projects with Time Constraints and an Alternate Route," Annual TRB Meeting, Jan. 2006, (06-1812).
77. Tien, S.L. and Schonfeld, P. "Duration versus Cost Tradeoffs in Work Zone Optimization," Annual TRB Meeting, Jan. 2006, (06-1789).
78. Schonfeld, P. "Optimizing Challenging Problems with Artificial Intelligence Heuristics," Invited Presentation, Annual TRB Meeting, Jan. 21, 2007.
79. Tao, X. and Schonfeld, P. "Island Models for a Stochastic Problem of Transportation Project Selection and Scheduling," Annual TRB Meeting, Jan. 2007, (07-1895).
80. Tien, S.L. and Schonfeld, P. "Passenger Market Equilibrium for Competing Airports in a Multiple Airport Region," Annual TRB Meeting, Jan. 2007, (07-1635).
81. Wang, S. and Schonfeld, P. "Demand Elasticity and Benefit Measurement in a Waterway Simulation Model," Annual TRB Meeting, Jan. 2007, (07-2579).
82. Wang, S. and Schonfeld, P. "Modeling Demand Response to Unscheduled Waterway Lock Closures," Annual TRB Meeting, Jan. 2007, (07-1849).
83. Chen, C.H.P. and Schonfeld, P. "Pavement Resurfacing Intervals in Work Zone Optimization," Annual TRB Meeting, Jan. 2007, (07-1625).
84. Zhou, Y., Kim, H.S., Schonfeld, P. and Kim, E., "Subsidies and Welfare Maximization Tradeoffs in Bus Transit Systems," Western Regional Science Association Conference, Newport Beach, California, Feb. 24, 2007.
85. Karri, G.A.K., Jha, M.K., Kang, M.W. and Schonfeld, P., "Application of GIS in Highway Alignment Optimization," 20th Annual Geographic Information Sciences Conference, Towson Univ., Baltimore, Maryland, March 2007.

86. Kim, D. and Schonfeld, P., "Road Space Allocation in a Congested Transportation Network with Bus and Toll Lanes," 11th World Conference on Transport Research, Berkeley, California, June 2007.
87. Ngamchai, S. and Schonfeld, P., "Air Express Network Design with Hub Sorting," 11th World Conference on Transport Research, Berkeley, California, June 2007.
88. Tien, S.L. and Schonfeld, P. "Model of Controller Requirements for Enroute Traffic," 29th International Air Transport Conference, Irving, Texas, Aug. 2007.
89. Yang, N. and Schonfeld, P. "A Hybrid Methodology for Freeway Work Zone Optimization with Time Constraints," INFORMS National Meeting, Seattle, Washington, Nov. 6, 2007.
90. Tien, S.L. and Schonfeld, P. "Regression Model for Forecasting Enroute Controller Requirements in Response to Future Traffic Growth," INFORMS National Meeting, Seattle, Washington, Nov. 6, 2007.
91. Wang, S.L. and Schonfeld, P., "Scheduling of Waterway Projects with Complex Interrelations," Annual TRB Meeting Jan. 2008, (08-2512).
92. Wang, S.L., Yang, N. and Schonfeld, P. "Simulation-Based Maintenance Planning for Waterway Networks," Annual TRB Meeting, Jan. 2008, (08-2602).
93. Kim, D. and Schonfeld, P. "Road Network Design with Road Space Allocation and Toll Funding," Annual TRB Meeting, Jan. 2008, (08-2873).
94. Kim, D. and Schonfeld, P. "Integrated Analysis of Toll Lanes and Bus-Priority Lanes," Annual TRB Meeting, Jan. 2008, (08-2906).
95. Tien, S.L. and Schonfeld, P. "Ordinal Regression Model for Forecasting Enroute Controller Requirements," Annual TRB Meeting, Jan. 2008, (08-1652).
96. Yang, N., Wang, S.L. and Schonfeld, P. "Simulation-Based Optimization of Waterway Projects using a Parallel Genetic Algorithm," Annual TRB Meeting, Jan. 2008, (08-2571).
97. Jha, M.K., Chen, C.C., Schonfeld, P. and Kikuchi, S. "An Evolutionary Algorithm for Military Applications," IEEE 3rd International Conference on Systems of Systems Engineering (SoSE 2008), Monterey, CA, June 2008.
98. Cheng, W. and Schonfeld, P. "Phased Development of Rail Transit Routes," Annual TRB Meeting, Jan. 2009, (09-3114).
99. Kim, D. and Schonfeld, P. "Multicriteria Network Equilibrium Model for Pricing in a Multimodal Network," Annual TRB Meeting, Jan. 2009, (09-3702).
100. Yang, N., Kang, M., Schonfeld, P. and Jha, M. "Multi-objective Optimization of Highway Alignments Incorporating Preference Information," Annual TRB Meeting, Jan. 2010 (10-1128).
101. Kang, M., Yang, N., Schonfeld, P. and Jha, M., "Bi-level Highway Route Optimization," Annual TRB Meeting, Jan. 2010 (10-1330).
102. Chen, C.C. and Schonfeld, P. "Modeling and Performance Assessment of Intermodal Transfers at Cargo Terminals," Annual TRB Meeting, Jan. 2010 (10-2924).
103. Chen, C.C., Wang, S.L. and Schonfeld, "Dynamic Path Optimization for Robotic Agents," Annual TRB Meeting, Jan. 2010 (10-1420).
104. Lai, X. and Schonfeld, P. "Optimizing Rail Transit Alignments Connecting Multiple Major Stations," Annual TRB Meeting, Jan. 2010 (10-2837).
105. Chen, C.C. and Schonfeld, P. "Intermodal Transfer Coordination in Logistic Networks," Korea Transport Research Institute, Feb. 3, 2010, Incheon, Korea.
106. Schonfeld, P. "GIS-Based Evaluation and Optimization of Highway Alignments," Keynote Presentation, Expressway and Transportation Research Conference, Feb. 4, 2010, Seoul, Korea.
107. Luo, Y. and Schonfeld, P. "Online Rejected-Reinsertion Heuristics for the Dynamic Multi-Vehicle Dial-a-Ride Problem," Annual TRB Meeting, Jan. 2011 (11-1655).
108. Luo, Y. and Schonfeld, P. "Performance Metamodels for Dial-a-Ride Services with Time Constraints," Annual TRB Meeting, Jan. 2011 (11-3144).
109. Yang, N. and Schonfeld, P. "Impact of User Diversion Behavior on Work Zone Operation Optimization," Annual TRB Meeting, Jan. 2011 (11-4175).
110. Markovic, N. and Schonfeld, P. "Scheduling under Uncertainty for a Single-Hub Intermodal Freight System," Annual TRB Meeting, Jan. 2011 (11-2291).
111. Chen, C.C., Hwang, D., Wang, S.L. and Schonfeld, P. "Incorporating Visibility Analysis into a Military Path Planning Algorithm," Annual TRB Meeting, Jan. 2011 (11-2253).
112. Chen, C.C. and Schonfeld, P. "Real-Time Dispatching Control to Alleviate Schedule Disruptions at Intermodal Freight Transfer Terminals," Annual TRB Meeting, Jan. 2011 (11-2268).
113. Tien, S.L., Hoffman, R. and Schonfeld, P. "En Route Sector Combination Scheme to Minimize En Route

Controller Staffing," Annual TRB Meeting, Jan. 2011 (11-3247).

114. Kang, M., Wang, S., Jha, M., Chen, C.C. and Schonfeld, P. "A Simulation Framework for the Path Planning of Unmanned Autonomous Systems," Fifth International Symposium on Uncertainty Modeling and Analysis, College Park, MD, April 2011.
115. Yang, N. and Schonfeld, P. "Impact of User Diversion on Work Zone Optimization," 18th World Congress on Intelligent Transportation Systems, Oct. 17, 2011, Orlando, Florida.
116. Kim, M., Schonfeld, P. and Kim, E. "Speed Optimization for Rail Transit Alignments Connecting Stations at Different Elevations," Annual TRB Meeting, Jan. 2012 (12-4363).
117. Markovic, N. and Schonfeld, P. "Location of Truck Inspection Stations Based on Stochastic Flows," Annual TRB Meeting, Jan. 2012 (12-2624).
118. Markovic, N., Drobnjak, Z. and Schonfeld, P. "Non-stationary Markov Chain Framework for Optimizing Dedicated Check-In Service," Annual TRB Meeting, Jan. 2012 (12-3902).
119. Markovic, N. and Schonfeld, P. "Simulation-based Optimization of Recovery for a Multi-terminal Freight Transportation System," Annual TRB Meeting, Jan. 2012 (12-2650).
120. Wang, S.L. and Schonfeld, P. "Simulation-Based Scheduling of Mutually Exclusive Projects with Precedence and Regional Budget Constraints," Annual TRB Meeting, Jan. 2012 (12-1164).
121. Lai, X. and Schonfeld, P. "Optimization of Rail Transit Alignments Considering Vehicle Dynamics," Annual TRB Meeting, Jan. 2012 (12-2553).
122. Chen, C.C. and Schonfeld, P. "A Hybrid Heuristic Technique for Optimizing Intermodal Logistics Timed Transfer Systems," Transport Research Arena Conference, Athens, Apr. 2012 (winner of Best Paper Award at this conference, awarded Apr. 24).
123. Kim, M. and Schonfeld, P. "Integration of Conventional and Flexible Bus Services," Workshop on Enhancing Intermodal Passenger Travel, Montreal, Canada, May 31, 2012.
124. Luo, Y. and Schonfeld, P. "Fleet Size Metamodel for Dial-a-Ride Services with Time Constraints," Ninth Asia Pacific Transportation Development Conference, Chongqing, China, June29-July1, 2012
125. Chen, C.C. and Schonfeld, P. "Clustering Analysis for Airport Parking," The 17th International Conference of the Hong Kong Society for Transportation Studies, Transportation & Logistics Management, Hong Kong (HKSTS 118), Dec. 15-17, 2012
126. Juster, R. and Schonfeld, P. "Personal Rapid Transit as Urban Transportation," Annual TRB Meeting, Jan. 2013 (13-1186).
127. Chen, C.C. and Schonfeld, P. "A Dispatching Model for Countering Delay Propagation in Intermodal Logistics Timed-transfer Systems," Annual TRB Meeting, Jan. 2013 (13-1640).
128. Markovic, B. and Schonfeld, P. "Planning Dial-a-Ride Services: Statistical and Metamodeling Approach," Annual TRB Meeting, Jan. 2013 (13-4205).
129. Besinovic, N, Markovic, B. and Schonfeld, P. "Optimal Allocation of Truck Inspection Stations Based on k-Shortest Paths," Annual TRB Meeting, Jan. 2013 (13-3123).
130. Kim, M., Schonfeld, P. and Kim, E. "Simulation–based Rail Transit Optimization Model," Annual TRB Meeting, Jan. 2013 (13-1196).
131. Chen, C.C. and Schonfeld, P. "Uncertainty Analysis for Flexible Airport Gate Development," 13th COTA International Conference of Transportation Professionals, Shenzhen, Aug. 13-16, 2013.
132. Markovic, N., Nair, R., Schonfeld, P., Miller-Hooks, E. and Mohebbi, M. "Optimizing Dial-a-Ride Services in Maryland," Annual TRB Meeting, Jan. 2014 (14-1705).
133. Feng, L., Miller-Hooks, E., Schonfeld, P. and Mohebbi, M. "Optimizing Ridesharing Services for Airport Access," Annual TRB Meeting, Jan. 2014 (14-3203).
134. Juster, R. and Schonfeld, P. "An Assessment of Trip Times in Automated Guideway Transit Systems," Annual TRB Meeting, Jan. 2014 (14-3235).
135. Sun, Y. and Schonfeld, P. "Schedule-based Route Choice Estimation with Automatic Fare Collection Data for Rail Transit Passengers," Annual TRB Meeting, Jan. 2014 (14-0834).
136. Vodopivec, N., Miller-Hooks, E., and Schonfeld, P. "Benefits of Recourse in the Stochastic Dial-A-Ride Problem," The International Federation of Operational Research Societies (IFORS) 2014 Conference, Barcelona, Spain, July 13-18, 2014.
137. Vodopivec, N., Miller-Hooks, E., and Schonfeld, P. "The Dial-A-Ride Problem with Uncertain Travel Times," Inst. for Operations Research and Management Sciences (INFORMS) 2014 Conference, San Francisco, California, Nov. 9-12, 2014.
138. Sun, Y. and Schonfeld, P. "Optimization Models for Public Transportation Operations under Subsidization and

Regulation," Annual TRB Meeting, Jan. 2015 (15-0563).

139. Zhou, T. and Schonfeld, P. "A Model for Optimizing Runway Location and Orientation," Annual TRB Meeting, Jan. 2015 (15-3439).
140. Kastrouni, E., Shayanfar, E., Schonfeld, P., Mahapatra, S. and Zhang, L. "Statewide Assessment of the Broader Economic Benefits from Transportation Investment: A Practical Approach Integrating Travel Demand Models and SHRP2 C11 Tools with Applications in Maryland," Annual TRB Meeting, Jan. 2015 (15-4777).
141. Vodopivec, N., Tobias, D., Miller-Hooks, E., Schonfeld, P. and Mohebbi, M. "Taxis as a Recourse Option for Ridesharing Services," Annual TRB Meeting, Jan. 2015 (15-5478).
142. Zhang, L., Schonfeld, P., Kastrouni, E. Shayanfar, E. and Mahapatra, S. "Integrating Travel Demand Models and SHRP2 C11 Tools for Statewide Assessment of the Broader Economic Benefits from Transportation Investment," 15th TRB National Transportation Planning Applications Conference, May 17-21, 2015, Atlantic City, NJ.
143. Schonfeld, P. "Multi-modal Integration and Transfer Coordination in Transportation Systems," Keynote Presentation, International Conference on Integrated Intermodal Transport, Xian, China, June 11, 2015.
144. Yousefzadeh, R., Goldstein, T. and Schonfeld, P. "Real-time Optimal Decisions in Hierarchical Freight Transportation Systems," 7th Annual Complexity in Business Conference, Washington, DC, Nov. 14, 2015.
145. Chen, C.C., Tsai, Y.H. and Schonfeld, P. "Schedule Coordination, Delay Propagation, and Disruptions Resilience in Intermodal Logistic Networks," Annual TRB Meeting, Jan. 2016 (16-1213).
146. Chen, L. and Schonfeld, P. "A Simulation Study of Coordinated Logistic Network Design," Annual TRB Meeting, Jan. 2016 (16-1148).
147. Sun, Y. Fan, W. and Schonfeld, P. "Static Parking Choice Model Considering Parking Duration," Annual TRB Meeting, Jan. 2016 (16-1453).
148. Sun, Y., Lu, Y., Zhou, M. and Schonfeld, P. "Redesigning Rail Transit Short Turn Operations for Congestion Mitigation: A Case Study of Line 2 of Shanghai Metro," Annual TRB Meeting, Jan. 2016 (16-1663).
149. Shi, J. Sun, Y. Schonfeld, P. and Guo, Q. "Identifying Passenger Trip Characteristics and Evaluating Travel Time Reliability by Visualizing AFC Data," Annual TRB Meeting, Jan. 2016 (16-2344).
150. Shayanfar, E. and Schonfeld, P. "Prioritizing Interrelated Road Projects using a Genetic Algorithm," Annual TRB Meeting, Jan. 2016 (16-5523).
151. Kim, M., Schonfeld, P. and Kim, E. "Service Type Variation for Multi-region Bus Systems," Annual TRB Meeting, Jan. 2016 (16-6238).
152. Sun, Y. and Schonfeld, P. "Coordinated Airport Facility Development under Uncertainty," INFORMS Annual Meeting, Nashville, TN, Nov. 2016.
153. Kang, M. and Schonfeld, P. "Analysis of Seasonal Variation of Upper Mississippi Towboat Traffic," Annual TRB Meeting, Jan. 2017 (17-02212).
154. Choi, Y. and Schonfeld, P. "Optimization of Multi-package Drone Deliveries Considering Battery Capacity," Annual TRB Meeting, Jan. 2017 (17-05769).
155. Sun, Y., Guo, Q., Schonfeld, P. and Li, Z. "Effects of Costly Public Funds on Public Transit Subsidization and Regulation," Annual TRB Meeting, Jan. 2017 (17-03305).
156. Sun, Y. and Schonfeld, P. "Coordinated Airport Facility Development under Uncertainty," Annual TRB Meeting, Jan. 2017 (17-01561).
157. Guo, Q., Chow, J.Y.J. and Schonfeld, P. "Stochastic Dynamic Switching in Fixed and Flexible Transit Services as Market Entry-exit Real Options," Transp. Research Procedia, 22nd Int'l Symp. on Transp. and Traffic Theory, Chicago, Illinois, vol. 23, July 2017, pp 380-399.
158. Guo, Q., Chow, J.Y.J. and Schonfeld, P. "Real Options Switching Strategies in Dynamic Transport Service Operations," Inst. for Operations Research and Management Sciences (INFORMS) Conference, Houston, Texas, Oct. 22-25, 2017.
159. Jovanovic, U., Shayanfar, E. and Schonfeld, P. "Selecting and Scheduling Link and Intersection Improvements in Urban Networks," Annual TRB Meeting, Jan. 2018 (18-05088).
160. Ryan, P. and Schonfeld, P. "Optimized Local and Express Train Headways for Irregular Station Spacings and Heterogeneous Demand," Annual TRB Meeting, Jan. 2018 (18-05393).
161. Choi, Y. and Schonfeld, P. "Drone Deliveries Optimization with Battery Energy Constraints," Annual TRB Meeting, Jan. 2018 (18-02726).
162. Shayanfar, E., Schonfeld, P. and Wang, J. "Optimizing the Priority of ADHS Projects by Integrating Simulation and Genetic Algorithm," 6th International Transportation and Economic Development Conference, Washington, DC, June 2018.

163. Schonfeld, P. "Selection and Scheduling of Interrelated Improvements in Transportation Systems," COTA International Conference of Transportation Professionals, Beijing, July 5-8, 2018.
164. Yu, L., Sun, Y. and Schonfeld, P. "Nonlinear Complementarity Problem Formulation for Bus Transit Assignment under General Stochastic Equilibrium Conditions," Annual TRB Meeting, Jan. 2019 (19-03021).
165. Choi, Y., Schonfeld, P., Lee, Y. and Shin, H. "Innovative Methods for Delivering Fresh Food to Underserved Populations," Annual TRB Meeting, Jan. 2019 (19-03523).
166. Shayanfar, E., Schonfeld, P. and Wang, J. J. "Prioritizing Highway Development Projects Based on Market Access in Appalachia," Annual TRB Meeting, Jan. 2019 (19-03836).
167. Schonfeld, P. "Analysis and Scheduling of Interrelated Alternatives for Network Development," 4UniC 2019 Conference, Calgary, Canada, Aug. 2019.
168. Choi, Y. and Schonfeld, P. "Analytic Approximations of Realistic Tour Distances: Case Studies for Deliveries by Robots and Drones," Annual TRB Meeting, Jan. 2020. (20-03619)
169. Lai, X., Teng, J. Schonfeld, P. and Ling, L. "Reliable Schedule Coordination for a Bus Transit Corridor: A Shanghai Case," Annual TRB Meeting, Jan. 2020. (20-04092)
170. Raleigh, C., Kim, M. and Schonfeld, P. "Optimization of Service Zones and Frequencies for Freight Deliveries," Annual TRB Meeting, Jan. 2020. (20-04458)