KITTELSON LLC
FORENSIC TRANSPORTATION ENGINEERING

GERALD L. ULLMAN, PH.D, P.E.

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EXPERT NOT RETAINED

AREAS OF EXPERTISE

Work Zone Traffic Control
Work Zone Intelligent Transportation Systems (Smart Work Zones)
Traffic Engineering
Transportation Safety and Operations

EDUCATION

Ph.D.	Civil Engineering, Texas A&M University	1995
M.S.	Civil Engineering, University of Nebraska	1984
B.S.	Civil Engineering, University of Nebraska	1983

PROFESSIONAL LICENSES

Registered Professional Engineer, Texas License No. 66876

EXPERIENCE

November 2023-present	Senior Principal Engineer, Kittelson LLC
May 2007 – October 2023	Senior Research Engineer, Texas A&M Transportation Institute
September 2002 – May 2007	Research Engineer, Texas Transportation Institute
September 1995 – October 2022	Program Manager, Texas Transportation Institute
January 1995 to September 2002	Associate Research Engineer, Texas Transportation Institute
April 1990 to January 1995	Assistant Research Engineer, Texas Transportation Institute
June 1985 to April 1990	Engineering Research Associate, Texas Transportation Institute

PROFESSIONAL SERVICE

Member, Temporary Traffic Control Technical Committee, National Committee on Uniform Traffic Control Devices (2008-present)
Member, Innovation Council, American Traffic Safety Services Association (2018-2023)
Member, TRB Committee AKR10, Maintenance and Operations Management (2020-2025)
Member, TRB Committee AHD15, Maintenance and Operations Personnel (2018-2021)
Subgroup Member, *ANSI/ASSE A10.47 Work Zone Safety for Highway Construction*, *American National Standard for Construction and Demolition Operations*, 2009 and 2021 Updates
Chair, TRB Committee AHB55, Work Zone Traffic Control (2007-2013); Member (2000-2013)
University Representative, Transportation Research Board (TRB) (1995- 2023)

Panel Member, NCHRP Project 39-02, Improving the Safety of Moving Lane Closures (2008-2009)
Member, TRB Committee AHB50, Traffic Control Devices (1991- 1997, 2001-2004)
Member, Institute of Transportation Engineers (ITE) (International, Texas District, and Brazos Valley Section)
Member, ITE Technical Committee 4A-25, Speed Zone Guidelines (1988 - 1993)
Member, ITE Technical Committee 4S-6, School Speed Zone Limits (1994 - 2000)
Member, ITE Technical Committee 97-12, Survey of Speed Zoning Practices (1998- 2001)

AWARDS

TTI Charley V. Wootan Career Achievement for Research Award, 2018
TTI/Trinity Herbert H. Richardson Team Award, 2016
TTI/Trinity Herbert H. Richardson Team Award, 2015
Best Paper Award, TRB Work Zone Traffic Control Committee, 2014
TAMU Regents Fellow Award, 2012
TTI/Trinity Senior Researcher Award, 2008
Best Paper Award, TRB Work Zone Traffic Control Committee, 2007
TTI/Trinity Herbert H. Richardson Team Award, 2005
TTI/Trinity Researcher Award, December 1999
Best Paper Award, TRB Traffic Control Devices Committee, 1995
Fred Burgraff Award, Transportation Research Board, 1994

SELECTED REFEREED JOURNAL ARTICLES (career total =53)

G.L. Ullman, L.L. Higgins, S.T. Chrysler, T.S. Geiselbrecht, C.L. Simek, G. Stoeltje, D. Wolfe, and G. Benson. Driver Understanding and Secondary Trask Performance While Viewing Traffic Safety Messages on Dynamic Message Signs. In *Transportation Research Record: Journal of the Transportation Research Board, Vol.2677, Issue 9*. Transportation Research Board of the National Academies, Washington, DC, 2023, pp. 164-174.

G.L. Ullman. Assessment of Driver Distraction at Work Zones with Portable Rumble Strip Deployments in Texas. In *Transportation Research Record, Volume 2677, Issue 3*. Transportation Research Board of the National Academies, Washington, DC, 2023, pp. 1080-1084.

G. Ullman, V, Iragavarapu, and R. Brydia. Safety Effects of Portable End-of-Queue Warning System Deployments at Texas Work Zones. In *Transportation Research Record: Journal of the Transportation Research Board No. 2555*. Transportation Research Board of the National Academies, Washington, DC, 2016, pp. 46-52.

L. Theiss, G.F. Gillette, and G.L. Ullman. Improved Business Driveway Channelizing Treatments in Work Zones. In *Transportation Research Record: Journal of the Transportation Research Board No. 2485*. Transportation Research Board of the National Academies, Washington, DC, 2015, pp. 78-84.

G.L. Ullman and V. Iragavarapu. Analysis of Expected Crash Reduction Benefits and Costs of Truck-Mounted Attenuator Use in Work Zones. In *Transportation Research Record: Journal of the Transportation Research Board No. 2458*. Transportation Research Board of the National Academies, Washington, DC, 2014, pp. 74-77.

G.L. Ullman and M.A. Brewer. Driver Perceptions of Traffic-Calming Versus Active Enforcement Efforts in Work Zones. In *Transportation Research Record: Journal of the Transportation Research*

EXHIBIT NOT RETAINED

Board No. 2425. Transportation Research Board of the National Academies, Washington, DC, 2014, pp. 25-31.

G.L. Ullman, M.D. Finley, and L. Theiss. Categorization of Work Zone Intrusion Crashes. In *Transportation Research Record: Journal of the Transportation Research Board No. 2258*. Transportation Research Board of the National Academies, Washington, DC, 2011, pp. 57-63.

L. Theiss, M.D. Finley, and G.L. Ullman. Merging Taper Lengths for Short Duration Lane Closures. In *Transportation Research Record: Journal of the Transportation Research Board No. 2258*. Transportation Research Board of the National Academies, Washington, DC, 2011, pp. 64-70.

B.R. Ullman and G.L. Ullman. Evaluating Innovative Ideas in Pedestrian Signing for Temporary Traffic Control. In *Transportation Research Record: Journal of the Transportation Research Board No. 2149*. Transportation Research Board of the National Academies, Washington, DC, 2010, pp. 21-29.

M.D. Finley, G.L. Ullman, and A.A. Nelson. Path Guidance Information in Advance of Work Zones at Urban Freeway Interchanges. In *Transportation Research Record: Journal of the Transportation Research Board No. 2122*. Transportation Research Board of the National Academies, Washington, DC, 2009, pp. 45-51.

G.L. Ullman and E.R. Rose. Evaluation of Dynamic Speed Display Signs (DSDS). In *Transportation Research Record: Journal of the Transportation Research Board No. 1918*. Transportation Research Board of the National Academies, Washington, DC, 2005, pp. 92-97.

S.D. Schrock and G.L. Ullman. Spacing of Law Enforcement Pullout Areas in Highway Work Zones. In *Transportation Research Record: Journal of the Transportation Research Board No. 1824*. TRB, National Research Council, Washington, DC, 2003, pp. 37-43.

G.L. Ullman. Special Flashing Warning Lights for Construction, Maintenance, and Service Vehicles: Are Yellow Beacons Always Enough? In *Transportation Research Record: Journal of the Transportation Research Board No. 1715*. TRB, National Research Council, Washington, DC, 2000, pp. 43-50.

G.L. Ullman, P.J. Carlson, and N.D. Trout. Effect of the Work Zone Double-Fine Law in Texas. In *Transportation Research Record: Journal of the Transportation Research Board No. 1715*. TRB, National Research Council, Washington, DC, 2000, pp. 24-29.

G.L. Ullman and M.A. Odgen. An Analysis of Major Freeway Incidents in Houston, Texas. In *Transportation Research Record 1554.* TRB, National Research Council, Washington, DC, 1996, pp. 221-227.

G.L. Ullman. Motorist Interpretation of MUTCD Freeway Lane Control Signals. *Transportation Research Record 1403.* TRB, National Research Council, Washington, DC, 1993, pp. 49-56.

OTHER SELECTED ARTICLES AND CONFERENCE PROCEEDINGS

G. Ullman and S. Chrysler. How Safe are Safety Messages? In *Science*, Vol. 376, Issue 6591, April 21, 2022, pp. 347-348. https://www.science.org/doi/10.1126/science.abq1757

G. Ullman. National Work Zone Safety Information Clearinghouse Update. In *Transportation Builder*, American Road and Transportation Builders Association, Vol. 32, Issue 3, May/June 2020, pg. 16.

G. Ullman, D. Alberson, and K. Groeneweg. Shadow Stretching. In *Safety Today 2016*, Safety supplement to Roads and Bridges magazine, June 2016, pp. 12-15. Accessible at http://mydigimag.rrd.com/publication/?i=308316#{"issue_id":308316,"page":12}

EXPERT NOT RETAINED

G.L. Ullman, M.D. Finley, and B.R. Ullman. Working the Night Shift. In *Safety 2006*, Vol. 1, No. 6, June 2006. Accessible at http://roadsbridges.com/Working-The-Night-Shift-article7073

G.L. Ullman. What's Flashing Before Your Eyes? *Roads & Bridges*, Vol. 38, No. 7, July 2000, pp. 46-49.

G.L. Ullman and C.L. Dudek. Legibility Distance of Light-Emitting Diode (LED) Variable Message Signs. *CD-ROM Proceedings,* 6th World Congress on Intelligent Transport Systems, Toronto, Ontario, Canada, November 8-12, 1999.

G.L. Ullman, K.N. Balke, W.R. McCasland, and C.L. Dudek. Benefits of Real-Time Travel Time Information in Houston. *Compendium*, ITS America, Houston, Texas, April 1996, pp. 189-197.

G. L. Ullman and N. D. Trout. Traffic Management for Major Emergencies. *Compendium of Technical Papers*, 64th Annual Meeting of the Institute of Transportation Engineers, Dallas, Texas, October 16-19, 1994. pp. 293-297.

CONTRIBUTIONS TO BOOKS

K. Fitzpatrick and G.L. Ullman. Traffic Regulation and Control. Chapter 17, *Traffic Engineering Handbook.* Institute of Transportation Engineers, Washington, DC. 2009.

K. Fitzpatrick and G.L. Ullman. Traffic Regulation and Control. Chapter 8, *Traffic Engineering Handbook*, Institute of Transportation Engineers, Washington, D.C., 1999.

SELECTED PRESENTATIONS (career total = 125)

"Reducing Liability Risks in Temporary Traffic Control." Presented at the 2025 Virtual National Work Zone Management Conference. Presented October 8, 2025.

"Displaying Good Traffic Safety Messages on Variable Message Signs." Webinar sponsored by the Transportation Research Board of the National Academies of Science, Engineering, and Medicine, Washington, DC, September 9, 2025.

"Development of Guidelines for Vehicle and Equipment Marking and Lighting." Presented at the AASHTO Equipment Fleet Management Conference, Loveland, CO, August 21, 2024.

"Reducing Work Zone Crashes Involving Commercial Motor Vehicles (CMVs), Rear-End Collisions, and Distracted Driving." Presented at the American Traffic Safety Services Association Mid-Year Meeting, Rosemont, IL, August 16,2023.

"The MUTCD and Temporary Traffic Control." Presented at the TexITE Spring Meeting, Lubbock, TX, April 14, 2023.

"Improving the Use and Effectiveness of Smart Work Zone Deployments." Presented at the TxDOT Construction, Materials, and Alternate Delivery Conference, Dallas-Fort Worth International Airport, TX, March 22, 2023.

"Syntheses of Research Related to the Use and Implementation of Advanced Technology to Improve Work Zone Management." Presented at the Virtual National Work Zone Traffic Management and Safety Conference, October 12, 2022.

CLIENT NOT RETAINED

"Advanced Technologies to Improve Work Zone Safety." Presented at the 65th Annual Alabama Transportation Conference, Montgomery, AL, February 9, 2022.

"Work Zone Safety: Challenges and Opportunities for Improvement." Presented at the Association for the Maintenance and Operations of Transportation Infrastructure Assets (AMOTIA) 12th Annual Conference, Tampa, FL, December 1, 2021.

"Syntheses of Research Related to the Use and Implementation of Advanced Technology to Improve Work Zone Management." Virtual presentation at the National Work Zone Traffic Management and Safety Mini-Conference. Presented September 17, 2020.

"Building and Testing an I-35 Connected Work Zone." Virtual presentation at the TTI Traffic Safety Conference. Presented June 12, 2020.

"Navigating the Work Zone Safely and Successfully." Webinar sponsored by the National Safety Council, Itasca, IL. Presented April 21, 2020.

"What are Smart Work Zones?" Presented at the 2019 TxDOT/Texas AGC Executive Safety Conference, Austin, TX, August 21, 2019, and at the TxDOT/Texas AGC Regional Safety Summit, Lake Worth, TX, October 10, 2019.

"Work Zone Traffic Management: What Does the Future Hold?" Presented at the Arkansas Transportation Research Conference, Little Rock, AR, August 15, 2019.

"Work Zone Traffic Management: What Does the Future Hold?" Presented at the Kansas Department of Transportation Safety Conference, Wichita, KS, April 3, 2019.

"Improving Large Truck Safety in Work Zones." Presented at the 2018 National Work Zone Management Conference, Herndon, VA, September 12, 2018.

"Accommodating Pedestrians in Work Zones: A Field Guide." Webinar sponsored by the ARTBA Work Zone Safety Consortium through the FHWA Work Zone Safety Grant Program, September 5, 2018.

"Improving Large Truck Safety in Work Zones." Presented at the Joint Meeting of the Texas and Western Districts of the Institute of Transportation Engineers, Keystone, CO, June 27, 2018.

"How Connected and Autonomous Vehicles May Impact Work Zone Safety and Traffic Flow." Presented at the 96th Annual Meeting of the Transportation, Research Board, Washington, DC, January 9, 2017.

"Automated and Connected Vehicles in Work Zones." Presented at the National Work Zone Management Conference, Springfield, VA, September 20, 2016.

"Obtaining and Maintaining Crashworthy Work Zone Traffic Control Devices: Technical Advice for Office and Field Personnel." Presented at the National Work Zone Management Conference, Springfield, VA, September 21, 2016.

"Implementing Work Zone ITS Applications – Procurement." Webinar sponsored by the Federal Highway Administration, USDOT, Washington, DC, May 11, 2016.

"Smarter Work Zones Technology Showcase – Queue Warning Systems." Webinar sponsored by the Federal Highway Administration, USDOT, Washington, DC, October 26, 2015.

"Smarter Work Zones and the Work Zone ITS Implementation Guide." Webinar sponsored by the Federal Highway Administration, USDOT, Washington, DC, September 29, 2015.

"Guidance for Conducting Effective Work Zone Process Reviews." Webinar sponsored by the Federal Highway Administration, USDOT, Washington, DC, April 21, 2015.

EXPERT NOT RETAINED

"Work Zone Intrusions: Defining the Problem." Presented at the Work Zone Safety Conference, World of Asphalt, Baltimore, MD, March 16, 2015.

"Work Zone Clear Zones, Buffer Spaces, and Positive Protection Deflection Distances." Presented at the Work Zone Safety Conference, World of Asphalt, Baltimore, MD, March 16, 2015.

"Work Zone Intrusions: Defining the Problem." Presented at the ARTBA Preventing Runovers and Backovers Conference, Las Vegas, NV, March 5, 2014.

"Work Zone Traffic Control and Safety." Presented to the Ashghal (Public Works Authority), Doha, Qatar. February 28-March 1 and March 2-3, 2010.

"VMS – Technology and Messages (Human Factors)." Presented at the International Bridge, Tunnel, and Turnpike Authority Fall Maintenance Conference, Newport, RI, October 23, 2006.

"Work Zone Traffic Control and Safety in the United States: 40 Years of Research and Development." Presented at the Beijing University of Technology, Beijing, China, and Chang'an University, Xi'an, China, June 2005.

"Calculating Available Viewing Times for Changeable Message Signs (CMS)." Presented at the 17th Biennial Symposium on Visibility and Traffic Control Devices, Transportation Research Board, Washington, DC, April 4, 2005.

SELECTED TECHNICAL REPORTS (Career Total = 157)

G. Ullman, L. Higgins, S. Chrysler, B. Kutela, J. Muttart, and S. Gernhard-Macha. *Guidelines for Vehicle and Equipment Marking and Lighting*. NCHRP Report 1085. TRB of the National Academies, Washington (forthcoming).

G. Ullman, K. Peach, K. Kersavage, J. Schroeder, N. Urena Serulle. *Identification of National Work Zone Safety Objectives and Activities: Summary Report*. Report No. FHWA-HOP-22-059. FHWA, U.S Department of Transportation, Washington, DC, March 2023.

L. Theiss and G.L. Ullman. *Reducing Risks to Worker Safety in Work Zones Due to Distracted Drivers*. NCHRP Report 1037. TRB of the National Academies, Washington, DC, 2023.

L. Theiss, G.L. Ullman, and J. Jackels. *Safe and Effective Temporary Traffic Control for Mobile Operations on Two-Lane Roadways*. NCHRP Web-Only Document 354. TRB of the National Academies, Washington, DC, November 2022.

G. L. Ullman, L. L. Higgins, S.T. Chrysler, T.S. Geiselbrecht, C.L. Simek, G. Stoeltje, D. Wolfe and G. Benson. *Behavioral Traffic Safety Messaging on Variable Message Signs*. BTSCRP Research Report 3. TRB of the National Academies, Washington, DC, 2022.

L. Theiss, L. Higgins, and G.L. Ullman. *Studies to Improve Temporary Guide Signs in Work Zones*. Report No. FHWA/TX-21/0-7046-R1. Texas A&M Transportation Institute, College Station, TX, October 2021.

G.L. Ullman and E. Rista. *Studies to Develop Guidelines for Work Zone Barrier Use on Freeways*. Report No. FHWA/TX-21/0-7020-R1. Texas A&M Transportation Institute, College Station, TX, September 2021.

L. Theiss and G.L. Ullman. *Very Short Duration Work Zone Safety for Maintenance and Other Activities*. NCHRP Synthesis 533. Transportation Research Board of the National Academies, Washington, DC. 2019.

EXPERT NOT RETAINED

G.L. Ullman, M. Pratt, M.D. Fontaine, R.J. Porter, and J. Medina. *Estimating the Safety Effects of Work Zone Characteristics and Countermeasures: A Guidebook*. NCHRP Report 869. Transportation Research Board of the National Academies, Washington, DC, 2018.

G.L. Ullman, M. Pratt, S. Geedipally, B. Dadashova, R.J. Porter, J. Medina, and M.D. Fontaine. *Analysis of Work Zone Crash Characteristics and Countermeasures*. Web-Only Document 240. Transportation Research Board of the National Academies, Washington, DC, June 2017.

G. Ullman and J. Schroeder. *Transportation Management Plan Effectiveness Framework and Pilot*. Report No. FHWA-HOP-16-062. FHWA, U.S. Department of Transportation, Washington, DC. June 2016.

G. Ullman and J. Schroeder. *Guidance for Conducting Effective Work Zone Process Reviews*. Report No. FHWA-HOP-15-013. FHWA, U.S. Department of Transportation, Washington, DC. April 2015.

L. Theiss, S.A. Swindell, G.F. Gillette, G.L. Ullman. *Improved Business Driveway Delineation in Urban Work Zones*. Technical Report. 0-6781-1. Project No. 0-6781. Texas A&M Transportation Institute, College Station, TX. April 2015.

L. Theiss, G.L. Ullman. *Longitudinal Channelizing Devices along Business Entrances in Work Zones*. 600261-1. Florida Department of Transportation. March 2015.

G.L. Ullman and V. Iragavarapu. *Work Zone Positive Protection Guidelines for Idaho.* Report No. FHWA-ID-15-228. Idaho Department of Transportation, Boise, ID. December 2014.

G. Ullman, J. Schroeder, and D. Gopalakrishna. *Use of Technology and Data for Effective Work Zone Management: Work Zone ITS Implementation Guide*. Report No. FHWA-HOP-14-008. FHWA, U.S. Department of Transportation, Washington, DC. January 2014.

G. Ullman and J. Schroeder. *Mitigating Work Zone Safety and Mobility Challenges through Intelligent Transportation Systems: Case Studies*. Report No. FHWA-HOP-14-007. FHWA, U.S. Department of Transportation, Washington, DC. January 2014.

G.L. Ullman, T.J. Lomax, and T. Scriba. *A Primer on Work Zone Safety and Mobility Performance Measurement.* Report No. FHWA-HOP-11-033. FHWA, U.S. Department of Transportation, Washington, DC. September 2011.

Best Practices in Work Zone Assessment, Data Collection, and Performance Evaluation. Scan Team Report, NCHRP 20-68A Scan 08-04. Transportation Research Board of the National Academies, Washington, DC. March 2011.

G.L. Ullman, M.A. Brewer, J.E. Bryden, M.O. Corkran, C.W. Hubbs, A.K. Chandra, and K.L. Jeannotte. *Traffic Law Enforcement Strategies for Work Zones*. NCHRP Report 746. Transportation Research Board of the National Academies, Washington, DC. 2013.

G.L. Ullman, M.D. Finley, J.E. Bryden, R. Srinivasan, and F.M. Council. *Traffic Safety Evaluation of Nighttime and Daytime Work Zones*. NCHRP Report 627. TRB, National Research Council, Washington, DC, 2008.

G.L. Ullman, M.D. Finley, A.M. Pike, K.K. Knapp, P. Songchitruksa, and A.A. Williams. *Studies to Improve Temporary Traffic Control at Urban Freeway Interchanges and Pavement Marking Material Selection in Work Zones.* Report No. FHWA-TX-08/0-5238-2. Texas Transportation Institute, College Station, TX, March 2008.

EXPERT NOT RETAINED

Mahoney, K.M., Porter, R.J., Taylor, D.R., Kulakowski, B.T. and Ullman, G.L. *Design of Construction Work Zones on High Speed Highways*. NCHRP Report 581. TRB, National Research Council, Washington, DC, 2007.

G.L. Ullman and S.D. Schrock. *Improving Traffic Control Effectiveness in Complex Work Zones. Research* Report FHWA/TX-03/4021-2. Texas Transportation Institute, College Station, TX, October 2002.

G. Ullman, J. Ragsdale, and N. Chaudhary. *Highway Construction, Maintenance, and Service Equipment Warning Lights and Pavement Data Collection System Safety.* Report No. TX-99/3972-1. Texas Transportation Institute, College Station, TX, September 1998.

J.D. Carvell, K. Balke, J. Ullman, K. Fitzpatrick, L. Nowlin, and C. Brehmer. *Freeway Management Handbook.* Publication No. FHWA-SA-97-064. Federal Highway Administration, U.S. Department of Transportation, Washington, DC, August 1997.

G.L. Ullman and R.A. Krammes. *Accident Analysis of Long-Term Construction Projects in Texas*. Research Report FWHA/TX-90/1108-2. Texas Transportation Institute, College Station, TX, Revised June 1991.

SHORT COURSES TAUGHT

Work Zone Traffic Analysis Applications and Decision Framework. National Highway Institute, U.S. Department of Transportation. Washington, DC, July 17-18,2024.

Advanced Work Zone Management and Design (Updated Course Pilot). National Highway Institute, U.S. Department of Transportation. King of Prussia, PA. March 4-8, 2024.

Training for Arterial Street DMS. TTI Training developed for the City of Seattle, WA. May 3-4, 2010.

Advanced Work Zone Management and Design. National Highway Institute, U.S. Department of Transportation. Distance Learning to North Dakota, Wyoming, and Montana, April 2008; Allentown, PA, May 2008; Newington, Connecticut, April 2009. West Greenwich, Rhode Island, June 2009.

DMS Message Design Workshop. Texas Department of Transportation. Austin, TX, May 2007; Fort Worth, TX, November 2007; Odessa, TX, December 2007; Houston, TX, January 2008; Corpus Christi, TX, February 2008; Tyler, TX, May 2008; Austin, TX, July 2008; El Paso, TX, July 2008.

VMS Message Design Training. Developed for the New Jersey Department of Transportation, Woodbridge, NJ, October 16-17, 2007.

Freeway Traffic Management. TRICOM, Texas Department of Transportation. El Paso, TX, June 2003.

Freeway Traffic Operations. National Highway Institute, U.S. Department of Transportation. Washington, D.C., May 1996; Chicago, IL, July 1997; Sacramento, CA, September 1997; Miami, FL, April 1999; Santa Fe, NM, September 1999; Honolulu, HA, October 1999; Reno, NV, April 2000; Columbus, OH, September 2000; Baton Rouge, LA, October 2000; Peoria, IL, April 2001; Nashville, TN, May 2001; Columbia, SC, June 2001.

Transportation Management for Major Emergencies. Texas Engineering Extension Service. College Station, Texas, June 1994; Houston, Texas, May 1995.

Traffic Management. Texas Engineering Extension Service. Houston, Texas, February 1994.

Highway Capacity Manual. Texas Engineering Extension Service. Austin, Texas, August 1991 and June 1990.

EXPERT NOT RETAINED

Traffic Engineering Characteristics. Texas Engineering Extension Service. College Station, Texas, October 1989.

EXPERT NOT RETAINED