Hesham Ali, Ph.D., PE, CPM
President-Senior Engineer
Sustainable Road Engineering
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OBJECTIVE:

To use my education, leadership and experience in the fields of Artificial Intelligence, Robotics, Geotechnical Engineering, Pavement Engineering, Construction Management, Contract Administration, Construction Quality Assurance, Materials testing, Traffic Operations, and Asset Management to make a difference in my community and mentor the next generation of engineers.

CERTIFICATES AND LICENSES:

Licensed Professional Engineer, State of Florida
Certified Public Manager (CPM)--FSU
Graduate of FDOT Leadership Academy
Graduate of FDOT Supervisory Academy
Graduate of Construction Management Academy
Certified Quality Control Manager- CTQP (FDOT Construction Training and Qualification Program)
Certified Asphalt Paving Tech levels I and II-CTQP
Certified Asphalt Plant Tech-CTQP
Certified Earthwork Inspector Levels I and II-CTQP
Licensed ATSSA Supervisor- Advanced MOT
FDOT Certified Instructor, MOT Intermediate and Advanced
FDOT Certified Instructor, CTQP Asphalt Paving Level I & II
FDOT Certified Instructor, CTQP Asphalt Plant Level I &II
FDOT Certified Instructor, CTQP Asphalt Mix Designer
FDOT Certified Instructor, CTQP Concrete Field Inspector
FDOT Certified Instructor, CTQP Concrete Lab Inspector
FDOT Certified Instructor, CTQP Earthwork Construction I &II
FDOT Certified Instructor, CTQP Quality Control Manager
FDOT Certified Instructor, CTQP Pile Driving Inspector
FDOT Certified Instructor, CTQP Drilled Shaft Inspector

PATENTS

- 15/018,152 Three Dimensional Paving (Awarded)

- 15/136,461 System and Method for Recycling Asphalt through Radiant and Convection Heating and Simultaneous Gentle Tumbling (Pending)
- 15/245,503 System and Method for Recycling Asphalt Using Induction Heating

WORK EXPERIENCE:

Sustainable Road Engineering Inc. (SRE)

Sunrise, Florida, Dates Employed 3/11- Present
CEO and Principal Engineer
As the Engineer in Charge at SRE, served as the Engineer of Record on various road construction projects. Served as a Senior Engineer in 44 road resurfacing projects on behalf of 44 private communities located in Pembroke Pines FL, Miramar FL, Weston FL, Boca Raton FL and Sunrise, FL. Scope included pavement condition survey, pavement design, preparing engineering drawings for permitting, contractor selection and negotiation, performing Construction Engineering Inspection, materials testing, conflict resolution with contractors and residents, walk thru for final acceptance by local government, and pavement warranty inspection. Provided construction training and certification for various clients. Served as a Principal Investigator in a number of state and federally funded research projects. Served as an Expert Witness in cases related to infrastructure design construction and management, maintenance of traffic, residential construction, stormwater drainage and geotechnical engineering.

Florida International University (FIU)

Miami, Florida, Dates Employed: 12/11 – 5/22
Professor of Practice
Teach undergraduate and graduate level courses on Geotechnical Engineering I with co-requisite soil mechanics laboratory, Foundations Engineering, Asphalt Paving, Superpave Hot Mix Design. Conduct externally funded research and development related to analysis of foundations and green paving methods including pavement recycling and innovative paving material. Served as a PI for approximately $2 Million research funding in the past 6 years.

KBR (Qatar Public Woks Administration)

Doha, Qatar Dates Employed (5/2017 to 8/2017) Doha Expressway Program
Chief Technical Advisor- Pavement and Geotechnical Expert ($100B Roadway Construction program.)
Doha Expressway Program is the largest Highway construction in the world in 2017. It includes construction of more than 400 miles of new roads, bridges and ITS facilities. On behalf of the Program Manager Consultant, directed and managed the Pavement and Geotechnical Team in conducting oversight activities related to pavement construction, quality control, quality assurance, sampling, testing, inspection, acceptance, nonconformity resolution and audits of laboratories, deep foundation installations, bridge construction, asphalt plants and asphalt operations.

Florida International University (FIU)
Miami, Florida, Dates Employed: 9/09 – 12/11
Adjunct Professor. Teach PD@E and Geotechnical Engineering Classes.

Sustainable Road Engineering (SRE)
Fort Lauderdale, FL, Dates Employed: 2/11—Present
President and CEO.
Provide consultations in the area of construction inspection, geotechnical engineering, foundation design, materials testing, pavement design, mix design, pavement monitoring, pavement management and pavement recycling.

Hot In Place Paving (HIP Paving LLC)
St. Petersburg, Florida, Dates Employed 2/10- 12/11
Vice President of Engineering and Development
Developed pavement recycling technology to meet current Mix Design Standards. Developed advanced recycling agents that meet Superpave Specifications. Design asphalt mix in a manner that maximize its long-term performance. Service roadway and airport projects in Florida, Texas and Pennsylvania. Presented Company in national and international Conferences. Under my leadership, the company was recognized as the APWA Contractor of the Year (2010), National Recycling Award on FDOT Project SR-700, revised specification allowing use as a standard process, and received $80,000 from US. EPA to fund research and development.

Florida Department Of Transportation (FDOT)
Fort Lauderdale, Florida, Dates Employed: 8/05 – 11/09
District Director of Operations—Division Head
Directed the Transportation Operations Division in District 4. The district is responsible for state transportation facilities in Broward, Palm Beach, St.Lucie, Martin and Indian River Counties. Directs construction, maintenance, materials, traffic and Intelligent Transportation system operations for approximately 4000 lane miles of interstate and arterial roads and 750 bridges. Average annual construction and maintenance budget is $700 million. Average operating and staff budget is $40 million. Division staff size is 540 employees. Oversaw industrial safety and loss prevention programs.

Initiated Transportation System Management and Operation (TSMO) which has now become an important component of Traffic Operations. TSMO is aimed at reducing congestion. This includes deploying Intelligent Transportation System infrastructure (Transportation Management Center, Closed Circuit TV, vehicle detectors and dynamic message signs). Deployment of incident management systems, Road Ranger program and higher standards of signal system management and coordination. Real time System performance can be found at http://www.smartsunguide.com.

Florida Department Of Transportation (FDOT)

Davie, Florida, Dates Employed: 8/00 – 8/05
District Materials Engineer—Department Head
Served as the Department Head at the District Materials Office--- a department of 70 employees and a materials testing lab. The unit is responsible for regulating construction materials producers including aggregate, asphalt, concrete and pre-stressed structural elements, quality assurance of materials testing laboratories working for FDOT, and materials sampling and testing of construction projects. On average, the Materials Office is involved in approximately 60 roadway and bridge construction projects yearly in the area from Vero Beach to Florida Keys with an annual construction budget of 500 million Dollars in Districts 4 and 6.

Directed construction inspection and materials testing for major bridge projects. Bridge Examples include 17 Street Causeway Bridge (Bascule Segmental), Boynton Beach Bridge (Bascule), 2nd Ave Bridge in Miami (Bascule), Jensen Beach Bridge (AASHTO Beams), New River Bridge, Palm Beach International Airport ramps (Segmental), Ernst-Lyons Bridge (Fixed Segmental). Directed quality assurance in a wide range of construction activities including mass concrete plans, pile driving, drill shaft installation, pre-stress structural element testing and inspection, stagnamic test of bridge foundation, MSE wall installation, concrete placement and curing and concrete mix design.

Introduced advanced technology such as the Laser Profiler and Ground Penetrating Radar in the practice. Developed a mission, vision and Business-planning framework for my department. The framework was adopted and implemented statewide. Improved customer and employee satisfaction was among many accomplishments achieved in the District Materials Office.

Florida Atlantic University (FAU)

Boca Raton, Florida, Dates affiliated (as a volunteer): 5/02 – 5/10
Member of the Civil Engineering (DAC) Department Advisory Committee.
The committee's advised the Civil Engineering Department on issues related to gaining accreditation for the underground program, establishing a Ph.D. program, enhancing financial resources through research and streamlining the curriculum.

Attended quarterly meetings and assisted the Department in getting research funding. Facilitated professors outreach to FDOT. Interacted with the ABET accreditation team to provide industry input.

City of Tamarac

Tamarac, Florida, Dates Employed: 12/98 – 8/00
CITY ENGINEER
As the Engineering Division head, supervised a team of 8 Engineers, Inspectors, consultants and contractors in the design, review, permitting, and construction of a wide variety of Capital Improvement Projects. Represented the City in reviewing new

development plans and construction permit applications. Adopted innovative management techniques to motivate the Engineering staff to provide a higher level of service to residents, and developers.

PROJECT MANAGER. Managed a $15 million Street Improvement Program. The Street Improvement Program included resurfacing 126 miles of public streets and construction of median curb, irrigation and landscaping. Responsibilities include, design of pavement rehabilitation, preparing bid documents, and construction inspection and management. Conducted Citizen Information Meetings, and provided the City Manager and Commission with periodic updates on the project. Project was completed ahead of time and under budget.

ERES Consultants

Columbia, MD. Dates Employed: 4/96 -12/98
Engineer- Senior Pavement Engineer

Research Engineer. Under contracts with the Federal Highway Administration, performed analysis of the Long Term Pavement Performance Program (LTPP) data. Published two FHWA reports on mechanistic-empirical pavement design, and interpretation of LTPP frost penetration data.

PROJECT MANAGER. Managed pavement evaluation and rehabilitation projects for various airports, cities, and state highway agencies. Planned, scheduled, and supervised project team for data collection, processing, and analysis, preparation of reports, and presentation of results to clients. Projects involve field testing using nondestructive testing (NDT) equipment for estimating the strength of pavement materials and the use of video inspection equipment for collecting and analyzing pavement condition data. Communicated with clients on project progress. Sample Projects includes:

- Evaluation of Runway D at JFK airport for the Port Authority of New York and New Jersey. Developed pavement rehabilitation design based on mechanistic and non-destructive evaluation.
- Port Elizabeth (NJ) Pavement evaluation. Developed Pavement Rehab design based on nondestructive evaluation using Falling Weigh Deflectometer.
- McLester Street pavement evaluation. Developed Pavement Rehab design based on nondestructive evaluation using Falling Weigh Deflectometer.

PROJECT ENGINEER. Worked primarily on pavement engineering and research projects, including pavement evaluation rehabilitation design for runways and taxiways at major airports. Performed structural evaluation of pavements, including the estimation of the remaining life of in-service pavements using finite element analysis and mechanistic-empirical techniques. Projects typically involve NDT, pavement condition survey, the use of ground penetrating radar (GPR) to verify or determine pavement layer thickness, soil

testing, dynamic cone penetrometer testing, and development of pavement performance prediction models.

Site Development Plan Consultant

Columbia, MD. Engagement Dates: 6/96- 8/98
Served as a private consultant to preparing the Site Development Plan (SDP) for a number of clients. The SDP is required for any new development prior to issuing the building permit. Provided engineering input to prepare the SDP according to Howard County and Maryland State Highway specifications. SDP included storm water management systems, parking lots, acceleration /deceleration lanes, lighting posts, pavement marking and handicap accommodations. Prepared shallow foundation analysis and design. Served as Construction Inspector on field work including demolition of old facilities, construction of new facilities, earth work, and paving. Size of projects ranged from $100k to $4M. Sample projects include Snowden River Town Homes, a development of 8 attached town homes.

Federal Highway Administration

McLean, VA. Dates Employed: 8/94 -4/96
Highway Research Fellow
Conducted Analysis of the Long Term Pavement Performance Data. Used advanced Statistical, Structural and Simulation tools to analyze the seasonal variations of pavements structural properties. Developed improved pavement design methods to account for the seasonal variation effects. Developed a software program to perform computations. The new design method was published in several Transportation Research Board papers in 1996 and 1997.

New York State DOT

New York, NY. Dates Employed: 6/94 -8/94
Transportation Analyst
Evaluated the analysis of congestion mitigation and air quality (CMAQ) projects for the purpose of quantifying the total reduction of vehicle emissions, volatile organic compounds, carbon oxides and nitrogen oxides, that result from reducing the number of vehicle-miles traveled and improving traffic flow.

CUNY Institute For Transportation Systems

New York, NY. Dates Employed: 9/92 -6/94
Research Assistant
Served as a project engineer in a number of pavement evaluation projects. Responsibilities include: Conducted laboratory testing of pavement cores, includes sieve analysis, determination of asphalt specific gravity, and resilient modulus testing Performed Marshall, extraction, sieve analysis, penetration, and flash point testing in NYC Asphalt Mix Plant Laboratory. Participated in field data collection (SASW, FWD and core data).Acquired all required underground utility data. Organized site visits and interviewed with representatives of recycling, demolition, and asphalt concrete manufacturing

industries. Developed a pavement rehabilitation method for use by New York City DOT. Prepared progress and final reports.

TM Consulting Company

Alexandria, Egypt. Dates Employed: 6/91 -1/92
Construction Inspector
Conducted construction inspection for a 6 million dollar road rehabilitation project in the city of Alexandria. The project included a storm drainage system, curbs, and asphalt overlay. Responsible for documentation, inspection of work, and reviewing progress payment request. Prepared foundation analysis and design for ITS and sign structures.

Arab Contractors

Alexandria, Egypt. Dates Employed: 6/87- 2/90
Field Intern
Carried out surveying and leveling using transit, theodolite, and leveling devices for widening of the Alexandria-Cairo Highway. The project included earthwork, drainage, asphalt, and structural work. I was responsible for layout and cost accounting.

EDUCATION:

Ph. D. in Engineering, 1997
The City University of New York

M.S. in Transportation Engineering, 1993
The City College of New York

B.S. in Civil Engineering, 1991
Alexandria University, Egypt.

AWARDS AND MEMBERSHIPS:

American Society of Civil Engineers
Transportation Research Board
TRB Committee ASF60 on subsurface drainage
Association of Asphalt Paving Technologists
Certified Public Managers—South Florida Chapter
President and Past President—South Florida Chapter of Certified Public Managers
Certificate of Appreciation on work performed in 1994-1995-- FHWA.
Certificate of Appreciation on Exemplary Performance—City of Tamarac
Certificate of Appreciation on Materials Model work—FDOT
Certificate of Appreciation for organizing the ASCE Student Conference 2013--FIU

PROFESSIONAL ACCOMPLISHMENTS

As FDOT Director of Operations, District 4, FDOT

- Inspired a move to adopt Transportation System Management and Operations (TSM&O) paradigm. This paradigm shift would, if implemented aggressively, reduce delays and improve traffic reliability, cost effectively. Advocated the move to District Directors of Operations, District Traffic Operations Engineers, and Executive Board. This led to establishing a statewide team to evaluate and recommend changes to the Executive Board. We are establishing a Business Plan to allow FDOT to continue to progress in that dimension. I challenged my staff to reduce average delay in Broward County by 10%, adjusted for traffic volume. See my presentation at the Transpo2008 Conference.

- District 4 was among the first districts to deploy ITS. Our ITS program continues to be among the most advanced with real time performance measures. See www.smartsunguide.com.

- Advocated the use of Business Planning Approach to performance improvement. Used the Sterling Approach to develop a template for Business Plans. FDOT adopted the template statewide.

- Emphasized Construction Quality in D4. Led a campaign of site visits, presentations at the Quarterly Contractors meetings, revising CEI evaluation criteria, development and implementation of new pavement smoothness specifications, this led to improved Maintenance Rating of Construction projects from 80 to 90. Improved pavement ride quality of from a ride number of 3.7 to 3.9.

- Improved Construction performance measures. Delivered $500-$700 million worth of projects annually. In the past, the district fell short of meeting its time and cost overrun measures and trailed other districts. According to the 2008 Florida Transportation Commission (FTC) report, District 4 met 3 of the 4 FTC measures; and was within the statewide average in the forth measure. The district had above average results. The measures are: Percent of money spent within budget (target is 90%), percent of time within budget (target is 90%), percent of projects within time (target is 80%) and percent of projects within budget (target is 90%).

- 2008 Leadership and Human Resource Survey showed District 4 Operations Division to have the highest scores in the state among Operations Divisions. The survey had a 75% participation rate, is a confidential pull of employees that scores leadership and employee satisfaction.

- According to the Florida Tax Watch, District 4 Operations is the largest recipient of Davis Productivity Awards in Florida. The division received 27 awards of the 90 awards received by FDOT.

- District 4 Materials Office is among the leading districts. Modernized the lab with new computer acquisition systems, invested in the state of the art technologies such as the Laser Profiler, the Ground Penetrating Radar, the Falling Weight Deflectometer, the Pile Driving Analyzer, the Cross Sonic Log and others. Introduced new ways to measure performance, including Construction Quality Index, Materials Quality Index.

- Improved maintenance standards to MRP of 86 from MRP of 81 without additional funding. MRP, is a maintenance rating program that quantifies maintenance standards in several areas, including pavement condition, traffic signs and striping, aesthetics and vegetation, and drainage performance. The statewide requirement is 80.

- Advocated Asset Management approach to efficient maintenance. Wrote articles in Perspective on Excellence FDOT publication, hosted NHI classes and purchased software to enable GIS tracking of assets and development of routine maintenance based on asset conditions and expected deterioration. Asset Management is taking hold in all Operations Centers and becoming mainstream.

- Led the District Emergency Management efforts. This included preparation efforts prior to storms then responding to emergencies during storms and restoring damage after the storms. The district responded to restoration efforts for Hurricanes Francis and Jeanne [$100 million of damage], Hurricane Wilma [170 million of damage] and several tropical storms.

- Championed the Florida State Employee Charitable Campaign in 2005. The campaign aimed at raising funds from state employees for the benefit of charity Organization in Broward and Palm Beach Counties. Collected a record $81,000. To date this record has not been broken.

ACADEMIC ACCOMPLISHMENTS

Research funding ($2.7M)

In the past 8 years since joining FIU, secured $2.6M research funding and industry support. With the In-Kind contributions, funds earned for FIU ($2.7 M)

1. FDOT Project: Long Term Aging of Recycled Binders ($253K)
2. FDOT Project: Raveling of FC-5 ($65K)
3. FDOT Project: Long Term Aging of Recycled Binders with RAP ($190K)
4. FDOT Project: Precision of Florida Texturemeter ($101K)

5. FDOT Project: Express Lane Marker Evaluation ($608K)
6. FDOT Project: Evaluation of the Effect of Homogeneity of the Asphalt Binder on Performance of a Recycled Mix ($160K)
7. Wirtgen America: Develop a Paving Certification Program (80,000)
8. Cash contribution from HIP Paving ($65K)
9. Support from Ergon Asphalt ($60K) 2014-2017
10. Asphalt Laboratory Equipment (Mobil Lab and Miscellaneous Equipment) valued at more than $140K
11. LTRC Project: Asphalt Surface Treatment Synthesis ($30K)
12. FDOT Project: Develop a Training Program for District 6 Development Division ($425,000)
13. USDOT Development of a Guide for Selection of Substructures for ABC Projects ($183,000)- Co-PI- 2018-2019.
14. Internal Funding to upgrade the Soil Mechanics Lab (Tech Fee Project $281K)

Additional Funding Currently Pursued ($1.5M)

- Implementation of Power Supply Strategies to Improve Resilience of ITS Infrastructure in FDOT District 6. [$400K]
- Evaluation of Pavement Adaptation Strategies for Sea Level Rise in Florida [$700,000+ Proposed]
- Pavement Robotics- Invention of the 3D Paver [$400K] -Being submitted to NSF.

Teaching

Taught undergraduate and graduate courses. All Classes are consistently surveyed and show Very Good to Excellent ratings by students. Current average is 3.7/4.0. Classes include

- Geotechnical Engineering I
- Geotechnical Engineering II
- Pavement Design and Analysis
- Superpave Mix Design
- Special Topics- PD&E
- Career in Civil Engineering
- Graduate Seminar

Instructor for FDOT Construction Training and Qualification Program.

- Concrete Field Inspector
- Asphalt Paving Levels I and II,
- Asphalt Plant Level I and II,
- Quality Control Manager
- Earthwork Construction Levels I and II

- Intermediate and Advanced MOT

Services

- Served as a Faculty Senate from August 2014 to Present time. Interact with Students, Faculty and Senior Administrators at the University level.
- Served as Faculty Advisor for the American Society of Civil Engineers (ASCE) student Chapter from August 2012 to August 2016.
- Coordinated the ASCE Southeast Student Conference in March 2013. Event was attended by 1200 participants from 26 Universities in 15 competitions held at FIU and UM over the coarse of 3 days. Event was a success. Received a certificate of appreciation from the Chapter and FIU Civil Engineering Department. FIU Team advanced 5 positions from its ranking the year before.
- Helped raise funds for the ASCE Chapter and Conference totaling $60,000.
- Assisted students to secure fellowship funding from USDOT Eisenhower Fellowship Program. Awards totaled $10,000 in 2013.

LIST OF REPORTS AND PUBLICATIONS

1. Ali, H.A., and A. Lopez, "Statistical Analyses of Temperature and Moisture Effects on Pavements' Structural Properties," Journal of the Transportation Research Board, Volume 1540, 1996.

2. Ali, H.A., and N.A. Parker, "Using Time Series Techniques to Incorporate the Seasonal Variations in Pavement Design, Journal of the Transportation Research Board, Volume 1539, 1996.

3. Ali, Hesham, and Aramis Lopez. "Statistical analyses of temperature and moisture effects on pavement structural properties based on seasonal monitoring data." Transportation Research Record: Journal of the Transportation Research Board 1540 (1996): 48-55.

4. Parker, N.A., L.H. Irwin, M.A. Maher, N. Gucunski, H.A. Ali, and P. Messmer, "Comparative Evaluation of Wave Propagation- and Deflection-Based Pavement Testing Techniques", final report submitted to the University Transportation Research Center, May 1994.

5. Rahut, B. J., A. Simpson, S.D. Tayabji, and H.A. Ali, "LTPP Data Assessment", Report submitted to the Federal Highway Administration by BRE and ERES Consultants, May 1996.

6. Ali, H. A., "Accounting for the Seasonal Variations in the Design of Flexible

Pavements," Ph.D. dissertation, submitted to the Civil Engineering Department at CUNY, October 1996.

7. Ali, H. A., Tayabji, S. D., and La Torre, F. (1998). "Calibration of mechanistic-empirical rutting model for in-service pavements." Transportation Research Record (1629), 159-168.

8. Ali and Tayabji, 1998 Ali, H.A. and Tayabji, S.D. (1998). Evaluation of Mechanistic–Empirical Performance Prediction Models for Flexible Pavements. Transportation Research Record: Journal of the Transportation Research Board, Vol. 1629, pp. 169-180.

9. Ali, H.A., and S. D. Tayabji, "Mechanistic Evaluation Of Test Data From Ltpp Flexible Pavement Test Sections, Volume II: Final Report-Appendices," FHWA Report number FHWA-RD-98-012, May 1998.

10. Jiang, J.J., S.D. Tayabji, H.A. Ali, and C. A. Richter, "Analysis of Moisture and Frost Penetration Data from LTPP Program", proceedings of the 5th International Conference on Bearing Capacity of Highways and Airprts, Troendheim, Norway, August 1998.

11. Ali, H.A., and S. D. Tayabji, " Using transverse profile data to compute plastic deformation parameters for asphalt concrete pavements," Journal of the Transportation Research Board, Volume 1716, 2000.

12. Ali, H.A., and M.D. Darter, "The Effect of Subsurface Drainage on Fatigue Performance of Flexible Pavements," paper accepted for presentation at the 79th Annual Meeting of the Transportation Research Board, January 2000.

13. Ali, H.A. and O. Selezeneva "Seasonal Trends and Causes in Pavement Structural Properties", Proceedings of Symposium on Nondestructive Testing, ASTM STP 1375, September 1999.

14. Ali, Hesham and Tayabji, Shiraz, “Determination of Frost Penetration in LTPP Test Sections”, Publication no. FHWA-RD-99-088.

15. Nunoo, C., Ali, H., and Mrawira, D., “Analysis of Ground Penetrating Radar Signals for Pavement Condition Evaluation”, Proceedings First International Conference on Construction in the 21st Century, April 2002.

16. Ali, H., Castellanos, J. and Hart, D., “Real Time Measurement of Impact of Pile-Driving vibration on Adjacent Properties During Construction”., Paper presented at 82nd Annual TRB Conference, Washington DC., January 2003.

17. Nunoo, C., Ali, H. and Delgado, F., “Commentary on FDOT Technician Training

Program", Paper accepted for presentation at the Annual TRB Conference, January 2003.

18. Irtishad, A., Ali, H. and Alazar, S.," Utilization of Maturity Meters for Concrete Quality Assurance". Final Report Submitted to FDOT, FIU Project 212200524, 2006.

19. Sobhan, K., Ali, H., Riedy, K. and Huynh, H. "Evaluating the Compressibility Behavior of Organic Soils using Laboratory Characterization and Rapid On-Site Piezocone Penetration Testing," *International Journal of Geotechnical Engineering*, Volume 1, Issue 1, pp. 9-18, 2007.

20. Sobhan, K., Ali, H., Riedy, K. and Huynh, H. (2007). "Field and Laboratory Compressibility Characteristics of Soft Organic Soils in Florida," *ASCE Geotechnical Special Publication (GSP) No. 173*: *Advances in Measurement and Modeling of Soil Behavior*, American Society of Civil Engineers, pp. 1-10.

21. Sobhan, K., George, K. P., Pohly, D. and Ali, H. (2010). " Characterization of Reinforced Asphalt Pavement Structures Built over Organic Soils Employing Falling Weight Deflectometer," Advances in Analysis, Modeling & Design, 852-861.

22. Sobhan, K. and Ali, H. (2008). "Field and Laboratory Characterization of Problematic Organic Subgrade Soils in Florida," 87th Annual Meeting of the *Transportation Research Board (TRB)*, January 13-17, Washington, D.C. Report # 0491, 2008.

23. Ali, H., "Evaluation of the 100% Recyclability of Superpave Mixes", Report Submitted to EPA- SBIR Phase I, September 2011.

24. Ali, Hesham, "Recycling Asphalt rescues Roads", Engineering News Record article published on 2/09/2011, accessed on January 18, 2014. http://enr.construction.com/opinions/viewpoint/2011/0209-RecyclingAsphaltRoads.asp

25. Ali, H. and Bonaquist, R., "Evaluation of Binder Grade and Recycling Agent Blending for Hot In-place Recycled Pavement", Annual TRB Compendium of Papers, the 91st Annual Meeting of the Transportation Research Board, TRB Compendium of Papers, Washington DC 2011.

26. Ali, H., & Grzybowski, K., Life Cycle of Hot In-Place Pavement Recycling. *Transportation Research Record: Journal of the Transportation Research Board*, *2292*(1), 29-35, June 2012.

27. Ali, H., and Sobhan, K., " On the road to sustainability: properties of hot in-place recycled Superpave mix" Transportation Research Record: Journal of the Transportation Research Board, The National Academies, Volume 2292, pp. 88-93, June 2012.

28. Ali, Hesham, "Competition Can Help our Roads Evolve", Engineering News Record article published on 5/21/2012, accessed on January 18, 2014. http://enr.construction.com/opinions/viewpoint/2012/0521-EvolutionaryRoad-Design.asp?page=2

29. Ali, H., McCarthy, L, and Welker, A., "Performance of Hot in-place Recycled Superpave Mixtures in Florida", Journal of Construction and Building Material, Volume 49, pp 618-626, December 2013.

30. Ali, Hesham A. "Hot In-Place Recycling of Open-Graded Friction Course." *Transportation Research Board 92nd Annual Meeting*. No. 13-0924. 2013.

31. Ali, Hesham A. and Mohammadafzali, Mojtaba, "Asphalt Surface Treatment Practice in Southeast United States", Final Report # 515, Louisiana Transportation Research Center, August 2014. www.ltrc.lsu.edu/pdf/2014/fr_515.pdf

32. Mohammadafzali, Mojtaba, Ali, Hesham A., Musselman, James A., Sholar, Gregory A., Kim, Sungho and Nash, Tanya M., "Long-term aging of recycled asphalt binders: a laboratory evaluation based on performance grade tests",. Airfield and Highway Pavements 2015.

33. Ali, Hesham and Mohammadafzali, Mojtaba, "Long Term Aging of Recycled Binders", Final Report submitted to FDOT, TRIS # 01580063, August 2015.

34. Baqersad, M., Hamedi, A., Mohammadafzali, M., & Ali, H. (2017). Asphalt Mixture Segregation Detection: Digital Image Processing Approach. Advances in Materials Science and Engineering, 2017. Volume 2017, Article ID 9493408, 6.

35. Baqersad, M., Hamedi, A., Mohammadafzali, M., & Ali, H. (2017). Exploring methods of identifying asphalt segregation three-dimensionally. 2017 Asphalt Today, Print.

36. Baqersad, M., Mohammadafzali, M., Choubane, B., Holzschuher, C., Hamedi, A., & Ali, H. (2018).Precision assessment of the Florida texture meter in hot mix asphaltJournal of Transportation Engineering, Part B: Pavements 2018, 144(2), 04018003.

37. Massahi, A., Ali, H., Koohifar, F., M Baqersad, M Mohammadafzali, M. (2018). Investigation of Pavement Raveling Performance using Smartphone International Journal of Pavement Research and Technology 11 (6), 553-563.

38. Baqersad, M., Mohammadafzali, M., Choubane, B., Holzschuher, C., Hamedi, A., & Ali, H. (2017). Precision Assessment of the Florida Texture Meter in Hot Mix Asphalt. Journal of Transportation Engineering: Part B, Pavements, 2018.

39. Ali, H., Baqersad, M. (2018). Pavement Manager at Risk in Construction of Hot Mix Asphalt. Advances in Civil Engineering.

40. M. Mohammadafzali , H. Ali, , J. Musselman, G. Sholar, and S. Kim, and T. Nash(2015)"Long-Term Aging of Recycled Asphalt Binders: A Laboratory Evaluation Based on Performance Grade Tests." ASCE Airfield and Highway Pavements Conference

41. Aidin Massahi, H. Ali, F. Koohifar and M. Mohammadafzali (2016), “Investigation of Friction Course Raveling Performance in Southeast Florida”, Submitted to Transportation Research Board 95th Annual Meeting

42. M. Baqersad, A. Hamedi, M. Mohammadafzali, H. Ali (2017), “Asphalt Mixture Segregation Detection: Digital Image Processing Approach”, Advances in Materials Science and Engineering.

43. M. Mohammadafzali , H. Ali, , J. Musselman, G. Sholar, and A. Massahi (2017), “Evaluation of Cracking Resistance and Durability of 100% RAP Mixtures”, Journal of Advances in Civil Engineering

44. M. Mohammadafzali , H. Ali, , J. Musselman, G. Sholar, and W. Rilko (2017), “Aging of rejuvenated Asphalt Binder”, Advances in Materials Science and Engineering, Special Issue: Advanced Pavement Materials for Sustainable Transportation Infrastructure (APMS).

45. A Oloufa, H Mahgoub, H Ali (2004), “Infrared thermography for asphalt crack imaging and automated detection”, Transportation Research Record: Journal of the Transportation Research Board.

46. A. Massahi, H Ali, F Koohifar, M Mohammadafzali (2016),” Analysis of pavement raveling using smartphone”, Transportation Research Board 95th Annual Meeting Transportation Research Board.

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REPRESENTATIVE PROJECTS

1. Served as a Senior Pavement Engineer on 44 road rehabilitation projects on behalf of 44 private communities located in Pembroke Pines FL, Miramar FL, Weston FL, Boca Raton FL and Sunrise, FL. Scope included pavement condition survey, pavement design, preparing engineering drawings for permitting, performing Construction Engineering Inspection, materials testing, conflict resolution with contractors and residents, walk thru for final acceptance by local government, and pavement warranty inspection. January 2013 to July 2022.

2. Pavement Chief Technical Adviser on Doha Expressway Program ($100B Highway Construction Project), Doha, Qatar 2017.

3. Participated in the delivery of more than 600 roadway construction projects from 2000 to 2009. As the District Materials Engineer, I was responsible of all sampling, testing and inspection of all projects in Districts 4 and 6. On average the two districts would have 65 projects per year. Responsible for review for conformance

with FDOT specifications and contract documents. I issued and signed the Material Certification of each project. Mega Projects include I-595 Express ($1.4 Billion), I-95 Mobility 2000 widening in PBC (1.2 Billion), 17 Street Causeway Bridge Fort Lauderdale ($200+ M), Miami Tunnel ($500 Million), and Miami Intermodal Project ($200+ M), Doha Expressway ($100 Billion).

4. Expert Witness for the City of Coral Springs. Developed several reports on Asphalt testing and pavement deficiencies related to Coral Springs resurfacing Contract of 2011. Reports were instrumental in client winning the case. Assisted the City in addressing deficiencies and preparing contract documents (2014).

5. Expert Witness and Asphalt Expert on various disputes between owners and contractors. Conduct forensic investigation and analysis related to pavement failures (2011-2013).

6. SR-700 Hot in-Place Paving. Responsible for Quality Control of this 28 lane-mile hot-in place pavement recycling. The project was completed on time, saved FDOT $700,000, and achieved an outstanding ride quality. The project received the Roads and Bridges National Award in 2010.

7. Seven-Year Comprehensive Street Improvement Program, the City of Tamarac, Florida, 1998-2000. As a project manager, designed pavement rehabilitation, prepared construction specification and bid documents, oversaw inspection and construction activities.

8. Hiatus Rd. Extension Project, City of Tamarac, Florida, 1998. As a Project Manager, oversaw the construction of the new 2 mile, 4-lane, divided road. Coordinated with contractors, consultants, Broward County Engineering, Land Developers, and Regulatory Agencies.

9. Pump Station Upgrade Project, City of Tamarac, FL, 1999. Actively involved in the design review of the pump stations which pump the stormwater from the City of Tamarac canal system into the C-13 Canal. Design review of foundation extension to accommodate additional pumps. These pump stations are scheduled to be overhauled and upgraded by 2002.

10. Citywide sidewalk Project, City of Tamarac, FL, 1999. Coordinated with the Florida Department of Transportation to complete the design of sidewalk project and resolve right of way issues.

11. Southgate Blvd Bike Path Project, 1999. Coordinated with the Florida Department of Transportation to complete the design of a 4 mile bike path project along Southgate Blvd project and resolve right of way issues.

12. Intersection Improvement Projects with FDOT, 1999. Actively involved in design

review and construction inspection of various intersection improvement projects throughout the City. Sample projects include Southgate and University intersection and State Rd 7 and Commercial Blvd.

13. McLester Street Project, Newark, NJ, 1998. As a project Engineer, performed a Nondestructive Testing Evaluation of the 6 lane arterial serving as a major entrance to Port Elizabeth. Designed a rehabilitation strategy to limit rutting.

14. Jeffco Airport Runway Evaluation, Jefferson County, CO, 1998. As a project Engineer, conducted a mechanistic evaluation of Jefferson County Airport runway, to determine its remaining life, and recommend an operations schedule to minimize fatigue damage.

15. Port Elizabeth Pavement Evaluation, Newark, NJ, 1997. As a project Engineer, conducted nondestructive testing and mechanistic evaluation of various internal roads in Port Elizabeth to determine their remaining life, and recommend a rehabilitation strategy.

16. JFK Airport Runway Y and Z Evaluation, Brooklyn, NY, 1998. As a project Engineer, conducted nondestructive testing and mechanistic evaluation of Runways Y and Z at JFK Airport to determine their remaining life, and recommend a rehabilitation strategy.

17. South Dakota Pavement Management System, Champaign, IL, 1998. Developed a pavement management and cost estimate model for a pool of local governments in the State of South Dakota. The model was used to assess the budgeting needs for maintaining certain levels of service.

18. (Research) Evaluation of Mechanistic Empirical Pavement Performance Models Using LTPP data, FHWA, 1996. Conducted an analytical study to evaluate the accuracy of performance prediction model against field collected data under the LTPP program.

19. (Research) Analysis of Electrical Resistivity Data, FHWA, 1997. Developed an algorithm to be used to analyze electrical resistivity data to determine frost line depth. The developed method was implemented in a computer program which is used by FHWA to analyze data.

20. (Research) Development of the 2002 AASHTO Guide for Pavement Design. As a project Engineer, assisted the research team to incorporate the Integrated Climatic Simulation Model in the pavement design process. The climatic effects were translated into changes in the material characteristics that influence the pavement performance.

21. (Research) Analysis of Transverse Profile Data, FHWA, 1997. Developed a

method to compute plastic deformation parameters using the transverse profile data.

22. (Research) Effect of Drainage Conditions on Fatigue Cracking of Flexible Pavements, NCHRP project, 1998. Developed a mechanistic-empirical model to relate drainage conditions to pavement performance, with respect to fatigue cracking.

23. (Research) Accounting for the Seasonal Variations in the Design of Flexible Pavements, FHWA, 1995. Developed a computer program and optimization algorithm to design flexible pavements, given the seasonal variations in pavement structural properties.

24. (Research) Comparative Evaluation of Wave Propagation- and Deflection-Based Pavement Testing Techniques, New York, NY, 1993. This project compared and investigated the use of the Falling Weight Deflectometer (FWD) and the Spectral Analysis of Surface Waves (SASW) techniques in an urban environment, incorporating them into a nondestructive testing-based decision making process to replace the current distress-based process. Conducted laboratory testing of pavement cores, includes sieve analysis, determination of asphalt specific gravity, and resilient modulus testing. Participated in field data collection (SASW, FWD and core data). Acquired all required underground utility data. Wrote the final report.

25. (Research) The Use of Construction and Demolition (C&D) Derbies as a Substitute for Road Base Course Material, New York, NY, 1994. This project evaluated the engineering feasibility and economic benefit of using C&D material in constructing new roads, using recycled plastic as a binder material in asphalt concrete pavements, and using recycled glass in asphalt concrete mixes. Performed Marshall, extraction, sieve analysis, penetration, and flash point testing at NYC Asphalt Mix Plant Laboratory. Organized site visits and interviewed representatives of recycling, demolition, and asphalt concrete manufacturing industries.

26. Alexandria-Cairo Highway Widening Project, Alexandria, Egypt, 1991. Conducted construction inspection for a $6 million road rehabilitation project in the city of Alexandria. The project included a storm drainage system, curbs, sign structure foundation and asphalt overlay. Responsible for documentation, inspection, and reviewing progress payment request.

REFERENCES

References are available upon request.