



KITTELSON LLC

FORENSIC TRANSPORTATION ENGINEERING

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GLENN C. ROWE, P.E.

SENIOR PRINCIPAL ENGINEER | GROWE@KITTELSON.COM

Glenn Rowe is a seasoned leader in the transportation industry, with over 41 years of experience managing large organizations and holding key leadership roles in highway safety, traffic operations, and traffic engineering.

Mr. Rowe served 35 years with the Pennsylvania Department of Transportation in various capacities, leading numerous initiatives focused on highway capacity, safety, traffic operations, autonomous and connected vehicles. He played a key role in shaping statewide policies and regulations, and his proven ability to collaborate with local governments and communities has helped him effectively navigate politically sensitive issues while communicating with diverse stakeholders.

He has served on national panels for the National Cooperative Highway Research Projects (NCHRP) and as an executive board member for the American Association of State Highway and Transportation Officials (AASHTO) Subcommittee on Highway Transportation and Subcommittee on Traffic Engineering. He also chaired the Northeast Association of State Transportation Officials (NASTO) Subcommittee for Highway Transport.

In the past six years, his extensive public service experience has been crucial in leading and supporting Kittelson projects. Combining deep technical knowledge with practical experience, he effectively navigates complex challenges to ensure the successful execution of projects. Furthermore, he has leveraged his expertise in forensic engineering, offering valuable insights into the investigation and analysis of highway crashes.

FORMAL EDUCATION

- B.S., Civil Engineering, Pennsylvania State University

LICENSES

- Professional Engineer, PA

AFFILIATIONS

- American Association of State and Highway Transportation Officials
 - Subcommittee on Highway Transportation, Former Member
 - Subcommittee on Traffic Engineering, Former Member
- Northeast Association of State Transportation Officials
 - Subcommittee for Highway Transport, Former Member
- Transportation Research Board (TRB), Member
- American Society of Civil Engineers - Harrisburg Chapter ASCE
- Institute of Transportation Engineers (ITE)
- Mid-Atlantic Section of the Institute of Transportation Engineers (MASITE)

EXPERIENCE

Kittelson & Associates, Inc. (2018-Present)

Mr. Rowe joined Kittelson & Associates, Inc. as a Senior Principal Engineer, where his 35 years of PennDOT expertise has played a critical role in providing the practitioner's perspective on deliverables. Work for Kittelson is outlined below.

PennDOT SMART Intersections, PennDOT, Bureau of Planning and Research. Kittelson led the Smart Intersections project for PennDOT's Bureau of Planning & Research. This project provided a better understanding of how pedestrians and bicyclists interact with vehicles at intersections using video analytics. The study resulted in recommendations for evaluating iterative improvements to enhance pedestrian and bicycle safety at signalized intersections.

PennDOT Traffic Academy; Harrisburg, PA. Glenn contributed to the development of a comprehensive one-week training program that imparts a fundamental understanding of the roles and duties of the District Traffic Units and Highway Safety and Traffic Operations to the participants. Leveraging his in-depth knowledge of the organization, Glenn played a vital role in ensuring the success of the training, which received exceptional feedback from the attendees. Due to its resounding success, the training has now become a regular offer scheduled multiple times throughout the year.

FHWA - Approaches to Determining Appropriate Speed Limits for All Roads and Streets. This publication aims to offer practitioners new guidance on establishing speed limits, incorporating novel concepts such as Safe System, 50%, and the roadway environment and context. This approach diverges from the conventional method of primarily relying on the 85% speed limit. The guide is intended to be cited in the new MUTCD. Glenn contributed a practitioner's perspective to the process of setting speed limits and conducted quality assurance and quality control (QA/QC) on the document.

MDOT - Revising Traffic Engineering Guidance Kittelson undertook the task of updating Maryland's internal traffic engineering guidance. The team improved the internal documents to incorporate the latest practices and anticipated alterations aligned with the MUTCD. Glenn contributed his extensive national engineering experience to the project and conducted quality assurance and quality control (QA/QC) on the documents.

FHWA Work Zone Intelligent Transportation Systems (ITS) Implementation Tool; National. Kittelson spearheaded the creation of the WZITS tool technology transfer, aiming to aid agencies in identifying the most suitable smarter work zones applications and determining implementation of innovative practices to enhance safety and alleviate congestion. This software tool plays a crucial role in promoting uniform adoption of Smarter Work zones across agencies. Glenn Rowe conducted a one-day delivery session for MnDOT, AzDOT, TnDOT, and PennDOT.

National Highway Institute – Advanced Work Zone Training. Kittelson aided in the revision of the Advanced Work Zone Training Course by incorporating contemporary practices and innovations. The course incorporated various techniques to ensure an interactive learning experience. Glenn contributed a practitioner's perspective to the course development and will be leading the pilot training session in late 2023 or early 2024.

PennDOT Strategic Highway Safety Plan (SHSP). Kittelson led the update of Pennsylvania's SHSP to maintain and build on the momentum achieved by previous editions of the SHSP. The SHSP serves as a blueprint to reduce fatalities and serious injuries on Pennsylvania roadways and targets Priority Emphasis Areas and Safety Focus Areas that have the most influence on improving highway safety throughout the state.

Publication 638 District Highway Safety Program Guide Update. Kittelson updated this traffic engineering guideline, adding the creation of a Force Account program that enables PennDOT to purchase safety-related materials, such as signs for local agencies, with HSIP funds. A second, ongoing update is revising the guideline for consistency with the Build Back Better Act (Bipartisan Infrastructure Law).

HSIP Implementation Plan. Kittelson performed a before/after crash analysis of locations where HSIP-funded improvements were implemented to determine their effectiveness. Including prior iterations of the HSIP Implementation Plan, over 2500 sites were analyzed. The analysis enabled Kittelson to determine which improvement types are and are not effective at reducing crashes in Pennsylvania, and PennDOT modified the list of HSIP-eligible improvements based on these findings.

PennDOT Traffic Calming Chapter for the DM2; Statewide, PA. Glenn provided support for the writing of PennDOT's "Design Manual 2", Chapter 18 Traffic Calming. The Chapter intends to replace the Traffic Calming Handbook (Publication 383). This assignment required extensive outreach with several local municipal organizations and municipalities including the City of Pittsburgh, Philadelphia, Lancaster, and Harrisburg.

Pennsylvania Department of Transportation (1984 to 2018)

For 35 years Mr. Rowe worked at PennDOT in progressively responsible roles. His experience at PennDOT includes filling the following roles and responsibilities:

Director – Highway Safety and Traffic Operation (2014 to 2018)

Managed an annual budget of \$246 million and directed four divisions with a staff of over 87. Responsibilities included overseeing highway safety programs for both the Federal Highway Administration's Highway Safety Improvement Program and the National Highway Traffic Safety Administration. Also managed statewide traffic operations center programs and staff to ensure efficient and safe traffic flow. Supervised autonomous and connected vehicle programs, driving innovation in transportation technology. Oversaw assets related to all traffic control devices, including signals, signs, pavement markings, and intelligent transportation system (ITS) devices. Directed special hauling permits and access permit programs, ensuring compliance with regulatory standards and operational efficiency.

Chief – Traffic Engineering and Permits (2011 to 2018)

Directed a team of 31 staff members and managed key programs, including work zones, pavement markings, signing, and the Highway Occupancy Permit (HOP) and hauling permit programs. Successfully developed and implemented the E-Permitting System in just six months, a nationally recognized best practice that resulted in multimillion-dollar savings by significantly reducing permit issuance time. Oversaw the manufacturing of over 70,000 signs annually and processed more than 1,200 Superload Permits each year. Initiated the NextGen program to analyze and optimize the HOP and special hauling permits process, improving organizational efficiencies. Provided national and regional leadership in harmonizing oversized and overweight vehicle requirements, contributing to greater consistency and safety across jurisdictions.

Division Chief – Transportation Operations (2009 to 2011)

Directed a staff of 10 and managed several critical programs, including signals, congestion management, highway occupancy permits, and hauling permits. Collaborated with the Pennsylvania Emergency Management Agency to oversee emergency operations activities, ensuring the Emergency Transportation Operations Program had adequate staff and training. Initiated a congestion management program and developed performance metrics to monitor and improve traffic flow. Created regulations for the Automated Red-Light Enforcement Program and implemented a program that resulted in \$8.4 million in grants for municipalities to support safety improvement projects. Reorganized the Special Hauling Permits Section by adding a management position to enhance efficiency. Generated cost savings by reducing the frequency of painting low-volume roads, optimizing resources for better overall management.

Acting Director – Bureau of Highway Safety and Traffic Engineering (2008 to 2009)

Directed a staff of 84 while managing key divisions, including Traffic Engineering, Crash, Safety, Highway Occupancy Permits (HOP), and Intelligent Transportation Systems (ITS). The Bureau was reorganized to have the Crash Division report to the Safety Division, fostering a more cohesive structure and improving performance. Performance metrics for the Crash Division were developed to track productivity, with coaching provided to low performers to increase the number of crash reports processed daily. In the HOP process, improvements were made based on customer feedback gathered through a survey, which identified program strengths and weaknesses. A plan was developed to address these gaps, ensuring a more efficient and responsive program moving forward.

Division Chief – Traffic Engineering (2005 to 2008)

Directed a staff of 17 and managed the Sign, Pavement Markings, and Work Zone Programs. Promulgated new regulations for Traffic Engineering (PA Code, Chapter 212 Traffic Engineering), which included sections that were controversial due to the increased responsibility placed on local municipalities to maintain stop signs on local road approaches to state roads. Extensive discussions were held with municipal organizations to approve these new requirements. Volunteered to take over the Highway Occupancy Permit (HOP) Program, which had only one administrative assistant managing the section. The section was quickly reorganized to provide the necessary program support, and the program ultimately became a department "jewel," winning national awards and earning recognition, with staff members invited to the Governor's mansion for a recognition lunch.

District 8-0 Traffic Engineer (1998 to 20005)

At PennDOT District 8, directed a staff of 34 and managed the signals, signs, safety, pavement markings, and ITS programs. As the District Traffic Engineer, the unit faced an 85% turnover in personnel due to retirements and promotions, alongside challenges in workload and productivity from inexperienced staff. In response, a career development program was created to evaluate skill sets and identify training needs for every position, which was recognized as a best practice in the District. Developed the first "quick clearance" program by creating a position responsible for reporting to major incidents on the Capital Beltway, ensuring responders were aware of traffic delays and the potential for secondary crashes. This initiative resulted in a 300:1 payback from economic savings in delay, time, and fuel, and led to the establishment of service patrols. Additionally, developed the state's first "poor man's" ITS system by permanently placing portable message signs obtained from construction projects at critical locations on the Capital Beltway. Established the first Customer Advisory Board for the Traffic Unit, improving communication through a HOP newsletter and workshops, and implemented cost savings through car reassignments, mandatory use of pool cars, and reduced aerial speed enforcement markings.

Traffic Engineer II
PennDOT District 8

- Held various positions in the District Traffic Unit including Safety Engineer, ITS Engineer, and Signals Engineer

National Cooperative Highway Research Program (NCHRP)

NCHRP 20-102(15) Impacts of Connected and Automated Vehicle Technologies on the Highway Infrastructure (Panel Chair) 2016

Connected vehicle (CV) and automated vehicle (AV) technologies are being developed to enhance road safety, improve traffic system performance, and reduce emissions by enabling wireless communication between vehicles (V2V), infrastructure (V2I), and personal devices (V2X). While CV technologies aim to reduce crashes and optimize traffic flow, AV technologies, including Level 4 and Level 5 automation, promise to transform road networks by allowing vehicles to operate autonomously without driver intervention. These technologies, though distinct, may converge or develop separately, with potential synergies. This research project explores both CV and AV technologies, addressing their individual and combined impacts on transportation systems.

NCHRP 5-21 Safety and Performance Criteria for Retroreflective Pavement Markers (Panel) 2015

This research aimed to evaluate the effectiveness of Raised Retroreflective Pavement Markers (RRPMs) in improving driver visibility and safety, particularly under wet nighttime conditions. The study addressed the lack of national guidelines on RRPM use and performance by conducting closed-course experiments, reviewing naturalistic driving data, and analyzing existing safety literature. The research covered various roadway types, curves, and RRPM treatments, as well as their impact on older drivers. Findings included evaluations of RRPM retroreflectivity, driver behavior through curves, and visibility models to assess performance. Additionally, the study analyzed the impact of RRPMs on speed and lane positioning, providing valuable insights for creating guidelines on RRPM installation and effectiveness.

NCHRP 581 Design of Construction Work Zones on High-Speed Highways (assist panelists) 2007

This research focuses on improving the design and safety of construction work zones on high-speed highways, which are increasingly common due to aging infrastructure and growing traffic. The study emphasizes that while temporary traffic control is crucial, it alone cannot address all the challenges of work zone safety and efficiency. The research highlights gaps in current work zone design practices and provides two key products: Design Decision Guidance and a Work Zone Speed Prediction Model. The design guidance offers new insights for planning and implementing work zones, considering factors such as speed, sight distance, and roadway design, while the speed prediction model helps mitigate speed-related safety risks. The research is aimed at improving policies and practices for transportation agencies, ensuring safer and more effective work zones.

Forensic Transportation Expert

Glenn has conducted multiple engineering analyses of highway crashes and has provided trial testimony, and deposition testimony as part of clients' motions before the court. Clients have included the Pennsylvania Attorney General's Office, Pennsylvania Turnpike Commission, Ohio Turnpike, and numerous private law firms

Barna-Blum vs Pennsylvania Turnpike Commission (PTC) - guiderail design
Bear Creek Township, Luzerne County, Pennsylvania Client: Pennsylvania Turnpike Commission

Buck vs Ursinus College - Pedestrian crossing at a college
Collegeville Borough, Pennsylvania Client: Pennsylvania Attorney General

Crocker vs U-Haul – Highway design pavement markings
Richland County, SC Client: Alston and Bird LLC representing U-Haul

Huntington v Ohio turnpike Commission – Oversized load hit bridge
Interstate 90 Sandusky Township, Sandusky County Client: Ohio turnpike Commission

Lobb v PennDOT – Driveway design
PA 113 East Caln, Pennsylvania Client: Pennsylvania Attorney General

Guidemark v OSHA – Temporary traffic control for line painting
Luzerne County, SR 81 Section 348 project Client: Guidemark

Jackson v PennDOT – Traffic signal design City of Philadelphia
City of Philadelphia Roosevelt Ave and Adams Street Client: Pennsylvania Attorney General

Zim v Pennoni - Traffic Signal Design City of Wilks-Barre
Wilkes-Barre Boulevard and Conyngham Avenue in Wilkes-Barre, Pennsylvania
Client: Margolis Edelstein representing Pennoni

Shupp v Pennsylvania Turnpike Commission – Temporary traffic control slow moving operation
Elizabeth Township, Lancaster County Client: Pennsylvania Turnpike Commission

Harris Williams v PennDOT – Pedestrian School Zone Traffic Control Device
Highland Avenue and Canterbury Road in Abington Township, Montgomery County
Client: Pennsylvania Attorney General

Wilson v PennDOT – Temporary traffic signal
Wilkes-Barre Boulevard and Pa 309 Ramp, Wilkes-Barre, Pennsylvania
Client: Pennsylvania Attorney General

Garcia v Geiger – Intersection design and billboard
Cedar Glen West, New Jersey
Client: Hobbie Corrigan & DeCarlo PC