

Benjamin A. Royall

PE, PTOE

Senior Managing Consultant and Director of Automotive



Mr. Royall is a Senior Managing Consultant for Engineering Systems Inc. (ESi) where he is a Director of the Automotive Research and Accident Reconstruction team. He has a bachelor's degree in mechanical engineering, and a master's degree in civil engineering. Mr. Royall's experience spans all manners of transportation related accidents. He has training and expertise in vehicle Event Data Recorders (EDR), vehicle dynamics, human factors, road design, highway safety, work zone design and safety, and the Manual for Uniform Traffic Control Devices (MUTCD). He has investigated accidents involving passenger vehicles, motorcycles, pedestrians, bicyclists, commercial vehicles, locomotives, heavy machinery, forklifts, and aircraft. He also has experience in mechanical and vehicle testing, data acquisition, mathematical modeling, simulation, and failure analysis.

Mr. Royall is a licensed Professional Engineer (PE) in the States of Colorado, Texas, and Maryland. He is a certified Professional Traffic Operations Engineer (PTOE) by Transportation Professional Certification Board (TPCB) and he is certified by the American Traffic Safety Services Association (ATSSA) as a Traffic Control Design Specialist (TCDS). He is also a licensed Class-A commercial driver with endorsements for passengers, tanks, doubles, triples, as well as motorcycles.

Education

MS., Civil Engineering with emphasis in traffic engineering, Ohio University, 2021

BS, Mechanical Engineering with emphasis in mathematical modeling, University of Colorado at Colorado Springs, 2014

Certificates: Mill Journeyman, Lathe Journeyman and CAD/CAM
Pike Peak Community College, 2006

Contact Information

barroyal@engsys.com

(719)535-0400

ESi Colorado Springs

5575 Tech Center Dr.
Suite 115, Colorado Springs, CO
80919

Areas of Specialization

- Motor Vehicle Accident Investigation
- Accident Reconstruction
- Commercial Vehicles and Heavy Trucks
- Railroad Crossing Design
- Motorcycle operation and dynamics
- Vehicle event data imaging
- Traffic Control Devices
- Data acquisition and testing
- Road design and safety
- Civil engineering
- Work Zones
- Mechanical engineering

Licenses & Certifications

- State of Colorado P.E. License No. 0060289
- State of Texas P.E. License No. 155588
- State of Maryland P.E. License No.66276
- PTCB PTOE Certification No. 5971
- ATSSA TCDS, ATSSA Member No. 876289

Positions Held

Engineering Systems Inc., Aurora, Illinois

- Senior Managing Consultant, 2025-Present
- Senior Consultant, 2022-2025
- Senior Staff Consultant, 2020-2021
- Staff Consultant, 2017-2019
- Senior Technician,2017-2017
- Technician, 2014- 2016

Center for Aircraft Structural Life Extension (CAStLE), USAF Academy, Colorado

Contracted by NexOne

- Master Research Specialist, 2010-2014

Contracted by Valdez International

- Research Technician, 2006- 2010

Excalibur Machining and Sheetmetal, Colorado Springs, Colorado

- Machinist, 2006

Okeefe's Ceramics, Woodland Park, Colorado

- Machinist,2005-2006

Continuing Education

- **Certificate of Training, Hyundai-Kia & Tesla EDR Tools Technician**, Institute of Police Technology and Management, August 2025
- **Certificate of Training, Passenger Restraint Safety Systems**, Institute of Police Technology and Management, August 2025

- **Certificate of Training, Motorcycle Collision Reconstruction**, Northwestern University Center for Public Safety, January 2025
- **Certificate of Training, Commercial Vehicle Crash Investigation Level I**, Institute of Police Technology and Management, University of North Florida, February 2022
- **Certificate of Training, Traffic Control Design Specialist**, American Traffic Safety Services Association (ATSSA), July 2021
- **Certificate of Training, Traffic Signal Timing Records Interpretation and Analysis**, Traffic Signal Academy, University of Tennessee, October 2020
- **Certificate of Training, Maintenance of Traffic for Supervisors**, National Highway Institute (NHI) and the Federal Highway Administration (FHWA), March 2020
- **Certificate of Training, Basics of Work Zone Traffic Control**, National Highway Institute (NHI) and the Federal Highway Administration (FHWA), March 2020
- **Certificate of Training, Strategies for Developing Work Zone Traffic Analyses**, National Highway Institute and the Federal Highway Administration, March 2020
- **Certificate of Training, Traffic Crash Reconstruction for the Forensic Engineer**
Northwestern University Center for Public Safety, Ann Arbor, MI, March 2019
- **Certificate of Training, Human Factors in Traffic Crash Reconstruction**, Institute of Police Technology and Management (IPTM) University of North Florida, November 2017
- **Certificate of Training, Acquiring and Analyzing Data from Sensors and In-Vehicle Networks**, Society of Automotive Engineers (SAE), October 2017
- **Certificate of Training, Accessing and Interpreting Heavy Vehicle Event Data Recorders**
Society of Automotive Engineers (SAE), October 2016
- **Certificate of Training, FARO Focus 3D Scanner**
FARO Company, February 2016
- **Certificate of Training, Digital Forensics of Heavy Vehicle Event Data**
University of Tulsa, December 2015
- **Certificate of Training, Entry Level Commercial Motor Vehicle Operator**
CDL College, June 2015
- **Certificate of Training, Bosch Full CDR Technician**
Institute of Police Technology and Management (IPTM), February 2015
- **Certificate of Training, Bendix Comprehensive Air Brake Systems**
Bendix, January 2015
- **Certificate of Training, Linear Analysis with MCS Patran/Nastran**

MSC Software, December 2013

- **Instruction, B. Royall & T. Rosenberg, “Motorcycle Safety Refresh”**

Boulder Street Moto, May 2024

- **Attendance, ATSSA Traffic Expo, Accommodating Vulnerable Users in Work Zones, What Happens in the Court Room Following a Work Zone Incident, The New MUTCD: Temporary Traffic Control, You Cannot Save Lives with Bad Work Zone Data**

American Traffic Safety Services Association (ATSSA), February 2024 Attendance, Event Data Recorder Update and Analysis, Ruth Consulting, 2023

- **Attendance, ATSSA Traffic Expo, Update on the rewrite of Mash and DOT Implementation Schedules, The Future of the MUTCD, How Do I Reduce Crashes and Fatalities in Work Zones**

American Traffic Safety Services Association (ATSSA), February 2023

- **Attendance, 2018 HVE Forum, Simulation Fundamentals Part I-IV, Advanced 3D Environments Part I & II**

Engineering Dynamics Corporation (EDC), February 2018

Professional Affiliations/Honors

American Traffic Safety Services Association (ATSSA)

- Member since 2025

American Motorcycle Association (AMA)

- Member since 2009

Society of Automotive Engineers (SAE)

- Member since 2015

Boulder Street Moto Garage

Non-profit, member funded, DIY motorcycle garage

- Board of Directors, 2024-2025
- Member, 2021-2023

Project Yellow Racing

Amateur endurance and budget racing team

- Co-founder
- Builder, Mechanic, Driver, 2008-present

Publications

“Fracture Toughness and MixedMode Failure of 7079-T6 Thin Sheet Aluminum”,
Shah, S.R., Walters, M.R., Hammond, M.J., **Royall, B.A.**, Fawaz, S.A.
United States Air Force Academy, Colorado USAFA TR 2008-07

“Effects of Cold Expansion on T-38 Steel Dorsal Longeron near Fatigue Critical Location B-12”,
W. Ponzoha, M. Hammond, J. Greer, Jr., S. Shah, and **B. Royall**,
US Air Force Academy, Co (2010) USAFA-TR-2010-05

“Structural Teardown Analysis Program Report for KC-135, S/N 57-1505”,
USAFA-TR-2013-02 Volume I, II, III