

# J. Alan Parham, PE

## Forensic Engineering Expertise

Mr. Parham has more than 35 years of engineering experience involving practice in various areas of Professional Engineering and Traffic Crash Reconstruction. His experience focused in areas of general Civil Engineering, Traffic Engineering, highway design and geometrics, civil site design, transportation research, and teaching. Mr. Parham's diverse range of professional engineering experience ranges from practical design to cutting-edge research. Mr. Parham has provided expert testimony in these practice areas in multiple state courts as well as in federal courts. Along with Traffic Crash Reconstruction, Mr. Parham has extensive design experience in, but not limited to, highway geometrics, intersection traffic signals, work zone temporary traffic control, hazards associated with pavement edge drop-offs, roadside design, highway lighting, human factors concepts related to traffic engineering and other highway-related issues. This variety of engineering experience enhances his capabilities in the Traffic Crash Reconstruction arena.

Through the development and teaching of professional technical workshops, university undergraduate and graduate level classes, and explaining highway plans to citizens and public officials at public hearings, Mr. Parham developed a unique ability to explain complex engineering issues in clear and understandable terms.

## Qualifications & Training

- Contractual & Specification Development, Atlanta, Georgia, 1986
- City of Nashville's Stormwater Management Policy Orientation, Nashville, Tennessee, 1988
- TEAPAC-Signal85 "Traffic Signal Optimization," Tennessee Technology University, Cookeville, Tennessee, 1992
- American Public Work Association Annual Meeting, Chicago, Illinois, 1993
- Holophane Advanced Roadway Lighting Seminar, Holophane Light & Vision Conference, Newark, Ohio, September 1993
- Transportation Research Board Annual International Meeting, Washington, D.C., 1994
- Pavement Management Systems – Concepts and Features, Atlanta, Georgia, 1994
- Pavement Management Systems, Federal Highway Administration, Orlando, Florida, 1994
- Transportation Research Board Annual International Meeting, Washington, D.C., 1995
- Texas Department of Transportation's Traffic Operations Conference, Austin, Texas, August 1995
- Traffic Signal Optimization, Federal Highway Administration, Nashville, Tennessee, 1995
- Transportation Research Board Annual International Meeting, Washington, D.C., 1996
- Transportation and the American Traffic Safety Services Association, San Antonio, Texas, 1996
- 66th Annual Meeting of the Institute of Transportation Engineers, Minneapolis, Minnesota, 1996
- GEOPAK – Road I, University of Houston, Houston, Texas, 1999

## Qualifications & Training (Continued)

- GEOPAK User's Conference, Austin, Texas, 2000
- Tennessee Bar Association's Winter Meeting, Nashville, Tennessee, 2002
- Tennessee Bar Association Annual Meeting, Nashville, Tennessee, 2003
- Tennessee Claims Association's Annual Meeting, Memphis, Tennessee, 2003
- IPTM, Commercial Vehicle Accident Reconstruction, Knoxville, Tennessee, 2003
- Trucking Industry Defense Association, TIDA, Conference, Denver, Colorado, 2003
- Tennessee Claims Association's Annual State Meeting, Chattanooga, Tennessee, 2004
- Tennessee Claims Association's Annual State Meeting, Gatlinburg, Tennessee, 2005
- Crestcom The Bullet Proof Manager, 24 Part Series, Knoxville, Tennessee, 2007 – 2008
- Tennessee Society of Professional Engineers monthly meeting, Relational Leadership, Knoxville, Tennessee, 2009
- Vetronix/Bosch Crash Data Retrieval (CDR) Technician, Atlantic City, New Jersey, 2009
- Vetronix/Bosch Data Analyst, Atlantic City, New Jersey, 2009
- American Traffic Safety Services Association, Traffic Control Technician, Knoxville, Tennessee, 2010
- North Carolina Paralegal Association, 30th Annual Meeting & Seminar, Overview of Traffic Accident Reconstruction, Asheville, North Carolina, 2010
- Tennessee Society of Professional Engineers monthly meeting, State Fire Marshall's Office, Knoxville, Tennessee, 2010
- Tennessee Society of Professional Engineers seminar presentation, Understanding Ethics for Design Professionals, Knoxville, Tennessee, 2010
- Tennessee Society of Professional Engineers seminar presentation, The Salubrious Nature of Risk, Knoxville, Tennessee, 2010
- Tennessee Society of Professional Engineers seminar presentation, Is Integrated Project Delivery Viable, Knoxville, Tennessee, 2010
- Tennessee Society of Professional Engineers seminar presentation, Managing Risk in Green Design and Construction, Knoxville, Tennessee, 2010
- Tennessee Section of Institute of Transportation Engineers/Tennessee Chapter American Planning Association Fall 2010 Meeting, Interface of Engineering and Legal Issues, Expert Witness Panel speaker, Knoxville, Tennessee, 2010
- Bendix Spicer Foundation Brake LLC – Heavy Duty Vehicle Air Brake Systems Training, Knoxville, Tennessee, 2011
- Tennessee Society of Professional Engineers monthly meeting presentation, Forensic Engineering Overview, Presenter, Knoxville, Tennessee, 2011
- University of Tennessee Law School Presentation, Experts & Evidence, 2011
- Skills Education Achievement Knowledge (SEAK) seminar, Deposition Skills for Experts, Naples, Florida, 2011
- Skills Education Achievement Knowledge (SEAK) seminar Jury Trial Skills Workshop, Naples, Florida, 2011
- Skills Education Achievement Knowledge (SEAK) 20th Annual National Expert Witness Conference, Naples, Florida, 2011
- Northwestern University Center for Public Safety, Advanced Crash Reconstruction Utilizing Human Factors Research, Evanston, Illinois, 2012
- Tennessee Bar Association CLE Committee, Guide to Expert Witness Forum 2013, Expert Witness Panel Speaker, Nashville, Tennessee, 2013
- University of Tennessee Center for Transportation Research, Instructor for the Science (S.T.E.M.) Summer Workshop for Teachers, Knoxville, Tennessee, 2013

## Qualifications & Training (Continued)

- American Society of Testing Materials International, Subcommittee E58 Meeting, Minneapolis, Minnesota, 2013
- National Academy of Forensic Engineers, NAFE Regular Seminar - General Topics in Forensic Engineering, Minneapolis, Minnesota, July 2013
- National Academy of Forensic Engineers, NAFE Special Seminar - Advanced Accident Reconstruction, Minneapolis, Minnesota, July 2013
- Tennessee Society of Professional Engineers monthly meeting, Engineering Ethics, Knoxville, Tennessee, 2013
- Tennessee Transportation Assistance Program, Work Zone Traffic Control & Flagging, Knoxville, Tennessee, January 2014
- Society of Automotive Engineers International, Accessing and Interpreting Heavy Vehicle Event Data Recorders, Charlotte, North Carolina, May 2014
- American Traffic Safety Services Association, Temporary Traffic Control During Maintenance and Short-Term Duration Activities, Oak Ridge, Tennessee, January 2015
- National Academy of Forensic Engineers, Forensic Engineering Seminar, NAFE Regular Seminar - Applications of Engineering in the Jurisprudence System, Tampa, Florida, January 2016
- National Academy of Forensic Engineers, Forensic Engineering Seminar, NAFE Special Seminar - Ethics, Forensic Engineering, Analytical Techniques, Tampa, Florida, January 2016
- National Academy of Forensic Engineers, Forensic Engineering Seminar, NAFE Regular Seminar - Applications of Engineering in the Jurisprudence System, New Orleans, Louisiana, January 2017
- National Academy of Forensic Engineers, Forensic Engineering Seminar, NAFE Special Seminar – Ethics, Forensic Analysis, and Professional Practice, New Orleans, Louisiana, January 2017
- National Academy of Forensic Engineers, Forensic Engineering Seminar, NAFE Regular Seminar, Phoenix, Arizona, January 2018
- National Academy of Forensic Engineers, Forensic Engineering Seminar, NAFE Special Seminar – Including Engineering Ethics, Phoenix, Arizona, January 2018
- American Traffic Safety Services Association, Traffic Control Supervisor, Knoxville, Tennessee, April 2018
- National Academy of Forensic Engineers, Forensic Engineering Seminar, NAFE Regular Technical Seminar, Orlando, Florida, January 2019
- National Academy of Forensic Engineers, Forensic Engineering Seminar, NAFE Special Seminar – Including Engineering Ethics Update and Federal Disclosure Rules and Deposition Guidelines, Orlando, Florida, January 2019
- Institute of Transportation Engineers (ITE) Education Foundation, Research and Innovation of Pedestrian Hybrid Beacon Operations and Safety in Arizona, September 2020
- National Society of Professional Engineers, Serving as an Engineering Expert and Performing Forensic Engineering, NSPE Online Web Seminar Series, September 2020
- National Society of Professional Engineers, Emotional Intelligence for Engineers, NSPE Online Web Seminar Series, September 2020
- American Association of State and Highway Transportation Officials (AASHTO), Transportation Curriculum Coordination Council, Guardrail: Maintenance and Repair, September 2020
- American Association of State and Highway Transportation Officials (AASHTO), Transportation Curriculum Coordination Council, Maintenance: Roadside Vegetation Management, September 2020

## Qualifications & Training (Continued)

- American Association of State and Highway Transportation Officials (AASHTO), Transportation Curriculum Coordination Council, Maintenance: Shaping and Shoulders, September 2020
- National Society of Professional Engineers, Clients are from Venus, Consultants are from Mars, NSPE Online Web Seminar Series, September 2020
- Online Web Seminar Series, September 2020
- National Society of Professional Engineers, Engineering Behind Automated Vehicles, NSPE Online Web Seminar Series, September 2020
- National Society of Professional Engineers, How Engineers Create Added Value, NSPE Online Web Seminar Series, September 2020
- Society of Automotive Engineers International, Professional Development Program, Autonomous Vehicle for Transportation Professionals, SAE Learning Center - Online, December 2020
- National Academy of Forensic Engineers, Forensic Engineering Seminar, NAFE Technical Presentations Seminar, Virtual Winter Conference, January 2021
- National Academy of Forensic Engineers, Forensic Engineering Seminar, NAFE Education Seminar – Including Engineering Ethics Update and Federal Disclosure Rules and Deposition Guidelines, Virtual Winter Conference, January 2021
- National Society of Professional Engineers, Engineering Ethics and the Law, NSPE Online Web Seminar Series, December 2021
- National Society of Professional Engineers, National Society of Professional Engineers' Code of Conduct, NSPE Online Web Seminar Series, April 2022
- Tennessee Transportation Assistance Program, Roadway Drainage Maintenance: The Key to Long Lasting Roadways, Online Course, Knoxville, Tennessee, August 2022
- Institute of Transportation Engineers Education Foundation, A Crash Course on Crashes: Forensic Accident Reconstruction & Human Factors in Collisions, Online ITE Learning HUB, October 2022
- American Association of State and Highway Transportation Officials (AASHTO), Transportation Curriculum Coordination Council, Working with Law Enforcement in Work Zones, December 2022
- National Society of Professional Engineers, Navigating the Ethical Dilemmas that Arise in Every Day Engineering Practice, NSPE Online Web Seminar Series, December 2022
- National Academy of Forensic Engineers, Forensic Engineering Seminar, NAFE Technical Presentations Seminar, San Antonio, Texas, Winter Conference, January 2023
- National Academy of Forensic Engineers, Forensic Engineering Seminar, NAFE Education Seminar – Including Engineering Ethics Update and Putting Daubert Theory into Practice, San Antonio, Texas, Winter Conference, January 2023
- National Academy of Forensic Engineers, Forensic Engineering Seminar, NAFE Technical Presentations Seminar, Ann Arbor, Michigan, Summer Conference, July 2024
- National Academy of Forensic Engineers, Forensic Engineering Seminar, NAFE Education Seminar – Including Engineering Ethics Update, Ann Arbor, Michigan, Summer Conference, July 2024
- National Academy of Forensic Engineers, Forensic Engineering Seminar, NAFE 2025 Winter Conference Technical Seminar, Santa Fe, New Mexico, January 2025
- National Academy of Forensic Engineers, Forensic Engineering Seminar, NAFE 2025 Winter Conference Educational Seminar – Including Engineering Ethics Update, Santa Fe, New Mexico, January 2025

Post-graduate course work in Civil Engineering

Texas A&M University, College Station, Texas  
1995 - 1998

Master of Science in Civil Engineering  
University of Tennessee, Knoxville, Tennessee  
1994

Bachelor of Science in Civil Engineering  
University of Tennessee, Knoxville, Tennessee  
1985

Associates of Applied Science in Civil Engineering Technology  
Asheville-Buncombe Technical College, Asheville, North Carolina  
1982

## Licenses & Certifications

PE - Professional Engineer

Licensed by the State of Tennessee – 22675  
Licensed by the State of Alabama – 31111-PE  
Licensed by the State of Arizona – 65639  
Licensed by the State of Arkansas – 19443  
Licensed by the State of Colorado – PE.0057179  
Licensed by the State of Georgia – PE040401  
Licensed by the Commonwealth of Kentucky – 27205  
Licensed by the State of Mississippi – 30949  
Licensed by the State of Missouri – 2020009083  
Licensed by the State of North Carolina – 036687  
Licensed by the State of South Carolina – 28077  
Licensed by the State of South Dakota – 14700  
Licensed by the Commonwealth of Virginia – 0402047826

Board Certified Diplomate in Forensic Engineering (BCDFE), National Academy of  
Forensic Engineers (NAFE)

Certified Traffic Control Supervisor, American Traffic Safety Services Association  
(ATSSA)

## Employment History

Senior Forensic Engineer  
Nederveld, Inc., Knoxville, TN  
2024 – Present

Responsible for the investigation, analysis, and reconstruction of various collision events, highway design, and transportation system function and failures. Focused on evaluation of highway geometric design, signalization, traffic engineering, temporary traffic control in highway work zones, pavement edge drop-off incidents, and other incidents as they relate to motor vehicle, pedestrian, bicycle and other modal collision events and their causative factors. Supervised associates in documentation, diagramming, simulation, and analysis of motor vehicle collisions and other highway-related failure events. Conducted research, complete engineering calculations and analysis, prepare expert records, develop conclusions, and provide forensics engineering testimony relative to results, findings, and conclusions.

## Employment History (Continued)

Founder and President

Parham Engineering Consultants, Inc., Knoxville, TN

2003 – 2024

General Civil, Transportation and Traffic Engineering Analyses and Consulting,  
Traffic Accident/Crash Investigation and Reconstruction

Responsible for the investigation, analysis, and reconstruction of various collision events, highway design, construction, maintenance and operation, and transportation system function and failures. Focused on evaluation of highway geometric design, signalization, traffic engineering, temporary traffic control in highway work zones, pavement edge drop-off incidents, and other incidents as they relate to motor vehicle, pedestrian, bicycle and other modal collision events and their causative factors. Supervised office professionals and oversaw/reviewed case documentation, diagramming, and analysis of motor vehicle collisions and other highway-related failure events. Conducted research, completed engineering calculations and analysis, prepared expert records, developed conclusions, and provided forensics engineering testimony relative to results, findings, and conclusions.

Principal and Vice President in charge of the Knoxville office

Ryabik, Parham, Moore and Associates, Inc., Knoxville, TN

2003

General Civil, Transportation and Traffic Engineering Analyses and Consulting,  
Traffic Accident/Crash Investigation and Reconstruction

Responsible for the investigation, analysis, and reconstruction of various collision events, highway design, construction, maintenance and operation, and transportation system function and failures. Focused on evaluation of highway geometric design, signalization, traffic engineering, temporary traffic control in highway work zones, pavement edge drop-off incidents, and other incidents as they relate to motor vehicle, pedestrian, bicycle and other modal collision events and their causative factors. Supervised office professionals and oversaw/reviewed case documentation, diagramming, and analysis of motor vehicle collisions and other highway-related failure events. Conducted research, completed engineering calculations and analysis, prepared expert records, developed conclusions, and provided forensics engineering testimony relative to results, findings, and conclusions.

Traffic Engineering Consultant and Traffic Accident Investigation and

Reconstruction J. Alan Parham: Traffic Engineering Consultant, Canton, NC

2001-2002

General Civil, Transportation and Traffic Engineering Analyses and Consulting,  
Traffic Accident/Crash Investigation and Reconstruction

In this role, Mr. Parham was responsible for the investigation, analysis, and reconstruction of various collision events, highway design, construction, maintenance and operation, and transportation system function and failures. Focused on evaluation of highway geometric design, signalization, traffic engineering, temporary traffic control in highway work zones, pavement edge drop-off incidents, and other incidents as they relate to motor vehicle, pedestrian, bicycle and other modal collision events and their causative factors. Developed case documentation, diagramming, and analysis of motor vehicle collisions and other highway-related failure events. Conducted research, complete engineering calculations and analysis, prepared expert records, developed conclusions, and provided forensics engineering testimony relative to results, findings, and conclusions. Also, in this role, he performed eminent domain assessments for land

## Employment History (Continued)

developers and landowners to determine how development projects would affect the surrounding roadway network.

Project Manager, Transportation Division  
O'Malley Engineers, L.L.P., Brenham, TX  
1998-2001

Duties and responsibilities associated with this position included, but were not limited to, the following: performed traffic flow capacity analyses, in accordance with the Highway Capacity Manual requirements. These analyses included calculating the Level-of-Service for signalized and STOP sign-controlled intersections, ramp terminals, interstate ramp merge/weave sections, and lane sections for various functional classifications of roadway facilities in the Central Texas region. These calculations were performed on roadways ranging from local streets to access controlled freeways and interstates along with both service and system interchange types. He performed traffic signal warrant analyses, in accordance with the Manual on Uniform Traffic Control Devices guidelines, and, if the intersection met the warrant criteria, he then performed the traffic flow projection and associated capacity analysis to improve the intersection's operation. He also performed traffic signal timing and phasing calculations to optimize and balance traffic flow through the intersection and developed the detailed drawings for approximately 20 traffic signal construction plans. He also developed the specifications and bid packages for these traffic signal installations.

In this position, Mr. Parham also developed the functional plans, right-of-way plans, and construction plans for several highway projects for several locations in central Texas.

Furthermore, Mr. Parham designed and developed the construction plans for several public works projects for different cities and towns in this region. These projects included, but were not limited to, high school campus renovations and enlargements, stormwater flooding mitigation, soccer and softball park complex, sanitary sewer collection system, nursing home and long-term care facilities, retaining walls, and subdivision design. In these projects, he performed the appropriate calculations for items, such as grade, pipe size, cut and fill quantities, stormwater system pipe sizes and grade and inlet details. In these designs, he performed the calculations to ensure the proper location and distance was maintained between the sanitary sewer lines and the potable water distribution system lines.

Assistant Research Engineer, Transportation System Division  
Texas Transportation Institute, The Texas A&M University System, College Station, TX  
1995-1998

In this position, Mr. Parham served as the principal investigator on various research projects and served as a co-principal investigator on other highway safety research projects. Research projects that he conducted were for the Texas Department of Transportation and for the Federal Highway Administration. He performed research on highway safety systems in the areas of construction work zone, specifically related to signage visibility, message, color, and placement issues. He also co-developed the Field Guide Manual for traffic sign installations that is used by the Texas Department of Transportation. As a result of some of these research projects, various procedures within the Texas Department of Transportation were changed or revised. The procedures included the addition of a signage issue to the

## Employment History (Continued)

Texas Manual on Uniform Traffic Control Devices. Topics of this research included roadway lighting issues, highway and intersection capacity, construction work zone signing (regulatory and advanced warning), and traffic signal response systems that adjust to varying traffic volume demands at freeway interchanges and arterial intersections. In conducting this research, he designed the methods and procedures that were used to collect field data. When designing these procedures, he considered many different aspects of the variable involved in the research and allowed for these issues to be evaluated individually or eliminated in some of the testing procedures. Once the data collection phase was complete, he analyzed the data to determine if the research hypothesis was null or valid. He also performed analyses to determine if there were trends in the data, and, if so, he performed statistical calculations to establish if these trends were statically significant. From the results of these analyses, he developed the corresponding research report outlining issues involved in the project, the research testing procedures, data analysis, results, and conclusions.

Director – Tennessee Transportation Assistance Program (LTAP) and Head of Traffic Operations & Safety Division

1994-1995

Research Associate

1993-1994

University of Tennessee Transportation Center, The University of Tennessee, Knoxville, TN

Mr. Parham was responsible for providing technical assistance, advice, and training related to transportation engineering issues for governmental agencies across the State of Tennessee. These agencies included city, county, and state level personnel. He was responsible for creating annual training programs. He developed these seminar and workshop course materials and served as the instructor in these classes. In this position, he also served on various Federal Highway Administration research development committees as an advisor to create research projects which would further expand the technical and administrative material available to governmental agencies. In this position, he was responsible for providing technical engineering assistance to these governmental agencies. The assistance and direction provided the agencies help improve issues, such as, but not limited to, traffic signal system effectiveness and operations, intersection sight distance availability to help reduce accident frequency, improved roadway geometrics at high accident locations, improved traffic warning and regulatory signage that improved roadway safety, improved guardrail and retaining wall designs that protected drivers from striking hazardous roadside obstacles, and improved roadway drainage systems. He also performed traffic signal system inventories and operational studies. During these evaluations, he performed standard warrant analyses, along with phasing and traffic signal timing assessments. If applicable, based on these analysis results, if needed, he was able to recommend improvements to the traffic signal system network. When the recommendations made were implemented, the roadway network functioned more efficiently by offering an improved level of service and operated more safely by reducing the number and severity of accidents.

Private Practice, Traffic Engineering Consultant

Traffic Engineering and Traffic Accident Reconstruction, Knoxville, TN

1993-1995

In this role, Mr. Parham was responsible for the investigation, analysis, and reconstruction of various collision events, highway design, construction,

## Employment History (Continued)

maintenance and operation, and transportation system function and failures. Focused on evaluation of highway geometric design, signalization, traffic engineering, temporary traffic control in highway work zones, pavement edge drop-off incidents, and other incidents as they relate to motor vehicle, pedestrian, bicycle and other modal collision events and their causative factors. Developed case documentation, diagramming, and analysis of motor vehicle collisions and other highway-related failure events. Conducted research, complete engineering calculations and analysis, prepared expert records, developed conclusions, and provided forensics engineering testimony relative to results, findings, and conclusions. Also, in this role, he designed and developed contract documents and plans for the installation of traffic signals and roadway lighting projects.

Transportation Design Engineer  
Wilbur Smith Associates, Knoxville, TN  
1989-1993

In this position, Mr. Parham was the traffic operations and roadway safety component of the design team. The team was comprised of Knoxville city officials, architectural firms, and other engineers on the development of the Knoxville Waterfront Redevelopment Masterplan. This work included traffic studies of the Central Business District in Knoxville, as well as the review of several highway and railroad design considerations to create a redevelopment plan for the downtown area along the Tennessee River. Additionally, his duties and responsibilities associated with this position included, but were not limited to, the following: performed traffic flow capacity analyses, in accordance with the Highway Capacity Manual requirements that included calculating the level of service for signalized and stop controlled intersections, ramp terminals, interstate ramp weave sections, and lane sections for various functional classifications of roadway facilities in east Tennessee. These calculations were performed on roadways ranging from local streets to access controlled freeway interstates, along with both service and system interchanges. He performed traffic signal warrant analysis, in accordance with the Manual on Uniform Traffic Control Devices guidelines, and, if the intersection met the warrant criteria, then performed the traffic flow projection and associated capacity analysis to improve the intersection. He also performed the signal timing and phasing calculations to optimize and balance traffic flow through the intersection and developed the detailed drawings for approximately 80 traffic signal construction plans. He also developed the specifications and bid packages for these installations.

In this role, Mr. Parham was tasked with evaluating high accident locations to determine what, if any, roadway or traffic control device may be causing or contributing to the occurrence of the crashes. If a deficiency was found, he was responsible for designing a plan to minimize the occurrence of crashes.

In this role, Mr. Parham developed the functional plans, right-of-way plans, and construction plans for several highway projects in the east Tennessee region. He also performed the calculations for horizontal alignment and vertical curve, as well as grade details, for the roadway profiles that were used in several roadway design projects. As part of these computations, he calculated items, such as the curb line elevations, superelevation rates, superelevation transition lengths, required intersection sight distance lengths, right-of-way acquisition areas, along with other items required to develop complete plans for these projects.

## Employment History (Continued)

Also, Mr. Parham performed traffic-impact studies to determine the effect development would have on the surrounding street and highway system network. If it was determined that a part of the roadway network would become over capacity, he developed highway improvement plans to help accommodate the increased traffic demand. As part of the traffic signal plans, he developed environmental impact reports to determine what, if any, actions needed to be performed as part of the traffic signal installation. Additionally, Mr. Parham oversaw construction contract administration and performed on-site construction inspection to ensure the projects were in compliance with the construction plans and specifications.

Project Designer and Survey Crew Supervisor  
Urban Engineering, Inc., Knoxville, TN  
1987-1989

Mr. Parham's role in this position carried dual responsibilities. One set of responsibilities included designing local streets and collector level roadways, sanitary sewer systems, stormwater drainage systems, and the construction designs of several subdivisions ranging from 12 acres to 250 acres. To fulfill these responsibilities, he performed the calculations and developed the site grading, drainage, and site plans for these residential subdivision developments, as well as those for office parks, educational, and retail developments. He was also responsible for the field coordination of construction projects with local officials to ensure the project was being performed according to the plans and specifications in the east Tennessee area.

More specifically, the tasks he accomplished included, but were not limited to, performing grade calculations, manually processing field surveying data, and plotting survey points onto a Cartesian coordinate system by northing and easting coordinates and with description and elevation data. Depending on the project requirements, he sometimes performed the latitude and elevation adjustment calculations and transferred the survey points into the state of Tennessee's State Plane Mercator Projection Coordinate System using NAD 83 information. From this data, he performed calculations to interpolate elevations associated with survey data points, and from these interpolations, he developed topographic maps. He also performed hydrologic calculations to determine the stormwater demand for each section of the development projects. When considering these and other data, he used Manning and other hydraulic and open channel flow equations to calculate the pipe sizes, grades, flow lines, pipe inverts, and inlet elevations and the hydraulic grade line elevations for the stormwater collection systems. He also performed the calculations for horizontal alignment and vertical curve and grade details for the roadway profiles that were used in these land development projects.

In the second part of Mr. Parham's role, he acted as the field leader responsible for performing the boundary retracement survey for Frozen Head State Natural Area (approximately a 12,500-acre parcel). He was the project manager charged with various surveying tasks, including the task of locating physical features that would serve to mark the location of a property's boundary. These physical features include, but are not limited to, fences, boundary trees, creeks, rock cairn, iron pins, etc. He also performed the tasks of defining and setting random traverse points' location. Next, he lead the survey crew that measured the horizontal angles, vertical angles, and slope distances of the traverse points and property markers. After measuring these angles and distances, he developed field book sketches and notes to document these measurements. He performed the

## Employment History (Continued)

calculations, and after the registered land surveyor reviewed and approved these values, he directed the activity of installing new corner and line (at 200-to-250-foot intervals) monuments at locations where monuments were missing. To accomplish this task, Mr. Parham performed the necessary field calculations to determine the required angles and slope distances to locate the position of new monuments relative to the appropriate random traverse network's position.

Assistant Department Manager  
Law Engineering Testing Company, Houston, TX  
1986-1987

In this position, Mr. Parham designed and developed plans and associated specifications (both general and technical) for the removal, replacement, and testing of fireproofing systems in industrial, educational, commercial, and high-rise office structures. He was also responsible for overseeing the contractor's bidding process. In this phase of the project, he was responsible for verifying the various bonds and insurance policies included within the bid packages and for confirming that the bid packages were compliant with the specified requirements. Once the project's contract had been awarded, he was responsible for the contract administration on the 12 different projects in the Dallas and Houston, Texas, metropolitan areas. These projects included both private and state government projects. He performed field inspections to access the project deployment for compliance to OSHA, State and Federal environmental regulations. He was responsible for the coordination and management of personnel, equipment, and materials and for the scheduling of the phasing for the different stages of the construction projects. He was responsible for ensuring that air quality was maintained in areas outside the abatement spaces. He obtained air monitoring samples at multiple sites, analyzed these samples, and then documented the results of these analyses. When the abatement process was complete, he was responsible for inspecting the spaces. If the space was clean, all the material was removed, and the space was clean, he was then responsible for approving the final phase of the project and completing the contract's requirements. He was also responsible for training technicians to monitor these abatement project spaces for regulation compliance and monitoring the air quality samples.

## Professional Affiliations

National Academy of Forensic Engineers, Senior Member – 729S  
National Society of Professional Engineers, Member  
Institute of Transportation Engineers, Member  
American Society for Testing and Materials  
Society of Automotive Engineers International  
American Society of Civil Engineers (Delegate for District 9 Council, 1994-1995)  
Member of American Public Works Association, 1994-1995  
Chi Epsilon Civil Engineering Honor Society  
Tau Beta Pi Engineering Honor Society

## Educational Presentations

"Pavement Management Systems – Concepts and Features" Presented at the 1994 Local Roads Conference, Atlanta, Georgia, August 1994  
  
"Evaluation of Rural Guide Signing: Guide Signing Field Book Development" presented at the Texas Department of Transportation's Traffic Operations Conference, Austin, Texas, August 1995

## **Educational Presentations (Continued)**

Technical Panel Member for U. S. Department of Transportation; Federal Highway Administration (FHWA) Local Technical Assistance Program Research and Development Issues, 1994-1995

"Elimination or Mitigation of Hazards Associated With Pavement Edge Dropoffs During Roadway Resurfacing" presented at the 75th Annual Meeting of the Transportation Research Board, Washington, D.C., January 1996

"Elimination or Mitigation of Hazards Associated With Pavement Edge Dropoffs During Roadway Resurfacing" presented to the Expert Witness Council at the 66th Annual Meeting of the Institute of Transportation Engineers, Minneapolis, Minnesota, September 1996

"Evaluation of Fluorescent Orange Sheeting for Work Zone Applications" presented at the Southwestern "How to" Achieve an Accident Free Work Zone Conference. Sponsored by the Texas Department of Transportation and the American Traffic Safety Services Association, San Antonio, Texas, November 1996.

Invited Expert Witness for Knoxville Bar Association's A Trial Practice Seminar: The Effective Use of Expert Witness Testimony, Knoxville, Tennessee, 2005

"Tools of an Accident Reconstructionist" presented at the Legal Support Staff of North Carolina, Fourteenth Annual Meeting and Educational Conference, April 2010

Invited Expert Witness for Tennessee American Planning Association (TAPA) and Tennessee Section of the Institute of Transportation Engineering (TSITE) fall conference's Expert Witness: Interface of Engineering and Legal Issues, Knoxville, Tennessee, 2010

"Forensic Engineering Overview," Tennessee Society of Professional Engineers, Knoxville, Tennessee, September 2011

Invited Panel Member, Guide to Expert Witness Forum, Tennessee Bar Association, Nashville, Tennessee, May 2013

"Aspects of Highway Safety," University of Tennessee Transportation Research Center's STEM Summer Workshop for Teachers, Knoxville, Tennessee, July 2013

"Tools of an Accident Reconstructionist" presented at the Tennessee Paralegal Association, East Chapter, September 2015

University of Tennessee College of Engineering, Guest Lecturer for CE 556 Traffic Crash Reconstruction and Analysis – Comparing Physics Analysis Techniques: Ambulance & Sedan Collision, July 2019

University of Tennessee College of Engineering, Guest Lecturer for CE 556 Traffic Crash Reconstruction and Analysis – Issues with Twilight & Nighttime Photography in Crash Reconstruction, July 2019

University of Tennessee College of Engineering, Guest Lecturer for CE 556 Traffic Crash Reconstruction and Analysis – Roadway Hazard: Issues Associated with Pavement Edge Drop-offs, August 2019

University of Tennessee College of Engineering, Guest Lecturer for CE 556 Traffic Crash Reconstruction and Analysis – Basic Overview of the 2009 Manual on Uniform Traffic Control Devices (MUTCD) Part 6 Temporary Traffic Control, August 2019

University of Tennessee College of Engineering, Guest Lecturer for CE 556 Traffic Crash Reconstruction and Analysis – Roadway Hazard: Issues Associated with Pavement Edge Drop-offs, July 2021

University of Tennessee College of Engineering, Guest Lecturer for CE 556 Traffic Crash Reconstruction and Analysis – Crash Reconstruction of a Nighttime Passenger Vehicle and Pedestrian, July 2021

University of Tennessee College of Engineering, Guest Lecturer for CE 556 Traffic Crash Reconstruction and Analysis – Issues with Twilight & Nighttime Photography in Crash Reconstruction, July 2021

University of Tennessee College of Engineering, Guest Lecturer for CE 556 Traffic Crash Reconstruction and Analysis – Comparing Physics Analysis Techniques: Ambulance & Sedan Collision, July 2021

University of Tennessee College of Engineering, Guest Lecturer for CE 556 Traffic Crash Reconstruction and Analysis – Basic Overview of the 2009 Manual on Uniform Traffic Control Devices' (MUTCD) Part 6 Temporary Traffic Control, July 2021

University of Tennessee, Transportation Research Center  
Developed and taught professional courses, including Roadway Lighting, Highway Metrication, Traffic Signs and Pavement Markings, Traffic Signal Optimization, Construction Surveying, Traffic Access and Impact Study Development, Risk Management and Tort Liability, and Traffic Signal Design

## **Technical and Panel Presentations**

"Pavement Management Systems – Concepts and Features" Presented at the 1994 Local Roads Conference, Atlanta, Georgia, August 1994

"Evaluation of Rural Guide Signing: Guide Signing Field Book Development" presented at the Texas Department of Transportation's Traffic Operations Conference, Austin, Texas, August 1995

Technical Panel Member for U. S. Department of Transportation; Federal Highway Administration (FHWA) Local Technical Assistance Program Research and Development Issues, 1994-1995

"Elimination or Mitigation of Hazards Associated With Pavement Edge Dropoffs During Roadway Resurfacing" presented at the 75th Annual Meeting of the Transportation Research Board, Washington, D.C., January 1996

"Elimination or Mitigation of Hazards Associated With Pavement Edge Dropoffs During Roadway Resurfacing" presented to the Expert Witness Council at the 66th Annual Meeting of the Institute of Transportation Engineers, Minneapolis, Minnesota, September 1996

"Evaluation of Fluorescent Orange Sheeting for Work Zone Applications" presented at the Southwestern "How to" Achieve an Accident-Free Work Zone Conference. Sponsored by the Texas Department of Transportation and the American Traffic Safety Services Association, San Antonio, Texas, November 1996

Invited Expert Witness for Knoxville Bar Association's A Trial Practice Seminar: The Effective Use of Expert Witness Testimony, Knoxville, Tennessee, 2005

"Tools of an Accident Reconstructionist" presented at the Legal Support Staff of North Carolina, Fourteenth Annual Meeting and Educational Conference, April 2010

Invited Expert Witness for Tennessee American Planning Association (TAPA) and Tennessee Section of the Institute of Transportation Engineering (TSITE) fall conference's Expert Witness: Interface of Engineering and Legal Issues, Knoxville, Tennessee, 2010

"Forensic Engineering Overview", Tennessee Society of Professional Engineers, Knoxville, Tennessee, September 2011

Invited Panel Member, Guide to Expert Witness Forum, Tennessee Bar Association, Nashville, Tennessee, May 2013

"Aspects of Highway Safety," University of Tennessee Transportation Research Center's STEM Summer Workshop for Teachers, Knoxville, Tennessee, July 2013

Journal of the National Academy of Forensic Engineers, Peer Review of Journal Article, National Academy of Forensic Engineers, 2015

"Tools of an Accident Reconstructionist" presented at the Tennessee Paralegal Association, East Chapter, September 2015

"Evaluation of Rural Guide Signing," Co-Principal Investigator, Texas Transportation Institute, College Station, Texas, April 1995 – April 1998

## Research Projects

"Evaluation of Fluorescent Orange Signs for Work Zone Applications," Principal Investigator, Texas Transportation Institute, College Station, Texas, September 1995 – April 1998

"Traffic Control Devices for Two-Way and Four-Way Stop Controlled Intersections," Co-Principal Investigator, Texas Transportation Institute, College Station, Texas, September 1995 – August 1996

"Develop State Traffic Laws Related to Construction and Maintenance Work Zones," Co-Principal Investigator, Texas Transportation Institute, College Station, Texas, September 1996 – September 1997

"Develop Real-Time Multi-Modal Traffic Adaptive Diamond Interchange Control System," Project Manager, Texas Transportation Institute, College Station, Texas, October 1996 – April 1998

## **Publications**

J. B. Humphreys and J. A. Parham. The Elimination or Mitigation of Hazards Associated With Pavement Edge Dropoffs During Roadway Resurfacing. A publication sponsored by the AAA Foundation for Traffic Safety, Washington, D.C., 1993

D. L. Picha, J. A. Parham, C. Shuckle, and C. Mi. Traffic Control Devices for Two-Way and Four-Way Stop Controlled Intersections. Texas Department of Transportation, Texas Transportation Institute, College Station, Texas, 1996

H.E. Hawkins, Jr., J. A. Parham, P. J. Carlson, L. Rhodes, and I. Lorenz. Evaluation of Rural Guide Signing: Guide Signing Fieldbook, U. S. Department of Transportation; Federal Highway Administration, and Texas Department of Transportation, Texas Transportation Institute, College Station, Texas, 1997

C. Shuckle, D. L. Picha, and J. A. Parham. Conducting a Traffic Conflict Study Using a Video-Based System. Texas Department of Transportation, Texas Transportation Institute, College Station, Texas, 1997. Transportation Research Board Paper Number 971436

G. L. Ullman, P. J. Carlson, N. D. Trout, and J. A. Parham. Work Zone Related Traffic Legislation: A Review of National Practices and Effectiveness. Texas Department of Transportation, FHWA, Texas Transportation Institute, College Station, Texas, 1998

## **Expert Witness Experience**

Available upon request