

Timothy B. McClure, PhD, PE

Forensic Engineering Expertise

Civil Engineering

Dr. McClure has more than 10 years of engineering experience involved practice in various areas of Civil Engineering, Collision Analysis and Reconstruction, construction defects, and construction activity. His Civil Engineering expertise involves roadway design in horizontal and vertical alignments, planning and implementation of approaches, traffic signals, temporary traffic control, roadside safety, sight distance, maintenance of traffic, quantity estimating, and Americans with Disabilities Act (ADA) requirements. He also has experience with roadway design, including roadway grading, ADA requirements, earth balance, soil stabilization, drainage, hydrology, and storm sewer systems.

Topics:

Roadway design: horizontal and vertical alignments, approaches, traffic signals, temporary traffic control, roadside safety, sight distance, permanent traffic control, temporary traffic control, quantity estimating, ADA, earth balance, soil stabilization, drainage, and storm sewer systems.

Roadway construction: construction processes, planning, scheduling, site safety, maintenance of traffic, site grading, ADA, earthwork, soil stabilization, drainage, and storm sewer systems.

Collision Analysis/Highway Construction Incidents

Dr. McClure's experience involves work related to collision analysis and reconstruction, ranging from minor to major collisions, single vehicle and multiple vehicles, commercial vehicles, two-wheel vehicles, pedestrians, animals, and objects. His experience in highway construction incidents involve phasing, project controls, contract requirements, maintenance of traffic, applications of the Manual on Uniform Traffic Control Devices (MUTCD), and/or state adopted standards as applied to permanent and temporary traffic control conditions. His experience in highway design/defects incidents include researching the applicable design criteria associated with roadway followed by in-depth analysis of conditions of the collision location.

Topics: minor to major collisions, single vehicle, multiple vehicles, commercial vehicles, two-wheel vehicles, pedestrians, animals, and objects.

Highway construction incidents: phasing, project controls, contract requirements, maintenance of traffic, applications of the Manual on Uniform Traffic Control Devices (MUTCD) and state adopted design standards.

Qualifications & Training

- The Fundamentals of Vehicle Dynamics, SAE International, March 2024
- Advanced Collision Reconstruction with CDR Applications, Accident Analysis and Reconstructions, Inc., January 2023
- Vehicle Crash Reconstruction: Principles and Technology, SAE International, June 2022
- ATSSA: Traffic Control Supervisor, October 2021

Education

Ph.D. in Civil Engineering- Construction
Purdue University, West Lafayette, IN
December 2017

Master of Science in Civil Engineering - Construction
Purdue University, West Lafayette, IN
May 2012

Bachelor of Science in Construction Engineering and Management
Purdue University, West Lafayette, IN
August 1989

Educational Presentations

- Graduate Teaching Assistant and Lecturer in Civil Engineering
Purdue University 2011 - 2017
 - Life Cycle Engineering and Management of Constructed Facilities
 - Project Control and Life Cycle Execution of Constructed Facilities
 - Construction Practice Project – Capstone
 - Selection and Utilization of Construction Equipment
 - Analytical Methods for the Design of Construction Operations
 - Introduction to Facilities Management
 - Basic Mechanics I – Statics
- National Academy of Forensic Engineers, July 20, 2024
 - Forensic Engineering Analysis of Roadway Geometry and Traffic Control

Licenses & Certifications

PE – Professional Engineer

Licensed by the State of Alabama – Number PE54255

Licensed by the State of Colorado – Number PE.0062456

Licensed by the State of Illinois – Number 062076159

Licensed by the State of Indiana - Number PE11011322

Licensed by the State of Iowa – Number P28766

Licensed by the State of Kentucky – Number 39902

Licensed by the State of Michigan – Number 6201312131

Licensed by the State of Missouri – Number PE-2022026720

Licensed by the State of New Mexico – Number 30113

Licensed by the State of New York – Number 107875

Licensed by the State of Ohio – Number PE.89252

Licensed by the State of Oklahoma – Number 35261

Licensed by the State of South Dakota – Number 16465

Licensed by the State of Tennessee – Number 130087

Licensed by the State of Utah - Number 13232448-2202

Licensed by the State of Washington – Number 24014134

Licensed by the State of Wisconsin – Number 50016-6

Licensed by the State of Wyoming – Number PE 19646

CE – Civil Engineer

Licensed by the State of Idaho – Number P-22042

Employment History

Forensic Engineer

Nederveld, Inc.

October 2021 – Present

Duties include forensic engineering analysis relating to motor vehicle collision , highway design, temporary and permanent traffic control devices, roadway construction incidents, construction contracts and contractor responsibilities and standards of practice, ADA compliance issues, slip-trip and falls, and egress incidents, and building pathology.

Design Engineer

VS Engineering, Inc., Lafayette, IN

March 2020 – October 2021

Duties included performing stormwater runoff calculations, design drainage culverts and storm sewer, assist in preparing environmental applications, perform design review assuring design meets design criteria, estimate project pay quantities, prepare engineers estimate and report, perform constructability review, review plan set, design review, preliminary signal design.

Design Engineer

Shrewsbury, Indianapolis, IN

September 2018 – January 2020

Duties included inspecting work during construction and after completion, measure work completed and record, document all work completed and quantities placed, confirm materials met contract requirements, observe, or perform material testing, discuss pay quantities with contractor, provide assistance to field personnel, determine and propose solutions for field problems, record filed changes and discrepancies.

Independent Contractor

FM2, Dunwoody, GA

May 2018 – August 2018

Duties included human resources, production control and oversight, quality control, develop all processes, client meetings and training for the project developing a master data base of the building mechanical systems in buildings maintained by the University of Chicago.

Design Engineer

A&F Engineering, Indianapolis, IN

August 2006 – June 2010

Duties included horizontal and vertical alignment design, complete plan preparation, writing of specifications, compilations of specifications, support of field personnel questions, field data collection, review of plans, design of primary and secondary roadway projects, design of roadway approaches, design of traffic signals, and cost estimated preparation.

Design Engineer in Training

Colorado Department of Transportation, Craig, CO

February 2005 – August 2006

Duties included horizontal and vertical alignment design, complete plan preparation, writing of specifications, compilations of specifications, support of field personnel

questions, field data collection, review of plans, design of state road projects, design of traffic signals, and cost estimated preparation for state highways.

Construction Inspector/Engineer

STV Inc., Dallas, TX

September 1999 – July 2000

Duties included assemble and evaluate all test reports, inspect all work during construction and after completion, measure all work completed and record following state requirements, maintain and help file all required state paperwork, contact Architect and Engineer for plan clarification, review all shop drawings on a section of the light rail system in the Dallas Area Rapid Transit system.

Construction Inspector/Engineer

A&F Engineering, Indianapolis, IN

January 1999 – August 1999

Duties included assemble and evaluate all test reports, inspect all work during primary and secondary roadway construction and after completion, measure all work completed and record following state requirements, maintain and help file all required state paperwork, contact Architect and Engineer for plan clarification, review all shop drawings.

Construction Inspector/Engineer

Butler, Fairman, & Seufert, Indianapolis, IN

February 1998 – December 1998

Duties included assemble and evaluate all material test reports, inspect all work during construction and after completion, measure all work completed and record following state requirements, maintain and help file all required state paperwork, contact Architect and Engineer for plan clarification, review all shop drawings.

Publications

Doctoral Dissertation

McClure, T., "Layout Evaluation by Simulation Protocol for Identifying Potential Inefficiencies Created by Medical Building Configuration." PhD dissertation, Purdue University, Lyles School of Civil Engineering, ProQuest Number 10684308, December 2017

Master's Thesis

McClure, T., "Aptitude for Simulator Based Excavator Operator Training Due to Video Game Playing Experience." Master Thesis Purdue University, Lyles School of Civil Engineering, UMI Number 1535077, 2012

Conference Proceedings

McClure T., Dunston P., "Case Study for Evaluating a Healthcare Facility Layout Design with Continuing Project Lifecycle Applications", American Society of Civil Engineers, 2260-2270

McClure T., Yuan C., Cai H., Dunston, P., "Survey on the Practice Hurdles in Collecting, Managing, and sharing Transportation Infrastructure Asset Data", American Society of Civil Engineers, 1648-1657

Journal Articles

McClure T., Cai H., Yuan C., Dunston, P., "Leveraging Construction Inspection and Documentation for Asset Inventory and Life Cycle Asset Management, Journal of Information and Technology in Construction", 21, 72-85

McClure T., Yuan C., Cai H., Dunston, P., "Life-Cycle Approach to Collecting, Managing, and Sharing Transportation Infrastructure Asset Data, Journal of Construction Engineering and Management", 143 (6) 04017001

Research Reports

McClure T., Dunston P., Bobet A., "Proof Rolling of Foundation Soil and Prepared Subgrade During Construction", West Lafayette, IN: Purdue University. <https://doi.org/10.5703/1288284316571>

McClure T., Yuan C., Cai, H., Dunston P., "A Synthesis Study on Collecting, Managing, and Sharing Road Construction Asset Data", West Lafayette, IN: Purdue University, ed. FHWA/INDOT/SPR3707

Expert Witness Experience

Courtroom Testimony

October 2024

People of the State of Colorado vs James A. Martinez

Adams County, State of Colorado, 17th Judicial District, Case No. C0012024T001223

Deposition

January 2025

Jeremy Chad Carney and Carrie Carney vs Bell & Associates Construction, L.P. and McCartney Construction, Company, Inc. et al.

Circuit Court of Etowah County, Alabama, Case No. CV-2019-900913