

## Ali Maher

Center for Advanced Infrastructure and Transportation  
100 Brett Road, Piscataway, New Jersey, 08854-8014  
732-445-2485 fax 732-445-0577 mmaher@rci.rutgers.edu

### EDUCATION

#### **Ph.D. in Civil Engineering**

University of Michigan, Ann Arbor, Michigan, August 1988  
Major: Geotechnical Engineering  
Minor: Applied Mechanics

#### **Master of Science in Geotechnical Engineering**

University of Michigan, Ann Arbor, Michigan, January 1985

#### **Master of Science in Construction Engineering**

Northeastern University, Boston, Massachusetts, August 1980

#### **Bachelor of Science in Civil Engineering**

University of Michigan, Ann Arbor, Michigan, June 1978

### WORK EXPERIENCE

#### **Rutgers University, New Brunswick, NJ**

7/2007 – present

*Professor of Civil and Environmental Engineering, and Director of CAIT*

#### **Rutgers University, New Brunswick, NJ**

4/2000 – 7/2007

*Professor of Civil and Environmental Engineering, and Department Chairman*

#### **Center for Advanced Infrastructure & Transportation (CAIT)**

*(A USDOT funded University Transportation Center)*

*Director*

6/1996 - Present

#### **Rutgers University, New Brunswick, NJ**

7/1995 - 3/2000

*Associate Professor of Civil and Environmental Engineering, and Department Chairman*

#### **Rutgers University, New Brunswick, NJ**

7/1994 - 7/1995

*Associate Professor of Civil and Environmental Engineering, and Director of Geotechnical Laboratories*

#### **Rutgers University, New Brunswick, NJ**

9/1988 - 7/1994

*Assistant Professor of Civil and Environmental Engineering, and Director of Geotechnical Laboratories*

#### **Fredric R. Harris, Boston, MA**

11/1978 - 5/1981

*Project Engineer*

### GEOTECHNICAL AND GEOENVIRONMENTAL CONSULTANT

Converse Consultants East  
Pennsylvania DOT  
Parsons Brinkerhoff, NJ  
NYSDOT  
Port Authority of NY/NJ  
NYCTOD

PQ Corporation, PA  
DMJM Harris  
Stantek, Inc.  
PPG Corporation, PA  
Gannett Fleming  
SADAT Assoc., Inc, NJ

New York City DOT  
NJDOT  
Mueser Rutledge

OENJ Corp.  
Synthetics Industries  
PPG Industrie

## **TEACHING**

Number of different undergraduate courses taught:	2
Number of different undergraduate courses taught:	4
Number of graduated Ph.D. students:	7
Number of current Ph.D. students:	3
Number of M.S. students:	27
Number of undergraduate independent studies:	46

## **PUBLICATIONS**

### ***(Refereed Journal Publications) -***

1. Maher A., et al. (contributing author), 2010, "Research Agenda for Transportation Infrastructure Preservation and Renewal", *TRB Committee Publication, Transportation Asset Management Committee*.
2. Bennert, T. \*, and Maher, A., 2009, "Field and Laboratory Evaluation of a Reflective Crack Relief Interlayer (RCRI) Mixture in New Jersey", *Transportation Research Record No. 2084*, National Research Council, Washington, D.C., 114 - 123 pp. **(Winner of TRB's 2009 K.B. Wood Award for best paper in design and construction)**
3. Bennert, T. \*, and Maher, A., 2009, "A Practical Methodology for the Performance-Based Selection of Bituminous Mixtures for Concrete Overlays", *Pavement Cracking: Mechanisms, Modeling, Detection, Testing and Case Histories*, Proceedings of the 6th RILEM International Conference on Cracking in Pavements, Chicago, IL, pp. 833 - 842.
4. Gucunski, N., Slabaugh, G., Weng, Z., Fang, T., and Maher, A., "Visualization and Interpretation of Impact Echo Data from Bridge Deck Testing," *Transportation Research Record 2050*, NRC, Washington, D.C., 2008, 111-121.
5. Bennert, T. \* and Maher, A., 2007, "Evaluation of the Current State of Flexible Overlay for Rigid/Composite Pavements in the United States", *Transportation Research Record No. 1991*, National Research Council, Washington, D.C., 97 - 108 pp.
6. Bennert\*, T. and Maher, A., 2007, "Evaluation of the Current State of Flexible Overlay for Rigid/Composite Pavements in the United States", *Transportation Research Record No. 1991*, National Research Council, Washington, D.C., 97 - 108 pp.
7. Maher, A., Douglas, S., Jafari, F., and Gucunski, N., 2006, "Field Placement and Evaluation of Stabilized Dredged Material (SDM) from New York/ New Jersey Harbor," *Journal of Marine Georesources and Technology*. Vol. 24, December 2006, pp. 251-263
8. Maher, A., Douglas, W.S., Yang, D., Jafari, F. and Schaefer, V. "Cement Deep Soil Mixing for Solidification of Marine

- Sediments,” *Journal of Marine Georesources and Technology*,” Vol. 25, July 2007, 221-235 pp.
9. Gucunski, N., Hadidi\*. R., Zaghoul, S., Maher, A., and Shokouhi\*, P., “Seasonal and Temperature Adjustment Models of Pavement Properties from Seismic Nondestructive Evaluation,” *Pavement Mechanics and Performance*, Geotechnical Special Publication No. 154, ASCE, 2006, 15-21.
  10. Bennert<sup>1</sup>, T., Maher, A., Bryant, M., and Smith, J., 2006, “Comparing Fine Aggregate Angularity (FAA) to Aggregate and HMA Performance Tests”, *Transportation Research Board*, Paper # 6-1705.
  11. Vitillo, N., Bennert\*, T., Maher, A., and Smith, J., 2006, “Evaluation of Superpave Mix Design for Low Volume Roads in New Jersey”, *Transportation Research Board*, Paper # 6-1277.
  12. Bennert\*, T., Maher, A., and Jafari\*, F., 2006, “Piezocone Evaluation of a Shallow Soil-Bentonite Slurry Wall”, *Waste Containment and Remediation: Engineering Properties of Vertical Barriers*, *Geotechnical Special Publication No. 142*, ASCE.
  13. Maher, A., Douglas, S., and Jafari, F., 2006, “Field Placement and Evaluation of Stabilized Dredged Material (SDM) from New York/ New Jersey Harbor, accepted for publication to the *Journal of Marine Georesources and Technology*.
  14. Gucunski, N., Consolazio, G.R. and Maher, A., 2006, “Concrete Bridge Deck Delamination Detection by Integrated Ultrasonic Methods,” *International Journal Material and Product Technology*, Special Issue on Non-Destructive Testing and Failure Preventive Technology, Vol. 26, No. ½, 19-34.
  15. Shokouhi, P., Gucunski, N, Maher, A. and Zaghoul, S., “Wavelet-Based Multiresolution Analysis of Pavement Profiles as A Diagnostic Tool,” *Transportation Research Record*, National Research Council, 1973, 2005, 65-75.
  16. Shokouhi, P., Gucunski, N., and Maher, A., “Dynamic Signatures of Cavities and Buried Objects from Surface Wave Testing,” *Geophysics – Where Do We Go From Here?*, Geotechnical Special Publication 133, ASCE, 2005.
  17. Douglas, W. S., Maher, A., Farhad Jafari\*\*, 2005, “Analysis of Environmental Effects of the Use of Stabilized Dredged Material from New York/New Jersey Harbor, USA, for Construction of Roadway Embankments”, *Integrated Environmental Assessment and Management*, Volume 1, Number 4, pp. 1–10.
  18. Maher, A, Bennert, T., Jafari, F., Douglas, S., and Gucunski, N., 2004, “Geotechnical Properties of Stabilized Dredged Material from New York-New Jersey Harbor”, *Transportation Research Record No. 1874*, National Research Council, Washington, D.C., 2004, pp. 86-99.
  19. Bennert<sup>2</sup>, T., Hanson, D., Maher, A., and Vitillo\*, N., 2004, “Influence of Pavement Surface Type on Tire/Pavement Generated Noise”, *Journal of Testing and Evaluation*, *ASTM International*, Vol. 33, No. 2, pp. 94-100.
  20. Maher, A, Bennert\*, T., Jafari, F., Douglas, S., and Gucunski, N., 2004, “Geotechnical Properties of Stabilized Dredged Material from New York-New

---

<sup>2</sup> PhD Candidate

- Jersey Harbor”, *Transportation Research Record No. 1874*, National Research Council, Washington, D.C., 2004, pp. 86-99.
21. Gucunski, N. and Maher, A., “Pavement Dynamic Response by Stiffness Matrix Approach,” *Recent Advances in Materials Characterization and Modeling of Pavement Systems*, Geotechnical Special Publication No. 123, Ed. E. Tutumluer, Y.M. Najjar and E. Massad, Geo Institute, ASCE, 2003, pp. 62-76.
  22. Bennert, T., Papp, W. J., Maher, A., Gucunski, N., “Utilization of Construction debris under Traffic-type Loading in Base and Sub-Base Application,” *Transportation Research Record*, Washington, D.C., October 2000.
  23. Gucunski, N. and Maher, A., “Evaluation of the Dynamic Response of Pavements and Other Layered Systems Using the Stiffness Matrix Approach,” accepted for presentation and CD preprint publication at 2000 Annual Transportation Research Board Meeting, Washington, D.C, January 9-13, 2000.
  24. Gucunski, N., Antoljak, S., Maher, A., “Seismic Methods in Post Construction Condition Monitoring of Bridge Decks,” Use of seismic Methods in Construction, Geotechnical Specialty Publication, No. 108, Eds. S. Nazarian and J. Diehl, GeoInstitute, ASCE, 2000, pp. 35-51.
  25. Bennert\*, T. A., Maher, M. H. (Ali), Jafari\*, F., and Gucunski, N., 1999, “Use of Dredged Sediments from the Newark Harbor for Geotechnical Applications,” *Geotechnics of High Water Content Materials, ASTM STP 1374*, 2000, pp. 152-164.
  26. Gucunski, N. and Maher, M.H. (Ali), “Evaluation of Pavements and Bridge Decks by Seismic Techniques,” *Civil Engineer Croatian Society of Civil Engineers*, Vol. 50, No. 7, 1998, pp. 379-387.
  27. Papp\* Jr., W.J., Maher, M.H., Bennert, T.A., and Gucunski, N., “Behavior of Construction and Demolition Debris in Base and Subbase Applications,” *Recycled Materials in Geotechnical Applications, ASCE, GSP No. 79*, 1998, pp. 156-168.
  28. Papp\* Jr., W.J., Maher, M.H. (Ali), and Baker, R.F. "Use of Shredded Tires in the Subbase Layer of Asphalt Pavements", Testing Soil Mixed with Waste of Recycled Materials, ASTM STP 1275, American Society for Testing and Materials, 1997, pp. 286-298.
  29. Maher, M.H. (Ali), Gucunski, N., and Papp\* Jr., W.J., "Recycled Asphalt Pavement as a Base and Sub-base Material", Testing Soil Mixed with Waste of Recycled Materials, ASTM STP 1275, American Society for Testing and Materials, 1997, pp. 42-53.
  30. Gucunski, N., Ganji\*, V. and Maher, M. H. (Ali), “Effect of Soil vs Nonhomogeneity on SASW Testing,” Uncertainty in the Geologic Environment: From Theory to Practice, ASCE SPT # 58, ASCE, 1996, pp. 1083-1097.
  31. Gucunski, N., Krstic\*, V. and Maher, M. H. (Ali), “Backcalculation of Pavement profiles from the SASW Test by Neural Networks,” 2<sup>nd</sup> ASCE Monograph on Artificial Neural networks, ASCE, 1996.
  32. Maher, M. H. (Ali), Papp\*, W. J., Jr., and Gucunski, N., “Measurement of Soil Resilient properties Using Non-Contacting Proximity Sensors,” *Transportation Research Record No. 1548*, National Research Council, Washington, D.C., 1996, pp. 16-23.
  33. Ganji\*, V., Gucunski, N. and Maher, M. H., “Detection of Underground Obstacles

- by SASW Method - Numerical Aspects,”  
Journal of Geotechnical Engineering,  
ASCE, Vol.123, No.3, 1997, pp. 212-219
34. Gucunski, N., Ganji\*, V. and Maher, M. H. (Ali), “Effect of Obstacles on rayleigh wave Dispersion Obtained from SASW Test,” *Soil Dynamics and earthquake Engineering*, SDEE 15, June 1996, pp. 223-231.
  35. Maher, M. H. (Ali) and Gucunski, N., “Liquefaction and Dynamic properties of Grouted Sand, ASCE, Geotechnical Specialty Publication # 49, 1995, pp. 37-50.
  36. Chen\*, B., Maher, M. H. (Ali) (Ali) and Nawy, E. G., “Fiber Optic Bragg Sensor for Nondestructive Evaluation of Composite Beams,” *Structural Engineering Journal*, ASCE, May 1995.
  37. Erten\*, D. and Maher, M. H. (Ali) , “Cyclic Undrained Behavior of Silty Sand,” *Soil Dynamics and earthquake Engineering*, SDEE 14, June 1995, pp. 115-123.
  38. Maher, M. H. (Ali), Ro\*, K. S. and Welsh, J. P., “High Strain Dynamic Moduli and Damping of Chemically Grouted Sand,” *Soil Dynamics and earthquake Engineering*, SDEE 45, 1994, pp. 1-8.
  39. Maher, M. H. (Ali), Ro\*, K. S. and Welsh, J. P., "Undrained Cyclic Behavior and Liquefaction Potential of Chemically Grouted sand," *ASTM Geotechnical Testing Journal*, Vol.17, No.2, 1994, pp. 159-170.
  40. Maher, M. H. (Ali) and Ho\*, Y. C., "Mechanical Properties of Kaolinite/Fiber Soil Composite," *ASCE Journal of Materials in Engineering*, Vol. 120, No. 8, August 1994, pp. 1381-1392.
  41. Gucunski, N. and Maher, M. H. (Ali), “Database of Dispersion Curves for Surface Wave Testing,” ASCE SPT#37, ASCE, 1993, pp. 1-12.
  42. Maher, M. H. (Ali) and Nawy, E. G., " Evaluation of Fiber Optic Bragg Grating Strain sensor in High Strength Concrete Beams, submitted and accepted for publication, "Application of Fiber Optic Sensors in Engineering Mechanics," *ASCE, SPT*, May 1993, pp. 120-134.
  43. Maher\*, M. H. (Ali), Prohaska, J. D., Chen, B., Nawy, E. G. and Snitzer, E., "Non-Destructive Evaluation of Strain in Prestressed Concrete Structural Elements Using a Novel Fiber Optic Technology," *Experimental Techniques*, Society for Experimental Mechanics, May 1993, pp.467-476.
  44. Maher, M. H. (Ali) and Ho\*, Y. C., "Behavior of Fiber-Reinforced Cemented Sand Under Static and Cyclic Loads," *ASTM Geotechnical Testing Journal*, September 1993, pp. 1-12.
  45. Maher, M. H. (Ali) and Shahriari, M. R., "Ruggedized Fiber Optic Chemical Sensor for Measurement of Groundwater pH," *ASTM Journal of Testing and Evaluation*, September 1993, pp.448-452.
  46. Maher, M. H. (Ali) and Balaguru, P., "Properties of High Volume Fly Ash Cement Composite: Floawable Mixture,” *ASCE Journal of Materials in Engineering*, Vol. 7, No. 2, May 1993, pp. 212-225.
  47. Maher, M. H. (Ali) and Welsh, J. P., "Effect of Soil Treatment on the Dynamic Response of Foundations,” *ASCE Specialty Publication # 30*, February 1992, pp. 855-866.
  48. Maher, M. H. (Ali) and Williams, T. P., " A Hybrid Expert System for Design with Geosynthetics” *ASCE Specialty Publication # 27* June 1991, pp. 241-252.
  49. Maher, M. H. (Ali), Flood\*, D. and Balaguru, P., "Properties of Municipal Solid Waste (MSW) Ash - Cement

Composite," *Transportation Research Record # 1295*, Transportation Research Board, National Research Council, 1991, pp. 9-16.

50. Maher, M. H. (Ali) and Woods, R. D., "Dynamic Response of Sands reinforced with Discrete, Randomly Distributed Fibers," *ASCE Journal of Geotechnical*

*Engineering*, Vol. 116, No.7, July, 1990, pp. 1116-1131

51. Maher, M. H. (Ali) and Gray, D. H., "Static Response of Sands Reinforced with Discrete, Randomly Distributed Fibers," *ASCE Journal of Geotechnical Engineering*, Vol. 116, No. 11, November, 1990, pp. 1661-1677.

### ***Books and Chapter in Books***

Gucunski, N. and Maher, M.H. (Ali), "Evaluation of Pavements and Bridge Decks by Seismic Techniques," *Civil Engineer*, Croatian Society of Civil Engineers, Vol. 50, No. 7, 1998, pp. 379-387.

Maher, M. H. (Ali) and Yang, S., "Soil Improvement for Big Digs", Specialty Publication # 81, published by the American Society of Civil Engineers, October 1998, 342 pages.

Maher, M. H. (Ali) and E. G. Nawy, "Evaluation of Fiber Optic Bragg Grating Sensors in High Strength Concrete Beams, Application of Fiber Optic sensors in Engineering Mechanics, Edited by F. Ansari, published by the American Society of Civil Engineers, June 1993, pp. 120-134

### ***Conference Proceedings***

1. Gucunski, N., Slabaugh, G., Weng, Z., Fang, T., and Maher, A., "Visualization and Interpretation of Impact Echo Data from Bridge Deck Testing," Proceedings of 2008 Annual Transportation Research Board Meeting, NRC, Washington, D.C., January 13-17, on CD.
2. Gucunski, N., Sauber, R., Maher, A., and Rascoe, C., "Modulus of Rubblized PCCP from Surface Wave Testing," Proceedings of the 88<sup>th</sup> Annual Transportation Board Meeting, Washington, D.C., January 11-15, 2009.
3. Gucunski, N., Rascoe, C., Hadidi, R. and Maher, A., "Ground Penetrating Radar in Pavement Management," Proceedings of 10<sup>th</sup> International Conference on Application of Advanced Technologies in Transportation (AATA), May 26-31, Athens, Greece, 2008, on CD.
4. Gucunski, N., Rascoe, C., and Maher, A., "3D-GPR in Transportation Infrastructure Evaluation," Proceedings of 21<sup>st</sup> SAGEEP, April 6-10, Philadelphia, PA, 2008, on CD.
5. Huston, D., Gucunski, N., Burns, D., Maher, A., and Jalinoos, F., "Multi-Sensor Imaging of Reinforced Concrete Decks," Proceedings of the 17<sup>th</sup> Annual ASNT Research Symposium and Spring Conference, March 31-April 4, Anaheim, CA, 2008, on CD.

6. Gucunski, N., Hadidi, R. and Maher, A., "Use of Ground Penetrating Radar (GPR) in Pavement Evaluation," Proceedings of 4<sup>th</sup> International Croatian Congress on Roads, Dubrovnik, Croatia, October 28-31, 2007, on CD.
7. Huston, D., Gucunski, N., Maher, A., Cui, J., Burns, D., and Jalinoos, F., "Bridge Deck Condition Assessment with Electromagnetic, Acoustic and Automated Methods," Proceedings of the 6th International Workshop on Structural Health Monitoring, Stanford University, Stanford, CA, September 11-13, 2007.
8. Hadidi, R., Gucunski, N. and Maher, A., "Application of Probabilistic Approach to the Solution of Inverse Problems in Nondestructive Testing and Engineering Geophysics," Proc. of 20<sup>th</sup> Symposium on the Application of Geophysics to Engineering and Environmental Problems, Denver, CO, April 1-5, 2007, on CD.
9. Shokouhi, P., Gucunski, N. and Maher, A., "Time-Frequency Techniques for Impact Echo Data Analysis and Interpretation," Proceedings of the 9<sup>th</sup> EFNDT Conference, Berlin, Germany, September 25-28, 2006.
1. Maher, A., Douglas, W. S., Jafari, F., and Yang, D., "In-Situ Deep Soil Mixing for Solidification of Soft Estuarine Sediments, Proceedings of GeoCongress 2008, ASCE, New Orleans.
2. Maher, A., Douglas, W. S., Jafari, F., and Yang, D., "In-Situ Solidification of River Sediments using Cement deep Soil Mixing (CDSM), Proceedings of GeoCongress 2006, ASCE, Atlanta, Georgia.
3. Gucunski, N., Hadidi, R., Zaghoul, S., Maher, A., and Shokouhi, P., "Seasonal and Temperature Adjustment Models of Pavement Properties from Seismic Nondestructive Evaluation," Proceedings of the 2006 *GeoShanghai* International Conference, Shanghai, China, June 2-4, 2006, on CD.
4. Gucunski, N., Shokouhi, P. and Maher, A., "Advanced Impact Echo Data Interpretation for Bridge Deck Condition Assessment," Proceedings of the International Conference on Bridges, Dubrovnik, Croatia, May 21-24, 2006, pp. 993-1000 and on CD.
5. Shokouhi, P., Gucunski, N. and Maher, A., "Applicability and Limitations of Impact Echo in Bridge Deck Condition Monitoring," Proceedings of the 19<sup>th</sup> EEGS Annual Meeting *SAGEEP 2006*, Seattle, Washington, April 2-6, 2006, on CD.
6. Shokouhi, P., Gucunski, N., Maher, A., Zaghoul, S., Vitillo, N., "Advanced Analysis of Profiles," TRB 85<sup>th</sup> Annual Meeting, Washington, D.C., January 22-26, 2006, on CD.
7. Gucunski, N., Maher, A., Hadidi, R., and Jafari, M., "Seismic NDT Methods in Development of Temperature Adjustment Models for Pavement Elastic Moduli," International Conference *Matest 2005 – NDT for Public Benefit*, Opatija, Croatia, October 5-8, 2005, on CD.
8. Gucunski, N., Hadidi, R., Shokouhi, P., and Maher, A., "Evaluation of Compaction Uniformity of Newly Placed Airport Runway Hot Mix Overlays Using Ground Penetrating Radar," Proceedings of 2005 Annual GPRI Conference, October 2-3, 2005, on the web.

9. Shokouhi, P., Gucunski, N., and Maher, A., "Wavelet-Based Multiresolution Analysis of Pavement Profiles as Diagnostic Tool," 2005 Annual Transportation Research Board Meeting, Washington, D.C, January 9-13, 2005, on CD.
10. Gucunski, N., Zoghlu, S., Maher, A., Hadidi, R., and Shkouhi, P., "Development of Seasonal Variation Models of Pavement properties using Seismic NDT Techniques", Proceedings of GeoCongress 2006, ASCE, Atlanta, Georgia.
11. Shokouhi, P., Gucunski, N. and Maher, A., "Application of Wavelets in Detection of Cavities under Pavements," CD preprint publication for 2004 Annual Transportation Research Board Meeting, Washington, D.C, January 11-15, 2004.
12. Gucunski, N., Zaghoul, S., Hadidi, R. and Maher, A., "FWD and SPA Pavement Evaluation in Development of Seasonal and Temperature Adjustment Models," Proceedings of Structural Materials Technology (SMT): NDE / NDT for Highways and Bridges Topical Conference, Cincinnati, Ohio, September 9-12, 2002, on CD.
13. Gucunski, N., Zaghoul, S., Hadidi, R., Maher, A. and Chmiel, T., "Pavement Evaluation and Development of Seasonal and Temperature Adjustment Models Using Seismic Pavement Analyzer (SPA)," *Geophysics 2003 - 3<sup>rd</sup> International Conference on the Application of Geophysical Methodologies and NDT to Transportation Facilities and Infrastructure, FHWA and FDOT, December 8-12, 2003, Orlando, Florida, on CD.*
14. Shokouhi, P., Gucunski, N. and Maher, A., "Detection of Shallow Cavities by Wavelet Transform Analysis of Surface Waves," *Geophysics 2003 - 3<sup>rd</sup> International Conference on the Application of Geophysical Methodologies and NDT to Transportation Facilities and Infrastructure, FHWA and FDOT, December 8-12, 2003, Orlando, Florida, on CD.*
15. Jackson, H., Gucunski, N., and Maher, A. "Application of Cone Models in Nondestructive Testing of Pavements," Proceedings of Structural Materials Technology (SMT): NDE / NDT for Highways and Bridges Topical Conference, Cincinnati, Ohio, September 9-12, 2002, on CD.
16. Gucunski, N. and Maher, A., "Dynamic Response of Pavements by Stiffness Matrix Approach," Proceedings of the 15<sup>th</sup> ASCE Engineering Mechanics Division Conference EM2002, New York, NY, June 2-5, 2002, on CD.
17. Jackson, H., Gucunski, N., and Maher, A. "Alternative Models for the Impulse Response Method," Proceedings of the 8<sup>th</sup> European Conference on Nondestructive Testing, Barcelona, Spain, June 17-21, 2002, on CD.
18. Jackson, H. and Gucunski, N., "Improved Pavement Model for Reduction of Impulse Response Test Data," Proceedings of the Annual Meeting of the Environmental and Engineering Geophysical Society *SAGEEP 2002*, Las Vegas, Nevada, February 10-14, on CD.
19. Gucunski, N., Maher, A. and Jackson, H., "Verification of Pavement Undersealing by Impulse Response Method," Proceedings of *Matest 2001 - Nondestructive Testing in Environmental Protection Symposium*, Cavtat, Croatia, September 22-24, 2001, pp. 81-86.
20. Gucunski, N. and Maher, A., "Surface Waves in Evaluation of Damping in



- Layered Systems,” Proceedings of the Fourth International Conference on *Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics*, San Diego, California, March 26-31, 2001, on CD.
21. Gucunski, N., Krstic, V. and Maher, A., “Field Implementation of the Surface Waves for Obstacle Detection (SWOD) Method,” Proceedings (on CD) of the 15<sup>th</sup> World Conference on Non-Destructive Testing, Roma, Italy, October 15-21, 2000.
  22. Gucunski, N., Vitillo, N. and Maher, A., “Bridge Deck Evaluation Using Integrated Seismic Devices,” Proceedings of the *Structural Materials Technology IV: An NDT Conference*, Atlantic City, NJ, Feb. 28-March 3, 2000, pp. 329-334.
  23. Gucunski, N., Vitillo, N. and Maher, A., “Pavement Condition Monitoring by Seismic Pavement Analyzer (SPA),” Proc. of the *Structural Materials Technology IV: An NDT Conf.*, Atlantic City, NJ, Feb. 28-March 3, 2000, pp. 337-342.
  24. Gucunski, N., Antoljak, S., and Maher, A., “Finite Element Modeling of Impact Echo Test on Delaminated Bridge Decks,” accepted for publication in Proceedings of International Conference *MATEST '99 - Advanced NDT Techniques*, Cavtat, Croatia, September 23-24, 1999.
  25. Gucunski, N. and Maher, A., “Use of Nondestructive Seismic Techniques for Optimum Maintenance and Management of Roads and Bridges,” accepted for Publication in Proceedings of the 2<sup>nd</sup> Croatian Congress on Pavements, Cavtat, Croatia, October 23-27, 1999.
  26. Gaffney, D.A., Martin, S.M., Maher, M.H., and Bennert, T.A., “Dewatering Contaminated Fine-Grained Material Using Geotextiles,” *Proceedings of Geosynthetics '99 Conference, 1999*, pp. 87-98. (Refereed)
  27. Gucunski, N., Ganji, V., Vitillo, N., Maher, M.H. and Tabrizi, K., “FE Analysis Based Prediction Equations for Ultra-Thin Whitetopping,” Transportation Research Board 78<sup>th</sup> Annual Meeting, CD-ROM, Washington, D.C., January 10-14, 1999.
  28. Gucunski, N. and Maher, M.H., “Bridge Deck Condition Monitoring by Impact Echo Method,” Proceedings of International Conference *MATEST '98 - Life Extension*, Brijuni, Croatia, October 1-2, 1998, pp. 39-45.
  29. Panda, R., Szary, Patrick, J, Maher, M. H. (Ali), Safari, A., " Piezo-Electric Ceramic Composites for Weight-in-Motion Sensors," Proc. Of SPIE 5<sup>th</sup> Annual Symposium on Smart Structures and Materials, San Diego, CA, 1998, pp. 78-96.
  30. Krstic, V., Gucunski, N., and Maher, M.H., “In Situ Application of SASW Method for Detection of Underground Obstacles,” Proceedings of International Conference *MATEST '98 - Life Extension*, Brijuni, Croatia, October 1-2, 1998, pp. 247-254.
  31. Gucunski, N., Krstic, V. and Maher, M.H., “Experimental Procedures for Detection of Underground Objects by the SASW Test,” Proceedings of the First International Conference on Site Characterization (ISC'98) *Geotechnical Site Characterization*, Atlanta, Georgia, April 19-22, 1998, pp. 469-472.
  32. Maher, M. H. (Ali), Gucunski, N. and Sarmad, A., “Evaluation of Composite Piles for Marine Applications,” Proc. Of the 2<sup>nd</sup> Intl. Conf. On Civil Engineering, Tehran, June 1997.

33. Gucunski, N., Ganji, V. and Maher, M.H., "SASW Test in Location of Buried Objects," Proceedings of the *1996 Annual Symposium on the Application of Geophysics to Engineering and Environmental Problems (SAGEEP'96)*, Keystone, Colorado, April 28-May 3, 1996, pp. 481-486.
34. Gucunski, N., Ganji, V. and Maher, M.H., "Analysis of Settlements of Landfill Caps by FEM," Proceedings of the *3rd International Symposium on Environmental Geotechnology*, San Diego, California, June 10-12, 1996, pp. 485-494.
35. Gucunski, N., Ganji, V. and Maher, M.H., "Application of the SASW Test in Underground Obstacle Detection," Proceedings of the *International Symposium on Non-Destructive Testing in Civil Engineering (NDT-CE)*, September 26-28, Berlin, Germany, 1995, pp. 437-444.
36. Maher, M.H., Gucunski, N. and Chae, Y.S., "Composite Fender and Sheet Piles In Marine Front Systems," Proceedings of the 1st International Conference on Composites in Infrastructure *Fiber Composites in Infrastructure*, Tucson, Arizona, January 15-17, 1996, pp. 665-675.
37. Tabrizi, K., Gucunski, N. and Maher, M.H., "3-D FEM Analysis of Excavation of a Soil-Nail Wall," Proceedings of the Second ASCE Congress for Computing in Civil Engg., Atlanta, Georgia, June 5-7, 1995, pp. 812-819.
38. Maher, M.H., Bennert, T.A., Jafari, F., and Aagard, P., 1997, "Geotechnical Evaluation of Dredged Material from Newark Harbor.," *Proceedings of the 13<sup>th</sup> International Conference on Solid Waste Technology and Management*, Philadelphia, PA, 1997, pp. 67-79. (Refereed)
39. Maher, M. H. (Ali), Gucunski, N. and Lampo, R., "Composite Fender and Sheet Piles in Marine Front Systems," Proc. First Intl. Conf. on Composites, Tucson AZ, 1996, pp. 665-675.
40. Gucunski, N., Ganji, V. and Maher, M. H. (Ali), "SASW Test in Location of Buried Objects," Proc. Of the 1996 Annual Symp. On the Application of geophysics to Environmental Engineering and Environmental problems (SAGEEP'96), Keystone, Colorado, April 28- May 3, pp. 481-486.
41. Gucunski, N., Ganji, V. and Maher, M. H. (Ali), "Analysis of Settlements of Landfill Caps by FEM," Proc. Of the 3<sup>rd</sup> Intl. Symp. On Environmental Geotechnology, San Diego, CA, June 10-12, 1996, pp. 485-494.
42. Gucunski, N., Ganji, V. and Maher, M. H. (Ali), " Application of the SASW test in Underground Obstacle Detection," accepted for publication in the proc. Of the Intl. Symposium on Non-destructive testing in Civil Engineering (NDT-CE), Berlin, Germany, September 1995, pp.12.
43. Tabrizi, K., Gucunski, N. and Maher, M. H. (Ali), "3-D FEM Analysis of excavation of a Soil-Nail Wall," Proc. Of the Second ASCE Congress of Computing in Civil Engineering, Atlanta, Georgia, June 1995, pp. 812-819.
44. Gucunski, N. Tabrizi, K., Maher, M. H. (Ali) and Oweis, I.S., "Localized Subsidence of Landfill Caps by FEM," proc. *10<sup>th</sup> Pan American Conf. on Soil Mechanics and Foundation Engineering*, Mexico, October 1995, 11 pp.

45. Gucunski, N. and Maher, M. H. (Ali), "Nondestructive Wave Propagation Methods in Pavement Condition Assessment," Proc. Of 1995 Transportation Congress on *Transportation for a Sustainable World Economy*, ASCE, San Diego, Calif., October 1995, 12 pp.
46. Gucunski, N. and Maher, M. H. (Ali), "Database of Dispersion Curves for Surface Wave Testing," Proc. *ASCE National Meeting*, Dallas, October 1993, pp.1-12.
47. Ganji, V., Gucunski, N. and Maher, M. H. (Ali), "Influence of Underground Obstacles on SASW Testing," Proc. Of the *ASNT fall Conference*, Dallas, Texas, October 16-20, 1995, pp. 113-115.
48. Maher, M. H. (Ali), Butziger, J. M., DiSalvo, D. L., and Oweis, I. S., "Lime Sludge Amended Fly Ash for Utilization as an Engineering Material," Proc. *ASCE National Meeting*, Dallas, October 1993.
49. Maher, M. H. (Ali), Prohaska, J. D., Chen, B., Nawy, E. G. and Snitzer, E., "Non-Destructive Evaluation of Strain in Prestressed Concrete Structural Elements Using a Novel Fiber Optic Technology, Proceedings of the 1993 *ACI Conf. on "NDT of Infrastructure Concrete,"* Detroit, Michigan.
50. Maher, M. H. (Ali), Butziger, J. M., DiSalvo, D. L., and Oweis, I. S., "Lime Sludge Amended Fly Ash for Utilization as an Engineering Material," Proc. *ASCE National Meeting*, Dallas, October 1993.
51. Maher, M. H. (Ali), Prohaska, J. D., Chen, B., Nawy, E. G. and Snitzer, E., "Non-Destructive Evaluation of Strain in Prestressed Concrete Structural Elements Using a Novel Fiber Optic Technology, Proceedings of the 1993 *ACI Conf. on "NDT of Infrastructure Concrete,"* Detroit, Michigan.
52. Maher, M. H. (Ali), Butziger, J. M., and Chae, Y. S., "Utilization of Municipal Soil Waste as a Construction Material," *NSF sponsored European Conf. on Environmental Geotechnology*, Izmir, Turkey, 1992, pp. 457-465.
53. Prohaska, J. D., Chen, B., Maher, M. H. (Ali), Nawy, E. G. and Snitzer, E." Fiber Optic Bragg Grating Strain Sensor in Large Scale Concrete Structures," Proc. *SPIE Conf.*, Boston, 1992.
54. Maher, M. H. (Ali), Butziger, J. M., and Chae, Y. S., "Utilization of Municipal Soil Waste as a Construction Material," *NSF sponsored European Conf. on Environmental Geotechnology*, Izmir, Turkey, 1992, pp. 457-465.
55. Prohaska, J. D., Chen, B., Maher, M. H. (Ali), Nawy, E. G. and Snitzer, E.." Fiber Optic Bragg Grating Strain Sensor in Large Scale Concrete Structures," Proc. *SPIE Conf.*, Boston, 1992.
56. Maher, M. H. (Ali) and Williams, T. P., "Application of Expert Systems for Geotechnical Design," Proc., *1st Int. Conf. on Computer Applications in Science, Technology, and Medicine in Iran*, Isfahan, Iran, Dec. 1991.
57. Maher, M. H. (Ali), Lacy, S. J. and Filho, F. V., "Dynamic Response of Foundations on Treated Soils," Proc. *2nd Intl. Conf. on Soil Dynamics and Earthquake Engineering*, Rolla, Missouri, 1991.
58. Maher, M. H. (Ali) and Balaguru, P., "Mechanical Properties of Low Strength, High Volume Fly Ash Mortar," *ACAA's 9th Intl. Coal Ash Utilization Symposium*, Orlando, Florida, January 1991.

59. Maher, M. H. (Ali) and Gray, D. H.,  
"Admixture Stabilization of Sands  
with Discrete, Randomly Distributed

Fibers," Proc. of the *XIIIth International Conference on Soil Mechanics and Foundation Engineering*, Rio de Janeiro, Brazil, August, 1989, pp. 1363-1366.

### ***Invited Talks and Presentations***

1. "UTC best research showcase" TRB 2010.
2. "Long Term Bridge Performance Program" status report, TRB 2010.
3. "LTBP Road Map" International Bridge Conference, FHWA, 2009.
4. Beneficial Use of Estuarine Sediments in Marine Environments", Dredge Management Conference, sponsored by NJDOT, July 2009.
5. Long-Term Bridge Performance Program (LTBP) – State Highway Agency Collaboration," Iowa Department of Transportation, IA, August 13, 2008 – Invited Speaker
6. Long-Term Bridge Performance Program (LTBP) – Research Priorities," FHWA Bridge Engineering Conference, Pittsburgh, PA, June 6, 2008 – Invited Speaker.
7. "UTC collaboration – A Best Practice", UTC Directors Conference, July 2008 – Invited Talk.
8. "Contaminated River Estuarine Treatment", EPA forum on In-Situ Stabilization, February 2008.
9. "Transportation Infrastructure Challenges of South Jersey", Delaware River Authority, February 2008.
10. "Modulus of Rubblized PCCP from Surface Wave Testing," 88th Annual Transportation Research Board Meeting, NRC, Washington, D.C., January 12, 2009 (contributed).
11. "Ground Penetrating Radar in Pavement Management," 10<sup>th</sup> International Conference on Application of Advanced Technologies in Transportation (AATA), Athens, Greece, May 29, 2008 (contributed).
12. "3D-GPR in Transportation Infrastructure Evaluation," 21<sup>st</sup> SAGEEP, April 8, Philadelphia, PA, 2008 (contributed).
13. "Multi-Sensor Imaging of Reinforced Concrete Decks," 17<sup>th</sup> Annual ASNT Research Symposium and Spring Conference, 2, Anaheim, CA, 2008 (contributed).
14. "Visualization and Interpretation of Impact Echo Data from Bridge Deck Testing," 87th Annual Transportation Research Board Meeting, NRC, Washington, D.C., January 15, 2008 (contributed).
15. "Infrastructure Asset Management, A National Challenge", Siemens Corporation, March 2007.
16. The 3<sup>rd</sup> International Conference on Structural Health Monitoring of Intelligent Infrastructure ( SHMI I ' 3 ) — Vancouver , Canada - November 14 -16, 2007, Invited to address the Technical Committee Workshop.
17. "Integration of Infrastructure Monitoring with Critical Infrastructure

- Asset Management”, University of Illinois, Chicago, June, 2007.
18. “Deep Soil Mixing for S/S of contaminated Sediments,” Passaic Commission Meeting, February, 2007.
  19. “Energy Infrastructure Asset Management – Pipeline Safety Challenge”, Rutgers University Energy Center, February 2008.
  20. Beneficial Use of Contaminated Sediments – A NY/NJ Harbor Case Study, Department of Systems Engineering, University of Pennsylvania, September 2006
  21. In-Situ Stabilization of River Sediments,” Geo Congress, ASCE, 2006.
  22. “Transportation Infrastructure Research and Education at CAIT,” Bogazici University, Turkey, 2006
  23. “Deep Soil Mixing for S/S of contaminated Sediments,” Chinese Delegation visits to NJ (Bayshore Corp.), February, 2006.
  24. “Toward Advanced Asset Management in Civil Infrastructure,” Milan Polytechnical University, Italy, September, 2005.
  25. “Transportation Infrastructure Research and Education at Rutgers University,” Rutgers University Board of Governors, September, 2005.
  26. “A Decision Support tool for Management of Contaminated sediments,” Port of Piraeus, Greece, June 2005.
  27. “Deep Soil Mixing for Stabilization of River Sediments,” Passaic River Commission, NJ, March 2005.
  28. “Role of Smart Sensing and Advanced Materials in Civil Infrastructures,” Department of Ceramics and Materials Engineering, Rutgers University, November 2004.
  29. Transportation Safety resources for NJ,” NJDOT, August 2004.
  30. “Transportation Research and Education at CAIT,” Rutgers University Administrators Quarterly Meeting, May 2004.
  31. “Beneficial Use of Stabilized Dredged Material,” NJDEP, May 2004.
  32. “Research Needs in Transportation Infrastructure – CAIT,” Rutgers University Board of Trustees, March 2004.
  33. “Condition Monitoring of Transportation Infrastructures of NJ,” *The Ceramic Association Of NJ*, 2003 Annual Meeting, April, 2003.
  34. “Maintenance Strategies for NJ Transportation Infrastructure,” Invited Speaker, *U.S. House of Representatives*, February 2003.
  35. “ Beneficial re-use of rubberized crumb tires in transportation applications,” *Bayshore Corporation*, February 2003.
  36. “New compaction criteria for stabilization of recycled materials” Invited Speaker, *NJDOT Open House*, Rowan University, October 2002.
  37. “Use of vibratory compaction for Q/A control of waste placement” *University of Vienna*, Austria, June 2002.

38. "Beneficial use of treated dredge in transportation applications," Invited Speaker, Washington, D.C. 2001.
39. "Superpave and Evaluation of Bituminous Materials in RAPL," *NJAPA Asphalt Paving Conference*, Woodbridge, NJ 2000.
40. "Status of CAIT," *First Annual NJDOT Open House*, November 1999.
41. "Geotechnical and Pavement Research at Center for Advanced Infrastructure and Transportation," Invited Speaker *University of Nottingham*, Nottingham, England, June 1999.
42. " Geotechnical Properties of Newark Bay Dredge Materials," *NY/NJ Maritime Resources/NJDOT Symposium on Dredge Utilization*, Rutgers University, May 1999.
43. "Evaluation and Monitoring of Recycled Materials in Roads Using Seismic Techniques," Invited Speaker, *Using Recycled Materials in Road Construction and Maintenance*, Jamestown, New Jersey, May 13, 1999.
44. "Rutgers Asphalt Pavement Laboratory," Invited Speaker, *42<sup>nd</sup> Annual New Jersey Asphalt Paving Conference*, Woodbridge, New Jersey, March 15, 1999.
45. " A Unified Approach to Pavement Research in New Jersey," *New Jersey Department of Transportation*, Trenton, New Jersey, February 1999.
46. "Resilient Modulus of Subgrade Soils," *New Jersey Department of Transportation*, Trenton, New Jersey, December 1998.
47. " Rutting Evaluation of Bituminous Materials," *New Jersey Department of Transportation*, Trenton, New Jersey, March 1998.
48. " Use of Recycled Materials in Roadway Construction," *NJ Asphalt Pavement Association*, March 1998.
49. " Utilization of Dredge Materials in Construction", *PPG Industries*, March 1998.
50. " Large Scale Laboratory Evaluation of Composite Piling," *Composite Institute*, New York, NY, April 1997.
51. " Rutting Evaluation of Pavement Systems," *New Jersey Dept. of Transportation*, April 1997
52. "Use of Shredded Tires in the Subbase Layer of Asphalt Pavements," *ASTM Symposium on Testing Soil Mixed with Waste or Recycled Materials*, New Orleans, Louisiana, January 17, 1997.
53. " Resilient Modulus Properties of Recycled Materials" *New Jersey Department of Transportation*, June 1997.
54. " Dredge Treated Fills", *PPG Industries*, March 1997
55. "Recycled Asphalt Pavement as a Base and Subbase Material," *ASTM Symposium on Testing Soil Mixed with Waste or Recycled Materials*, New Orleans, Louisiana, January 16, 1997.
56. "Composite Fender and Sheet Piles In Marine Front Systems," 1st International Conference on Composites in Infrastructure *Fiber Composites in Infrastructure*, Tucson, Arizona, January 16, 1996.
57. "Fiber Reinforced Soils", *PPG Industries*, Pittsburgh, Pennsylvania, March 1996.

58. "Liquefaction, and Dynamic Properties of Grouted Sand," *Soil Improvement for Earthquake Hazard Mitigation*, 1996 ASCE Convention, October 26, 1995.
59. "Influence of Underground Obstacles on SASW Testing," *1995 ASNT Fall Conference*, Dallas, Texas, October 19, 1995 (contributed).
60. "Nondestructive Testing of Soil and Pavement Systems by Seismic Methods," *Rutgers/NJDOT Workshop on Resilient Modulus Testing of Base and Sub-Base Materials in New Jersey*, February 10, 1995.
61. "Comparative Evaluation of Deflection and Wave Propagation Based Techniques for Nondestructive Testing of Pavements," *UTRC Region II Technical Briefing*, NJDOT, Trenton, New Jersey, May 17, 1994.
62. "Nondestructive Testing of Pavements by Seismic Techniques," presented at the Department of Civil Engineering, CUNY, April 1993.
63. "Experimental Procedures in Soil Dynamics and Earthquake Engineering," presented at *Sharif University of Technology*, Tehran, Iran, January 1993.
64. "Effect of Grouting on Dynamic Response of Soil," Plenary invited speaker, Department of Civil Engineering, Independent University of Mexico, Mexico City, Mexico, April 1993.
65. "Application of Chemical Grouts to Soil Stabilization," Invited Speaker, *Vitro-PQ Headquarters*, Mexico City, Mexico, April 1993.
66. "Use of SASW Nondestructive Method in Evaluation of Pavement Profile," *Cornell University, Local Roads Program*, June 1992.
67. "Managing and Improving Transportation Infrastructure," *Annual USDOT site visit to UTRC Region II*, August 1992.
68. "Effect of Soil Treatment on the Dynamic Response of Foundations," *ASCE Specialty Conference on "Grouting, Soil Improvement and Geosynthetics"*, New Orleans, Louisiana, February 1992.
69. "Application of Optical Fiber Stress/Strain Sensor in Nondestructive Evaluation of structures," *NASA Research Center*, Langley, Virginia, January 1992.
70. "Application of Chemical Grouting to Soil and Site Improvement," presented at West Virginia University, Department of Petroleum and Natural Gas Engineering, Morgantown, West Virginia 3/92.
71. "Behavior of Chemically Grouted Sands," *PQ/AKZO Research Staff Meeting*, Rutgers University, Piscataway, NJ, April 1990.
72. "Application of Expert Systems for Geotechnical Design," presented at *the 1st Int. Conf. on Computer Applications in Science, Technology, and Medicine in Iran*, Isfahan, Iran, December 1991.
73. "Properties of Municipal Solid Waste (MSW) Ash - Cement Composite," *Transportation Research Board, National Research Council*, Washington D.C., January 1991.
74. "Physical Properties of Chemically Grouted Fine Sands," *PQ Corp.*, Research HQ, Valley Forge, Pennsylvania, July 1991.

75. "Static and Dynamic Response of Sand Reinforced with Randomly

Distributed Fibers", Presented at *University of Michigan*, Ann Arbor, Michigan, October 1987.

### ***Technical Reports***

1. Bennert, T. and A. Maher, 2009, Evaluation of Poisson's Ratio for Use in the Mechanistic Empirical Pavement Design Guide (MEPDG), FHWA-NJ-2008-004, New Jersey Department of Transportation (NJDOT), 60 pp.
2. Bennert, T. and A. Maher, 2009, The Use of Recycled Concrete Aggregate in a Dense Graded Aggregate Base Course, FHWA-NJ-2008-002, New Jersey Department of Transportation (NJDOT), 77 pp.
3. Development of a Dredge Operation Planning and Decision Support Tools. Port of Piraeus, 2005.
4. Solidification of Soft River Sediments Using Deep Soil Mixing, NJDOT, 2006
5. Analysis of Decision Support System for Dredging operation Management, Army COE, 2005.
6. Transportation Safety Resource Center, FHWA/NJDOT, 2005.
7. New Jersey Interagency Emergency Management Plan, FHWA/NJDOT, 2005.
8. Falling Weight Deflectometer vs Laboratory Determined Resilient Modulus, NJDOT, 2005.
9. Implementation of Mechanistic Pavement Design: Field and Laboratory Implementation, FHWA/NJDOT, 2005.
10. Demonstration Project-Beneficial Re-Use of Dredged Clay in Upland Site, NJDOT, 2005.
11. Geotechnical Testing and Beneficial Reuse Evaluation Program of River Sediments, NJ Maritime Resources, NJDOT, 2004.
12. Development of a Performance Based Specification for Granular Base and Subbase Materials, FHWA/NJDOT, 2004.
13. Investigation into Modified Asphalt Binders, NJDOT, 2003.
14. Evaluation of Crumb Rubber in Hot Mix Asphalt, NJDOT, 2003.
15. Geotechnical Benefits of Mixing Construction and Demolition Screenings with Cement-Amended Dredged Materials, NJDOT, 2003.
16. Rut Testing of Hot Mix Asphalt using Loaded Wheel Tester, FHWA/NJDOT, 2002.
17. Evaluation of CPT, NJDOT, 2002.
18. Evaluation of Humboldt Stiffness Gauge, NJDOT, 2002
19. D. Mikulic, N. Gucunski and A. Maher, "Blacktop Resurfacing of Bridge Decks," Submitted to NJDOT, June 2001.
20. A. Maher, N. Gucunski, W. Yanko, F. Petsi, "Evaluation of Pothole Patching Materials," Submitted to NJDOT, February 2001.



21. A. Maher, T. Bennert, N. Gucunski, "Resilient Modulus Properties of New Jersey Subgrade Soils," Submitted to NJDOT, September 2000.
22. F. Ansari, A. Maher, A. Luke, G. Y. Yong Zhang, P. Szary, "Recycled Materials in Portland Cement Concrete," Submitted to NJDOT, June 2000.
23. F. Ansari, A. Luke, Y. Dong, A. Maher, "Development of Maturity Protocol for Construction of NJDOT Concrete Structures," Submitted to NJDOT, December 1999.
24. M. Labib, A. Maher, "Recycled Plastic Fibers for Asphalt Mixtures," Submitted to NJDOT, August 1999.
25. F. Ansari, A. Luke, Z. Zhang, A. Maher, "Effects of Synthetic Air Entraining Agents on Compressive Strength of Portland Cement Concrete- Mechanism of Interaction and Remediation Strategy," Submitted to NJDOT, July 1999.
26. Maher, M. H. (Ali), Gucunski, N., Yanko, W., and Petsi, F., "Evaluation of Cold-Patch Materials," Submitted to NJDOT, July 1999.
27. P. Szary, A. Maher, R.K. Panda, A. Safari, "Implementation of Advanced Fiber Optic and Piezoelectric Sensors - Fabrication and Laboratory Testing of Piezoelectric Ceramic-Polymer Composite Sensors for Weigh-in-Motion Systems," Submitted to NJDOT, February 1999.
28. A. Maher, N. Gucunski, W. Khouri, W. Yanko, "Review of Improved Compaction Equipment and Technology," Submitted to NJDOT, November 1998.
29. F. Ansari, A. Luke, A. Maher, "Development of Fast-Track Concrete- 2," Submitted to NJDOT, July 1998.
30. Lampo, R., Nosker, T., Barno, D., Busel, J., Maher, M. H. (Ali), Dutta, P. and Odello, R., "Development and demonstration of FRP Composite Fender, Loadbearing, and Sheet Piling Systems," March 1998.
31. Maher, M. H. (Ali), Papp, W. and Gucunski, N., "Evaluation of RAP and RCA in Subbase of Pavements," November 1997.
32. Maher, M. H. (Ali) and Gucunski, N., "Improved Compaction Equipment and Technology," Final report, NJDOT, September 1997.
33. S. Kuntz, P. Balaguru, G. Consolazio, A. Maher, "Fast Track Concrete For Construction Repair," Submitted to NJDOT, March 1997.
34. Ansari, F., Zhang, G., Maher, M. H. (Ali), Khouri, W. and Gucunski, N., "Recycled Materials in Portland Cement Concrete," Phase I Report, NJDOT, September 1996.
35. M. H. Maher and N. Gucunski, "Comparative Evaluation of Deflection and Wave Propagation Nondestructive Testing Methods for Pavements," USDOT-Transportation Research Center, Contract Technical Report #2, October 1993.
36. M. H. Maher and N. Gucunski, "Comparative Evaluation of Deflection and Wave Propagation Nondestructive Testing Methods for Pavements," USDOT-Transportation Research Center,

Contract Technical Report #1,  
September 1992.

37. M. H. Maher, "Managing and Improving Infrastructure," Report to UTRC, USDOT site visit, University Transportation Research Center (UTRC-II), City University of New York, New York, New York, August 1992.

38. M. H. Maher, "Physical Properties of Chemically Grouted Sands," PQ Corporation, Technical Report #1, September 1991.

39. D. H. Gray and M. H. Maher, "Static and Dynamic Response of Sands

Reinforced with Discrete, Randomly Distributed Fibers," Air Force Office of Scientific Research, AFOSR, Contract Technical Report, October 1988.

40. M. H. Maher, "High Strain Dynamic Response of Treated Sand," National Science Foundation, NSF, Contract Technical Report, December 1993.

41. E. G. Nawy and M. H. Maher, "Fiber Optic sensors for Strength Evaluation and Early Warning of Impending Failure in Structural Systems," National Science Foundation, NSF, Contract Technical Report, December 1993.

### **Grants**

Co-PI, National Institute for Standards and Technology, TIP Program, "Advanced Nondestructive Evaluation and rehabilitation System for Bridge decks (ANDERS)," \$17,800,000, 2010 to 2015

PI, US Department of Transportation, "Long-Term Bridge Performance," \$25,000,000, 2008 to 2011

PI, New Jersey Local Technical Assistance Program (LTAP) 2009 Work Plan, 280,000, 1/1/09 to 12/25/09

PI, SNJ-Department of Transportation, "Rutgers Pavement Resource Center," \$1,500,000, 2008-2009

PI, SNJ-Department of Transportation, "Transportation Safety Resource Center," \$1,300,000, 2008-2009

PI, US Department of Transportation, "CAIT/UTC University Transportation Center 2006-2008," \$2,456,600, 2007 to 2011

Co-PI, SNJ-Department of Transportation, "Warm Pavement Technology", \$166,368, 2007 to 2008.

PI, SNJ-Department of Transportation, "9th Annual NJDOT Research Showcase", \$4740, 2007

PI, SNJ-Department of Transportation, "New Jersey Local Technical Assistance Program (LTAP)", 2007-08 work plan , \$259,900, 2007

PI, SNJ-Department of Transportation, "Performance of Gravel Aggregates in SuperPave Mixes with 100/95 Angularity (Pgm: C-06-20), \$259,900, 2007-2008

PI, SNJ-Department of Transportation, "Transportation Safety Resource Center (TSRC)," \$1,300,000, 2007-2008

Co-PI, SNJ-Department of Transportation, "2007 New Jersey Summer Transportation Institute," \$40,000, 2007-2008

PI, SNJ-Department of Transportation, "The Use of Recycled Concrete Aggregate in a Dense Graded Aggregate B," \$207, 2007-2008

PI, SNJ-Department of Transportation, "Rutgers Pavement Resource Center-Ride Quality Tools," \$700,000, 2007-2008

PI, SNJ-Department of Transportation,  
“Rutgers Pavement Resource Center -  
Overhaul Pavement Management,”  
\$1,300,000, 2007-2008

PI, SNJ-Department of Transportation,  
“Dynamic Modulus of Hot Mix Asphalt,”  
\$77,835, 2007-2008

Self Cleaning High Temperature Coating (PD  
05-1635 CMS Infrastructure  
Mat & Structural Mechanics)  
Project Period: 2005-2006  
Sponsor: National Science Foundation

Solidification of Soft River Sediments Using  
Deep Soil Technology  
Amount: \$418,000  
Project Period: 7/15/2004 to 7/14/2005  
Sponsor: SNJ-Department of Transportation

CAIT/UTC (University Transportation  
Center) 2003-2005  
Amount: \$1,822,300  
Project Period: 7/1/2004 to 6/30/2005  
Sponsor: Department of Transportation

TO # 150: Transportation Safety Resource  
Center (Project # 2004-TSRC) Amount:  
\$850,000  
Project Period: 3/1/2004 to 12/31/2005  
Sponsor: SNJ-Department of Transportation

2003-2004 Safety Training and Resource  
Amount: \$135,138  
Project Period: 10/1/2003 to 9/30/2004  
Sponsor: SNJ-Department of Highway  
Traffic & Safety

Use of LED or Other New Technology to  
Replace Standard Overhead and Sign  
Lighting (Mercury and/or Sodium) Amount:  
\$146,000  
Project Period: 1/1/2004 to 12/31/2004  
Sponsor: SNJ-Department of Transportation

TO#138: Usage of Windows-Based PDA's  
As Paperless Solutions for Emergency  
Service Providers  
Amount: \$98,395  
Project Period: 7/1/2003 to 6/30/2004

Sponsor: SNJ-Department of Transportation

LTAP Technology Transfer Center 2004  
Amount: \$290,000

Project Period: 1/1/2004 to 12/31/2005  
Sponsor: SNJ-Department of Transportation

Transportation Safety Professional Development  
Clearinghouse  
Amount: \$312,345  
Project Period: 1/1/2004 to 12/21/2005  
Sponsor: SNJ-Department of Transportation

Fifth Annual NJDOT Research Showcase  
Amount: \$25,000  
Project Period: 9/1/2003 to 8/31/2004  
Sponsor: SNJ-Department of Transportation

Biohazard Detection and Security of Critical  
Transportation Infrastructures  
Amount: \$58,236  
Project Period: 9/1/2003 to 8/31/2004  
Sponsor: National Science Foundation

New Jersey Local Police Technical Assistance  
Program (PTAP)  
Amount: \$285,725  
Project Period: 1/1/2004 to 12/31/2005  
Sponsor: SNJ-Department of Transportation

Technology transfer \$90,000  
Project Period: 1/1/2003 to 6/30/2004  
Sponsor: SNJ-Department of Transportation

TECHNOLOGY TRANSFER (CAIT)  
Amount: \$90,000  
Project Period: 1/1/2004 to 12/31/2004  
Sponsor: SNJ-Department of Transportation

Engineering Management Consulting Services  
Amount: \$50,000  
Project Period: 5/27/2003 to 5/26/2005  
Sponsor: SNJ-Department of Transportation

Demonstration Project Beneficial Re-use of  
Dredged Clay in Upland Sites Amount: \$348,064  
Project Period: 7/1/2003 to 8/31/2004  
Sponsor: SNJ-Department of Transportation

Demonstration Project-the Measurement of  
Pavement Noise Using the NCAT

Noise Trailer (TO#140)  
Amount: \$15,000  
Project Period: 8/1/2003 to 6/30/2004  
Sponsor: SNJ-Department of Transportation

New Jersey Local Congestion, Safety,  
Security Initiative  
Amount: \$368,887  
Project Period: 1/1/2003 to 12/31/2004  
Sponsor: SNJ-Department of Transportation

New Jersey Interagency Emergency  
Management Plan  
Amount: \$139,150  
Project Period: 3/15/2003 to 3/18/2003  
Sponsor: SNJ-Department of Transportation

Evaluation of Poisson's Ratio (NJDOT  
Project #2002-25)  
Amount: \$308,087  
Project Period: 1/1/2003 to 12/31/2005  
Sponsor: SNJ-Department of Transportation

LTAP Technology Transfer Center 2003  
Amount: \$80,209  
Project Period: 1/1/2003 to 12/31/2004  
Sponsor: SNJ-Department of Transportation

Transportation Safety Resource Center  
Principal Investigator  
Amount: \$2,000,000  
Project Period: 6/04-  
Sponsor: Federal Highway Administration.

Roadway Safety and Congestion Impact on  
Transportation Security  
Principal Investigator  
Amount: \$786,000  
Project Period: 2/2003-5/2004  
Sponsor: Federal Highway Administration

Poisson Ratio Evaluation of HMA Mixes in  
NJ  
Principal Investigator  
Amount: \$268,000  
Project Period: 1/2002-12/2004  
Sponsor: USDOT/NJDOT

Material Characterization and Seasonal  
Variation in Material Properties  
Co-Principal Investigator

Amount: \$1,695,894  
Project Period: 1/2001-12/2003  
Sponsor: USDOT/NJDOT

NJDOT Companion Manual to the 1993  
AASHTO Guide for Design of Structures  
Principal Investigator  
Amount: \$86,409  
Project Period: 1/2001-12/2001  
Sponsor: NJDOT

Ride Quality Follow-Up  
Co-Principal Investigator  
Amount: \$474,000  
Project Period: 1/2003-12/2004  
Sponsor: FHWA/NJDOT

Seismic Analysis of Retaining Walls, Buried  
Structures and Embankments  
Co-Principal Investigator  
Amount: \$146,000  
Project Period: 1/03-12/03  
Sponsor: USDOT / NJDOT

\$86,409, New Jersey Department of  
Transportation, "NJDOT Companion Manual to  
the 1993 AASHTO Guide for Design of  
Structures,"  
Co-Principal Investigator

2001-2001, \$117,00, Federal Highway  
Administration (FHWA), "Local Technical  
Assistance Program - Program Activities,"  
Principal Investigator

2001-2001, \$50,000, New Jersey Department of  
Transportation, "Local Technical Assistance  
Program Supplemental Activities," Principal  
Investigator

\$90,000, New Jersey Department of  
Transportation, "CAIT USDOT-UTC  
Technology Transfer", Principal Investigator

\$286,041, New Jersey Department of  
Transportation, "Recycled Asphalt Pavement  
(RAP) and Recycled Asphalt Concrete (RAC) in  
I-3 Soil Aggregate"  
Principal Investigator

\$213,544, New Jersey Department of Transportation, "Investigation into Modified Asphalt Binders for Improved Pavement Performance", Principal Investigator

2002-2003 \$74,070, New Jersey Department of Transportation "Investigation into Modified Asphalt Binders for Improved Pavement Performance," Principal Investigator.

2000-2002 \$286,401, New Jersey Department of Transportation, "Development of a Performance Specification for a Granular Base," Principal Investigator.

36. 2000-2002 \$95,000, New Jersey Department of Transportation, "Implementation of Weigh-In-Motion (WIM) Systems", Principal Investigator

\$50,000, New Jersey Department of Transportation, "Evaluation and Reporting of the Amened Dredge Embankment", Principal Investigator

\$119,334, New Jersey Department of Transportation, "Effects of Synthetic Air Entraining Agents on Compressive Strength of Portland Cement Concrete", Principal Investigator

\$137,294, New Jersey Department of Law and Public Safety, "Safety Training & Resource Project", Co-Principal Investigator

\$30,000, New Jersey Department of Transportation, "Development and Evaluation of Geotechnical Design Parameters Using the Seismic Piezocone", Principal Investigator

\$187,400, New Jersey Department of Transportation, "Aqueous Borohydride Fuel Cell Project", Principal Investigator

2000- 2001 \$171,680, New Jersey Department of Transportation, "Characterization of New Jersey's Hot Mix Asphalt Materials", Principal Investigator

\$150,535, New Jersey Department of Law and Public Safety, "Rutgers Multimedia, On-Line Training Program", Principle Investigator

2000-2000, \$115,00, Federal Highway Administration (FHWA), "Local Technical Assistance Program - Program Activities," Principal Investigator.

45. 2000-2000, \$50,000, New Jersey Department of Transportation, "Local Technical Assistance Program Supplemental Activities," Principal Investigator.

\$300,000, New Jersey Department of Transportation, "New Jersey Fuel Cell Hybrid Vehicle (HEV): Year 2", Principal Investigator

\$18,150, New Jersey Department of Transportation, "New Jersey Fuel Cell Hybrid Vehicle (HEV): Year 2", Principal Investigator

\$43,096, New Jersey Department of Transportation, "NJ Center for Advanced Infrastructure and Transportation (CAIT) MIS/GIS- Task Order #60", Principal Investigator

\$152,212, New Jersey Department of Law and Public Safety, "Safety Training & Resource Project", Co-Principal Investigator

\$50,000, New Jersey Department of Transportation, "On Going Evaluation Projects- Task Order #71", Principal Investigator

\$86,131, New Jersey Department of Transportation, "University Travel Center – CAIT & UTC – Task Order #70", Principal Investigator

1999-2000, \$262,200, United States Department of Transportation (USDOT), "CAIT University Transportation Center Y2," Principal Investigator.

1999-2000, \$200,000, New Jersey Department of Transportation, "Ride Quality Standards for New Pavements," Principal Investigator.

\$15,426, New Jersey Department of Transportation, "New Jersey fuel cell hybrid electrical vehicle (HEV)", Principal Investigator

1999-2000, \$230,796, New Jersey Department of Transportation, "Hydrogen Electric Vehicle," Principal Investigator.

1999-2000, \$50,000, New Jersey Department of Transportation, "NJDOT On-Going Research," Principal Investigator.

1999-2000, \$24,983, New Jersey Department of Transportation, "3D/4D Sign Review Support," Co-Principal Investigator (25% effort).

1999-2000, \$95,386, New Jersey Department of Transportation, "Pilot Geotech Database of Soil Survey Maps," Co-Principal Investigator (20% effort)

1999-2000, \$42,047, New Jersey Department of Transportation, "Evaluation and Development of MIS Interface," Co-Principal Investigator (10% effort).

1999-2000, \$86,131, New Jersey Department of Transportation, "CAIT University Transportation Center Administration YI," Principal Investigator.

1999-1999, \$100,00, Federal Highway Administration (FHWA), "Local Technical Assistance Program - Program Activities," Principal Investigator.

1999-1999, \$50,000, New Jersey Department of Transportation, "Local Technical Assistance Program Supplemental Activities," Principal Investigator.

1998-1999, \$274,400, United States Department of Transportation (USDOT), "CAIT University Transportation Center YI," Principal Investigator.

\$72,300, New Jersey Department of Transportation, "Portable Seismic Pavement

Analyzer for Bridge Deck Evaluation -Year II," Co- Principal Investigator.

\$85,391, New Jersey Department of Transportation, "Evaluation of Rutting and Fatigue Cracking," Principal Investigator.

1998-1999, \$54,932, New Jersey Department of Transportation, "Resilient Modulus YIII," Principal Investigator.

1998-1999, \$85,392, New Jersey Department of Transportation, "Evaluation of Rutting Fatigue Cracking YII," Principal Investigator.

1998-1999, \$82,400, United States Department of Transportation (UTRC II), Blacktop Resurfacing of Bridge Decks", Co-Principal Investigator (35% effort)

1998-1999, \$69,691, New Jersey Department of Transportation, "Portable SPA for Bridge Decks YII," Co-Principal Investigator.

1997-1998, \$16,000, New Jersey Department of Transportation, "Wildlife Warning System," Principal Investigator.

1997-1998, 20,000, New Jersey Department of Transportation, "Study of Roller Compaction Technology," Principal Investigator.

1997-1998, \$92,300, New Jersey Department of Transportation, "Portable SPA for Bridge Deck Analysis," Co-Principal Investigator (40% effort).

1997-1998, \$15,000, New Jersey Department of Transportation, "Improved Longitudinal Joints," Principal Investigator.

1997-1998, \$112,000, New Jersey Department of Transportation, "Evaluation of Rutting Fatigue Cracking YI," Principal Investigator.

1996-1999, \$150,000, New Jersey Department of Transportation, "Resilient Modulus Properties of NJ Subgrades," Principal Investigator.

1996-1999, \$160,000, National Science Foundation, " Utilization of SASW Method in

Detection of Underground Obstacles,” Co-Principal Investigator (40% effort).

1996-1998, \$91,800, New Jersey Department of Transportation, “Evaluation of SPA for Condition Monitoring,” Co-Principal Investigator (40% effort).

1996-1998, \$32,000, United States Department of Transportation (UTRC II), “Utilization of Advanced Piezo-Composite Sensors for WIM Application”, Principal Investigator.

1996-1998, \$50,000, United States Department of Transportation (UTRC II), “Evaluation of Composite Piling in Corrosive Soils,” Principal Investigator.

1996-1997, \$300,000, New Jersey Department of Transportation, “Center for Advanced Infrastructure Technology,” Principal Investigator.

1996-1997, \$20,000, New Jersey Department of Transportation, “Study of Roller Compaction Technology,” Principal Investigator.

1996-1997, \$24,000, New Jersey Department of Transportation, “Nondestructive Evaluation of Concrete Slabs,” Co-Principal Investigator (35% effort).

1996-1997, \$50,000, New Jersey Department of Transportation, “Innovative Pot-Hole Patching Technology,” Principal Investigator.

1996-1996, \$50,000, OENJ Corporation, “CPT Equipment Purchase,” Principal investigator.

1995-1998, \$99,000, New Jersey Department of Transportation, “Recycled Concrete,” Principal Investigator.

1995-1997, \$105,000, New Jersey Department of Transportation, “Utilization of Recycled Asphalt Pavement and Concrete,” Principal Investigator.

1995-1997, \$129,000, United States Department of Transportation (UTRC II), " Comparative Evaluation of Deflection and Wave Propagation Nondestructive Testing Methods for Pavements: Implications for Implementations at State and Local Levels", Co-Principal Investigator (40% effort).

1993-1996, \$186,000, U.S. Army Corps of Engineers, " Development and Demonstration of Composite Piling and Sheet Pile," Principal Investigator.

1993-1994, \$39,400, United States Department of Transportation (UTRC II), " Comparative Evaluation of Deflection and Wave Propagation Nondestructive Testing Methods for Pavements: Implications for Implementations at State and Local Levels", Principal Investigator.

1993-1994, \$84,828, United States Department of Transportation (UTRC II), " Laboratory and Field Evaluation Performance of Asphalt Concrete Pavement Mixtures and Sub-base materials Using Waste Tires as a Modifier," Principal Investigator.

1993-1994, \$4,000, Coverse Consultants East, "Lime Sludge Amended Fly Ash for Utilization as an Engineering Material", Principal Investigator.

1992-1994, \$10,000, Hayward Baker, Inc., " Dynamic Response of Treated Soils," Principal Investigator.

1992-1994, \$114,000, National Science Foundation, " High Strain Dynamic Moduli and Damping Characteristics of Treated Soils," Principal Investigator.

1992-1992, \$64,000, PQ Corporation, " Equipment for Environmental Geotechnology Laboratory," Principal Investigator.

1991-1993, \$26,307, National Science Foundation, " Research Experience for Undergraduate Students in Civil Engineering," Co-Principal Investigator (50% effort).

1991-1993, \$98,500, Northeast Hazardous Substance Management Research Center (NJIT), "On-Line, Monitoring of Groundwater Contaminants Using Fiber Optic Chemical Sensors," Co-Principal Investigator (50% effort).

1991-1993, \$62,000, United States Department of Transportation (UTRC II), "Comparative Evaluation of Deflection and Wave Propagation Nondestructive Testing Methods for Pavements: Implications for Implementations at State and Local Levels", Principal Investigator.

1991-1992, \$5,000, PQ Corporation, "Mechanical Properties of Sodium Silicate Grouted Sands," Principal Investigator.

1990-1993, \$190,000, National Science Foundation, "Fiber Optic Sensors for Strength Evaluation and Early Warning of Impending Failure in Structural Systems," Co-Principal Investigator (50% effort).

1990-1991, \$49,000, Northeast Hazardous Substance Management Research Center (NJIT), "On-Line, Real-Time Monitoring of Groundwater Contaminants Using Fiber Optic Chemical Sensors," Co-Principal Investigator (50% effort).

1990-1991, \$2,100, Rutgers Research Council, "Effect of soil treatment on Dynamic Soil-Structure Interaction : An Analytical Study," Principal Investigator.

***Activities:***

Member of the Board, U.S. Universities Council on Geotechnical Engineering Research (USUCGER).

Member of ASCE, National and Local Organizations.

Member, Transportation Research Board, RU Representative

Member ASCE Technical Committee on "Soil Improvement".

Member ASTM Technical Committee D-18 "Soil and Rock"

Member, NJDOT Quality Initiative

Past Faculty Advisor, ASCE Student Chapter, Rutgers University.

Reviewer of Technical Proposals, National Science Foundation.

Research Associate, UTRC-Region II.

Member of Rutgers University Hearing Committee.

Member of Rutgers University Health and Safety Committee.

***Awards:***

Winner of TRB's 2009 K.B. Wood Award for best paper in design and construction

Recipient of Certificate of Appreciation, "NJDOT", 1999 to 2006

1999 "Quality Award", American Association of State Highways and Transportation Officials

Recipient of AASHTO "Trailblazer Award" 1998



1998 “Educator of the Year Award” ASCE, Central Jersey Branch, New Jersey

Scientific Contribution Award, Composite Institute (January, 1997)

1996 “Nova” Construction Innovation Award

Recipient of Academic Merit Award, Rutgers University (1989-2006)