

David Hall & Associates
Traffic Engineering Consulting & Accident Reconstruction
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CURRICULUM VITAE

DAVID W. HALL

Master of Science - Engineering
Professional Engineer
Professional Traffic Operations Engineer™
The Accreditation Commission For Traffic Accident Reconstruction
ACTAR Accreditation #1160

PERSONAL DATA

- Associate of Science, Engineering, Angelina County Jr. College, 1972
- B.S., Civil Engineering, University of Texas at Austin, 1975 (specialty in Traffic Engineering)
- M.S. Engineering, University of Texas at Austin, 1985 (specialty in Traffic Engineering)

Curriculum for these degrees included: Statics, Dynamics, Physics, Analytic Geometry, Calculus, Differential Equations, Vector Analysis, Drafting, Surveying Field Work, Surveying Computations, Survey Mapping, Surveying Statutes and Standards, Engineering Fundamentals and Problem Solving, Thermodynamics, Fluid Mechanics, Structural Analysis, Materials Testing, Mechanics of Materials, Steel Structures Design, Concrete Structures Design, Geology, Soil Mechanics, Traffic Engineering, Transportation Planning, Pavement Design, Pavement Management and Maintenance Systems, Geometric Design of Highways and Intersections, Transportation Systems and Engineering Economy

REGISTRATION

- Registered Professional Engineer in Texas, No. 47841
- Registered Professional Engineer in Louisiana, No. 30787

PROFESSIONAL ENGINEERING EXPERIENCE

- Owner, David Hall and Associates (October 1990 - Present)
Traffic Engineering Consulting and Accident Reconstruction
- President, WHM Transportation Engineering Consultants, Inc. (September 1985 - October 1990)
Project management; personnel supervision; budget preparation; traffic engineering report preparation; presentations to boards, commissions, City Council, and neighborhood groups; site plan review; construction plan review, field investigations; geometric design of roadways, intersections, driveways and median openings; traffic signal design and coordination; design of layouts for traffic control signs and markings; shared parking analyses; traffic counting; parking lot layout and design; railroad crossing analysis/signs, signals and markings; accident analysis; speed studies; travel time studies; pedestrian studies; traffic impact analyses; traffic projections; queueing analyses; accident reconstruction; expert testimony
- Owner, David Hall and Associates (September 1984 - September 1985)
Project management; parking lot layout and design, accident analysis; speed studies; travel time studies; preparation of traffic impact analyses; budget preparation; traffic projections, traffic engineering report preparation; presentations to boards, commissions, City Council and neighborhood groups; site plan review; construction plan review; field investigations; geometric design of roadways, intersections, driveways and median openings; traffic signal design; design of layouts for traffic control signs and markings; traffic counting
- Civil Engineer I, II, III and Senior Staff Engineer, The City of Austin - Urban Transportation Department (January 1976 - September 1984)
Personnel supervision; project management; traffic signal design and coordination; design of layouts for traffic control signs and markings; construction cost estimation; traffic counting; parking lot layout and design; review / development of standard specifications for traffic counters, traffic paint, beads, reflective buttons, reflective sheeting, cut-out letters, sign blanks, aluminum posts, parking meters and paint stripers; accident analysis; queueing analyses; speed studies; travel time studies; pedestrian studies; preparation of traffic impact analyses; traffic engineering report preparation; presentations to boards, commissions, City Council and neighborhood groups; citizen communication; subdivision design review; Citywide railroad crossing analysis, railroad crossing signs, signals and markings; school safety analysis site plan review; driveway permit review; construction plan review; development/review of traffic control plans; field investigations; accident reconstruction of over 150 accidents while working with Austin Police Department; geometric design of roadways, intersections, driveways and median openings; bicycle street/lane/path design; budget preparation; traffic projections.

- Cooperative Engineering Student, State Department of Highways and Public Transportation (September 1972 - December 1975)
Field party survey work; construction inspection; horizontal and vertical geometric roadway design; signs and markings layouts (during/after construction).

PUBLICATIONS

- Hall, David W., "Bicycle Detection Through the Use of Inductance Loop Detectors at Vehicular Actuated Traffic Signals", M.S.E. Thesis, The University of Texas at Austin, Austin, Texas, January 1985.

ORGANIZATIONS

- Institute of Transportation Engineers
- Texas Section - Institute of Transportation Engineers
- Expert Witness Council-Institute of Transportation Engineers
- National Association Of Railroad Safety Consultants And Investigators
- The Accident Reconstruction Communications Network

CONTINUING EDUCATION

- Accident Reconstruction For Traffic Engineers, Northwestern University Traffic Institute, Phoenix, Arizona, 1996, 40 hours. Curriculum included traffic accident information from roads, traffic accident information from vehicles, understanding vehicle behavior/dynamics in collisions, perception/reaction in traffic accidents, speed and Delta-V estimates from skids and coefficients of friction, speed estimates from yaws, speed estimates from falls, flips and vaults, conservation of momentum applications in accident reconstruction, work, energy and estimates of speed from damage, use of microcomputers in accident reconstruction, roadway condition analysis, Newton's laws of motion, heavy truck accident reconstruction, case studies and problem solving.
- TRANSYT-7F Signal Timing Optimization, U. S. DOT, FHWA, Austin, Texas, 1982, 28 hours. Curriculum included proper data collection and input to optimize signal timing for various size roadway systems.
- Traffic Signal Timing Optimization School, Texas Engineering Extension Service, San Antonio, Texas, 1983, 16 hours. Curriculum included proper data collection and input to optimize signal timing for various size roadway systems, using different optimization systems.
- Safe Handling of Traffic in Construction and Maintenance Sites, Texas Engineering Extension Service, College Station, Texas, 1984, 24 hours. Curriculum included legal responsibilities, administration, application of Texas Manual on Uniform Traffic Control Devices, accidents, human factors engineering, clear and work zones, signs, channelizing devices, markings and lighting, traffic management, case studies and field implementation
- Advanced Traffic Engineering School, Texas Engineering Extension Service, San Antonio, Texas, 1982, 24 hours. Curriculum included application of Texas Manual on Uniform Traffic Control Devices, human factors, perception/reaction in design, design of intersections, design of traffic signal, signs and markings systems.
- Metro Traffic Operations And Safety Conference, Texas Engineering Extension Service, Amarillo, Texas, 1984, 16 hours. Curriculum included establishment of joint responsibilities and cooperation between governmental entities and methods for optimizing traffic operations and safety in metropolitan areas.

- ACTAR Accreditation. ACTAR accredited reconstructionist #1160. Awarded full accreditation as a traffic accident reconstructionist by Accreditation Commission for Traffic Accident Reconstruction in recognition of academic achievement, accident specific training, applied experience in the field and successful completion of the ACTAR full accreditation written and practical 8 hour examination. December, 2000.
- Professional Traffic Operations Engineer (PTOE™) Certification #572. Awarded full certification as a professional traffic operations engineer by the Institute of Transportation Engineers in recognition of academic achievement, applied experience in the field and successful completion of the PTOE™ written and practical examination. January, 2001.
- Photomodeler Pro 4.0 Training Workshop, Seattle, Washington, September, 2001, 16 hours. Curriculum included detailed instruction and hands on analysis of usage of computer program to prepare scaled drawings and determine vehicle crush from photographs.
- Fundamentals Of Geometric Design, Northwestern University Center For Public Safety, Evanston, Illinois, October, 2001, 40 hours. Course designed to strengthen the expertise of highway and traffic engineers in the fundamental design principles and concepts of geometric design of highways and intersections. Curriculum included geometric, functional and aesthetic aspects of street, highway and intersection design with emphasis placed on efficient and effective design techniques.
- Work Zone Traffic Control, Texas Engineering Extension Service, Houston, Texas, December, 2001, 16 hours. Curriculum included legal responsibilities, administration, application of Texas Manual on Uniform Traffic Control Devices, accidents, human factors engineering, clear work zones, signs, channelizing devices, markings and lighting, traffic management, case studies and field implementation.
- Grade Crossing Collision Investigation, San Bernardino Sheriff's Department and Burlington Northern/Santa Fe Railway, April, 2002, 16 hours. Curriculum included warning devices found at grade crossings, train element, human element, vehicle element, investigative techniques, train inspection, vehicle inspection, taking measurements, legal considerations, event recorders, train identification, factors that contribute to the grade crossing collision and common causes of collisions.
- Pedestrian/Bicycle Crash Investigation, Institute of Police Technology and Management, May, 2002, 40 hours. Curriculum included pedestrian crash investigation, pedestrian injury analysis, comprehensive steps to the investigation, body dynamics, medical investigation of pedestrian injury mechanism, reconstruction of the crash scene, practical projects and field testing and analysis of pedestrian/bicycle strikes.
- Heavy Vehicle Collision Reconstruction, Safety Solutions, October, 2002, 40 hours. Curriculum included jackknives and trailer swing, analysis of truck tire marks, air brake systems, axle weight reconstruction, vertical center of gravity and rollovers, off tracking calculations, practical projects, field testing of ABS and conventional truck braking systems to determine speeds from skid mark data and in-field problem solving of example truck braking systems.
- M-SMAC Accident Reconstruction Computer Software Training, McHenry Software Training, April, 2003, 24 hours. Curriculum included detailed instruction on selection of data for input, data input requirements, types of accidents that can be reconstructed with the program, analysis of data output, graphic, animation and case studies.

- Capacity Analysis: Signalized Intersections, Institute of Transportation Engineers, August 11, 2004, 8 hours. Curriculum included following Highway Capacity Manual 2000 methodology for signalized intersections, identifying conditions types and specific parameters affecting intersection traffic flow, determining supply and demand rates at an intersection, completing a capacity analysis on a typical standard configuration signalized intersection, computing control delay and determine level of service and identifying ways to improve level of service at a signalized intersection.
- Traffic Signal Needs Determination, Institute of Transportation Engineers, September 14, 2004, 8 hours. Curriculum included identifying steps in a traffic signal needs determination, collecting and analyzing traffic data, determining if warrant conditions are met, identifying the appropriate report requirements, assembling an engineering study report, identifying the advantages and disadvantages of installing a traffic signal and identifying alternative improvements.
- Safety Analysis: Signalized Intersections, Institute of Transportation Engineers, September 15, 2004, 8 hours. Curriculum included identifying locations for crash studies, determining data requirements, constructing and interpreting a collision diagram, grouping crash data and isolating crash types, identifying possible causes and recommending viable safety countermeasures.
- Motorcycle Crash Investigation, Institute of Police Technology and Management, September, 2004, 40 hours. Curriculum included analyzing and interpreting motorcycle crash scene, determining acceleration characteristics of the motorcycle, determining deceleration characteristics of the motorcycle, analyzing and interpreting modes of instability and handling characteristics in motorcycles, analyzing and interpreting damage to motorcycles, operator factors, braking efficiency of motorcycles, motorcycle tires, practical application of formulae and helmets and other equipment.
- Work Zone Traffic Control, Texas Engineering Extension Service, San Antonio, Texas, March, 2005, 16 hours. Curriculum included legal responsibilities, administration, application of Texas Manual on Uniform Traffic Control Devices, accidents, human factors engineering, clear work zones, signs, channelizing devices, markings and lighting, traffic management, case studies and field implementation.
- Intersection Design and Channelization Workshop, Las Vegas, Nevada, September, 2005, 20 hours. Curriculum included Principles of Intersection Design (design controls, intersection sight distance, lane width, alignment and profile, treatment of turning movements and pedestrian movements), Principles and Techniques of Channelization (purposes of channelization, island types and locations, coordination with traffic control devices and design techniques) and Identification and Treatment of Deficiencies (interpretation of crash patterns, traffic operational studies, guidelines for intersection improvements and case studies)
- Human Factors in Traffic Crash Reconstruction, Jacksonville, Florida, March, 2006, 40 hours. Curriculum included an introduction to a variety of human factors that are critical to success in reconstructing traffic crashes including driver characteristics that must be considered in the investigation, the nature of perception and reaction and the factors affecting the investigator's choice of perception-reaction values and eyewitness reliability.
- Visual Statement, Vista fx2 Computer Program Training, Temple, Texas, March, 2006, 32 hours. Curriculum instruction in Advanced Collision Scene Diagramming, 2D and 3D Animation, Momentum Analyses and Simulation Model of Automobile Collisions.

- ARC-CSI Crash Conference, Las Vegas, Nevada, June, 2006, 32 hours. Observation of fully documented, live, full scale crash testing with passenger vehicles, motorcycles, motor homes, a school bus and a fire engine, vehicle rollover and skid testing, presentation of various topics in accident reconstruction and traffic accident investigation.
- Crash Data Retrieval (CDR) Technician and Data Analyst Certification Courses, Overland Park, Kansas, July, 2006, 32 hours. Curriculum included legal considerations (criminal and civil) related to CDR data collection and admissibility, types of data collected and which might be stored, generally (GM and Ford vehicles), the operation of the CDR System to include evaluation of the vehicle being examined for download and application of the software and hardware to that vehicle for both GM and Ford vehicles, reading, interpreting and using the accessible GM and Ford vehicle CDR report line-by-line, troubleshooting and solving hardware and software issues when using the Vetronix CDR System and understanding, identifying and dealing with anomalous data from GM and Ford vehicle CDR reports
- Work Zone Traffic Control, Texas Engineering Extension Service, Mesquite, Texas, January, 2007, 16 hours. Curriculum included legal responsibilities, administration, application of Texas Manual on Uniform Traffic Control Devices, accidents, human factors engineering, clear work zones, signs, channelizing devices, markings and lighting, traffic management, case studies and field implementation.
- Crash Data Retrieval (CDR) User's Conference, Houston, Texas, January, 2007, 20 hours. Presentation of latest technology and data analysis techniques.
- Traffic Signal Workshop, Northwestern University Center for Public Safety, April, 2007, 36 hours. Curriculum provided a working knowledge of the latest theory and application of the functional capabilities of traffic signal controllers and systems. Emphasis was on the development and evaluation of signal timing and phasing plans and the selection of signal control equipment, with the goal being optimum efficiency and safety of traffic flow at intersections, on street systems and in roadway networks. The functional capabilities, flexibilities and limitations of traffic signal controllers and systems were presented, including the latest developments in micro-processor technology. The selection of appropriate traffic signal equipment, timing plans and programs were related to the physical restraints, geometric design features and traffic flow characteristics of the roadway.
- ARC-CSI Crash Conference, Las Vegas, Nevada, June, 2007, 32 hours. Observation of fully documented, live, full scale crash testing with passenger vehicles and a trailer/passenger vehicle crash test and, presentation of various topics in accident reconstruction and traffic accident investigation.
- Methodology and Techniques of Crash Data Retrieval, Jacksonville, Florida, December, 2007, 40 hours. Curriculum included legal considerations (criminal and civil) related to CDR data collection and admissibility, history of stored accelerometer data, examination of EDR software and hardware, troubleshooting and solving hardware and software issues when using the Vetronix CDR System, practical application of EDR data, momentum and delta V application for EDR data, EDR extraction techniques, advanced field EDR collection, General Motors and Ford vehicle data, commercial motor vehicle data and field EDR data collection.
- Inspection and Investigation of Commercial Vehicle Crashes, Jacksonville, Florida, January, 2008, 40 hours. Curriculum included federal regulations, truck dynamics, tires, rims and mounting performance, components of an air brake system, identifying and measuring truck skid marks, weight shift problems and formulas,

speed analysis of trucks involved in accidents, formulas used to determine rollovers, tips and center of mass, brake force calculations, trailer underride and visibility issues, use of energy analysis to determine speeds of commercial vehicles and practical problems for commercial vehicle accidents.

- Crash Data Retrieval (CDR) User's Conference, Houston, Texas, January, 2008, 20 hours. Presentation of latest technology and data analysis techniques.
- Advanced Commercial Motor Vehicle Crash Investigation, Jacksonville, Florida, November, 2008, 40 hours. Curriculum included ABS airbrake system, quasi static and dynamic rollover, free body diagrams, equilibrium equations, axle weight analysis, speed from gear reduction ratios, low and high speed off-tracking, component weights, vehicle dampening ratios, data collection of off-tracking for selected radii, acceleration/deceleration data collection, and practical problems for commercial vehicle accidents.

SELECTED ENGINEERING WORK

- Golden Triangle Traffic Impact Analysis
- Golden Triangle Road District
- DOW Chemical Company Access Analysis
- Seton Medical Center Traffic Impact Analysis
- Pavilion Traffic Impact Analysis
- City of Sunset Valley Master Plan
- The Uplands Traffic Impact Analysis
- Seton Travel Time Study
- Austin American-Statesman Access and Parking Analysis
- 35th and Jefferson - Parking Garage Signs and Markings Layout
- Kouri Access Analysis
- Cebolla Park Access Analysis
- City of Austin Design Standards Task Force
- City of Austin Traffic Impact Analysis Task Force
- Exxon Pump Island Queueing Analysis
- Kid R Us Day Care Queueing Analysis
- Capitol City Savings Queueing Analysis
- Johnson Creek Hike & Bike Trail Design
- Galleria Oaks Traffic Signal Study
- Loop 360 / Westgate Traffic Signal Design
- Wells Branch Parkway / FM 1825 Traffic Signal Design
- Congress Avenue Bridge Reversible Lane Design
- South 1st Street Bridge Reversible Lane Design
- Miscellaneous pedestrian studies
- Metropoli Shared Parking Analysis
- Treaty Oak Square Shared Parking Analysis
- Southgate Shopping Center Shared Parking Analysis
- St. Edward's University Traffic Impact Analysis
- Lantana Drive Time Study
- Southgate Shopping Center Access Design
- Parmer Interregional Center Traffic Impact Analysis
- Town Center South Traffic Impact Analysis
- US 90A Traffic Projections
- Exxon Traffic Projections - Slaughter Lane, Manchaca Road, Loop 1, Duval Road
- Zachary Scott Theater Shared Parking Analysis
- Quest Center Signs and Markings Layout (Roadways and Railroad Crossing)
- Aquafest Detour Route (Signs and Markings)

- Jerry Case (Auto/Tractor Trailer Accident--Accident Reconstruction)
- Garrison Case (Auto Accident/Construction Signs and Markings/Accident Reconstruction)
- Baybrook Mall Case (Auto/Motorcycle Accident/Traffic Control/Parking Lot Design/Accident Reconstruction)
- Brindley Case (Auto/Train Accident/Warning Signs/Crossing Gates/Accident Reconstruction)
- Osbourn Case (Truck/Train Accident/ Sight Visibility/Crossing Gates/Accident Reconstruction)
- Cambre Case (Auto/Train Accident/Sight Visibility/Crossing Gates/Accident Reconstruction)
- Hankton Case (Tractor/Train Accident/Sight Visibility/Crossing Gates/Accident Reconstruction)
- Bergeron Case (Truck/ Train Accident/Crossing Pre-emption/Accident Reconstruction)
- Crowder Case (Auto Accident/Moving Roadway Maintenance Operation/Accident Reconstruction)
- Campbell Case (Single Vehicle Motorcycle Accident/Mailbox/Accident Reconstruction)
- Buckles Case (Single Vehicle Auto Accident/Warning Signs/Accident Reconstruction)
- Tally Case (Auto Accident/Signal Timing/Accident Reconstruction)
- Alvheim Case (Auto Accident/Signal Design/Accident Reconstruction)
- Carpenter Case (Auto/Pedestrian Accident/Construction Area/Accident Reconstruction)
- Marcus Smith Case (Auto/Motorcycle Accident/Traffic Control/Parking Lot Design/Accident Reconstruction)
- Smith Case (Auto Accident/Signal Design/Construction Area/Accident Reconstruction)
- Henson Case (Auto/Pedestrian Accident/Accident Reconstruction)
- Schott Case (Single Vehicle Auto Accident/Roadway Design/Accident Reconstruction)
- K-Mart Case (Auto Accident/Traffic Control/Parking Lot Design/Accident Reconstruction)
- Mayfield Case (Bus/Pedestrian Accident)
- Allan Case (Auto Accident/Signs and Markings/Construction Area)
- Stella Link Plaza Case (Auto Accident/Traffic Control/Parking Lot Design/Accident Reconstruction)
- Vista Hills Hospital Case (Auto/Ped. Accident/Construction/Parking Lot Design)
- Schoenig Case (RV/Truck Accident/Truck Crossing/Traffic Control/Accident Reconstruction)
- Simmons Case (Tractor Trailer Accident/Construction/Design/Accident Reconstruction)
- Jackson Case (Auto Accident/Accident Reconstruction)
- Soileau Case (Auto Accident/Guardrail Design/Accident Reconstruction)
- Hoelscher Case (Tractor Trailer Accident/Accident Reconstruction)
- Austin Community College Traffic Signal Design (Pinnacle Campus)
- Howard Lane Guardrail Design Placement

Testified over 100 times in depositions and courts in Texas, Louisiana, Oklahoma, Arkansas, Missouri, Arizona and Indiana. Accepted as an expert in the following areas:

ACCIDENT RECONSTRUCTION, including opinions regarding vehicle paths, vehicle speeds and Delta-V from crush, skid marks, coefficient of friction, yaw, flips, falls and vaults and determination of how accident happened

VEHICLE DYNAMICS, including opinions regarding movement of vehicle during the accident, to final rest

TRAFFIC ENGINEERING, including opinions regarding, signs, signals, markings, parking lots, construction work zones, railroad crossings and intersection design

HIGHWAY DESIGN, including opinions regarding applicability of Local, State and Federal standards, including American Association of State Highways and Transportation Officials (AASHTO), railroad crossings and lighting

HIGHWAY MAINTENANCE, including opinions regarding applicability of Local, State and Federal Standards and acceptable maintenance levels

HIGHWAY SAFETY, including opinions regarding acceptability of practices by Local, State and Federal entities

HIGHWAY CONSTRUCTION, including opinions regarding acceptability of practices by Local, State and Federal entities