



Publications

2018

Bastos, J.C., A. Alvarez Reyes, M.S. Dersch, J.R. Edwards and C.P.L. Barkan. 2018. Laboratory Characterization of Structural Capacity of North American Heavy Haul Concrete Crossties. In: *Proceedings of Transportation Research Board 97th Annual Conference*, Washington, D.C, 2018.

Li, W., G.S. Roscoe, Z. Zhang, M.R. Saat and C.P.L. Barkan. 2018. Comparison of Loaded and Empty Unit Train Derailment Characteristics. In: *Proceedings of Transportation Research Board 97th Annual Conference*, Washington, D.C, January 2018.

Lima, A. de O., M.S. Dersch, E. Tutumluer, J.R. Edwards and Y. Qian. 2018. Support Condition and Traffic Loading Patterns Influencing Laboratory Determination of Under Ballast Mat Bedding Modulus and Insertion Loss. In: *Proceedings of Transportation Research Board 97th Annual Conference*, Washington, D.C, January 2018.

Lin, C-Y., M.R. Saat and C.P.L. Barkan. 2018. Major Factors Affecting Passenger Train Accident Occurrence and Severity in the United States: 1996 – 2015. In: *Proceedings of Transportation Research Board 97th Annual Conference*, Washington, D.C, 2018.

Quiros Orozco, R.J., J.R. Edwards, Y. Qian and M.S. Dersch. 2018. Quantification of Loading Environment and Flexural Demand of Prestressed Concrete Crossties under Shared Corridor Operating Conditions. In: *Proceedings of Transportation Research Board 97th Annual Conference*, Washington, D.C, 2018.

Sehitoglu, T., D. Mussanov and C.T. Dick. 2018. Operational Schedule Flexibility, Train Velocity and the Performance Reliability of Single-Track Railways. In: *Proceedings of Transportation Research Board 97th Annual Conference*, Washington, D.C, January 2018.

Yin, H., Y. Qian, J.R. Edwards and K. Zhu. 2018. Investigation of Relationship between Train Speed and Bolted Rail Joint Fatigue Life Using Finite Element Analysis. In: *Proceedings of Transportation Research Board 97th Annual Conference*, Washington, D.C, January 2018.

Zhang, L., S.G. Chadwick and C.P.L. Barkan. 2018. Highway-Rail Grade Crossing Incident Consequence Analysis. In: *Proceedings of Transportation Research Board 97th Annual Conference*, Washington, D.C, January 2018.

2017

Alemazkoor, N. C.J. Ruppert, Jr. and H. Meidani. 2017. Survival analysis at multiple scales for the modeling of track geometry deterioration. Accepted, *Journal of Rail and Rapid Transit*. DOI: <https://doi.org/10.1177/0954409717695650>.

Bastos, J.C., A. Alvarez Reyes, M.S. Dersch and J.R. Edwards. 2017. Development of a New Load-deflection Method for Characterization of North American Heavy Haul Concrete Sleepers. In: *Proceedings of the 11th International Heavy Haul Association Conference*, Cape Town, South Africa, September 2017.

Canga Ruiz, A.E., M.V. Csenge, J.R. Edwards, Y. Qian and M.S. Dersch. 2017. Quantification of Rail Displacements Under Light Rail Transit Field Loading Conditions. In: *Proceedings of the 2017 Joint Rail Conference*, Philadelphia, PA, April 2017.

Chadwick, S.G., C.P.L. Barkan and M.R. Saat. 2017. Quantitative Prediction of the Risk of Heavy Haul Freight Train Derailments due to Collisions at Level Crossings. In: *Proceedings of the 11th International Heavy Haul Association Conference*, Cape Town, South Africa, September 2017.

Edwards, J.R., M.S. Dersch and R.G. Kernes. 2017. Improved Concrete Crosstie and Fastening Systems for US High Speed Passenger Rail and Joint Corridors: Volume 1 – Project Summary Report. Federal Railroad Administration, Washington DC, pp. 58, DOT/FRA/ORD-17/23.

Edwards, J.R., M.S. Dersch and R.G. Kernes. 2017. Improved Concrete Crosstie and Fastening Systems for US High Speed Passenger Rail and Joint Corridors: Volume 2. Federal Railroad Administration, Washington DC, pp. 410, DOT/FRA/ORD-17/23.

Gao, Z., M.S. Dersch, Y. Qian and J.R. Edwards. 2017. Effect of Track Conditions on the Flexural Performance of Concrete Sleepers on Heavy-haul Freight Railroads. In: *Proceedings of*

the 11th International Heavy Haul Association Conference, Cape Town, South Africa, September 2017.

Holder, B.G.J., Y. Qian, M.S. Dersch and J.R. Edwards. 2017. Lateral Load Performance of Concrete Sleeper Fastening Systems Under Non-ideal Conditions. In: *Proceedings of the 11th International Heavy Haul Association Conference, Cape Town, South Africa, September 2017.*

Holder, D.E., M.V. Csenge, Y. Qian, M.S. Dersch and J.R. Edwards. 2017. Laboratory investigation of the Skl-style fastening system' lateral load performance under heavy haul freight railroad loads. *Engineering Structures*. 139 (2017) 71-80.

Kippen III, F.B. and C.T. Dick. 2017. Incremental Capacity in Transitioning from Double to Triple Track on Shared Freight and Commuter Rail Corridors in North America. In: *Proceedings of the International Association of Railway Operations Research (IAROR) 7th International Conference on Railway Operations Modelling and Analysis, Lille, France, April 2017.*

Lautala, P. and C.T. Dick. 2017. Railway Engineering Education Symposium: Evolving to rebuild a growing rail academic community. *Transportation Research Record: Journal of the Transportation Research Board*. 2608, 96-104.

Lima, A. de O., M.S. Dersch, Y. Qian, E. Tutumluer and J.R. Edwards. 2017. Laboratory Evaluation of Under-ballast Mat Effectiveness to Mitigate Differential Movement Problem in Railway Transition Zones. In: *10th International Conference on the Bearing Capacity of Roads, Railways and Airfields, Athens, Greece, June 2017.*

Lima, A. de O., M.S. Dersch, Y. Qian, E. Tutumluer and J.R. Edwards. 2017. Laboratory Mechanical Fatigue Performance of Under-ballast Mats Subjected to North American loading Conditions. In: *Proceedings of the 11th International Heavy Haul Association Conference, Cape Town, South Africa, September 2017.*

Lin, C-Y., C.P.L. Barkan and M.R. Saat. 2017. Semi-quantitative Risk Assessment of Adjacent Track Accidents on Shared-use Rail Corridors. In: *Proceedings of the 11th International Heavy Haul Association Conference, Cape Town, South Africa, 2017.*

Lin, X., J.R. Edwards, M.S. Dersch, T.A. Roadcap and C.J. Ruppert, Jr. 2017. Load quantification of the wheel-rail interface of rail vehicles for the infrastructure of light rail, heavy rail, and commuter rail transit. *Journal of Rail and Rapid Transit*. doi: 10.1177/0954409716684266.

Liu, X., M.R. Saat and C.P.L. Barkan. 2017. Freight-train derailment rates for railroad safety and risk analysis. *Accident Analysis and Prevention*. 98 (2017): 1-7.

Lovett, A.H., C.T. Dick and C.P.L. Barkan. 2017. Predicting the Cost and Operational Impacts of Slow Orders on Rail Lines in North America. In: *Proceedings of the International Association of Railway Operations Research (IAROR) 7th International Conference on Railway Operations Modelling and Analysis*, Lille, France, April 2017.

Lovett, A.H., C.T. Dick and C.P.L. Barkan. 2017. Predicting the Occurrence and Cost of Temporary Speed Restrictions on North American Freight Lines. In: *Proceedings of the 11th International Heavy Haul Association Conference*, Cape Town, South Africa, September 2017.

Mussanov, D., N. Nishio and C.T. Dick. 2017. Building Capacity Through Structured Heavy Haul Operations on Single-track Shared Corridors in North America. In: *Proceedings of the 11th International Heavy Haul Association Conference*, Cape Town, South Africa, September 2017.

Mussanov, D., N. Nishio and C.T. Dick. 2017. Delay Performance of Different Train Types Under Combinations of Structured and Flexible Operations on Single-Track Railway Lines in North America. In: *Proceedings of the International Association of Railway Operations Research (IAROR) 7th International Conference on Railway Operations Modelling and Analysis*, Lille, France, April 2017.

Pengelly, S. and C.T. Dick. 2017. Economics and planning of short haul and short line railway intermodal rail service: Lessons from past and current operations. *Transportation Research Record: Journal of the Transportation Research Board*. 2608: 105-114.

Sehgal, L., A. Garg, V. Sehgal and W. Buttlar. 2017. Hot Mix Asphalt in Ballasted Railway Track: International Experience and Inferences. Institution of Permanent Way Engineers International Technical Seminar, Mumbai, India, January 2017.

Shih, M-C., C.T. Dick and C.P.L. Barkan. 2017. A Decision Support Screening Approach for Railway Infrastructure Capacity Planning on Single-track Lines. In: *Proceedings of the International Association of Railway Operations Research (IAROR) 7th International Conference on Railway Operations Modelling and Analysis*, Lille, France, April 2017.

Shih, M-C., C.T. Dick and C.P.L. Barkan. 2017. A Parametric Model of the Train Delay Distribution to Improve Planning of Heavy Haul Cycle Times. In: *Proceedings of the 11th International Heavy Haul Association Conference*, Cape Town, South Africa, September 2017.

Shih, M-C., C.T. Dick, D. Mussanov and C.P.L. Barkan. 2017. A Parametric Model of the Train Delay Distribution Based On Traffic Conflicts. In: *Proceedings of the International Association of Railway Operations Research (IAROR) 7th International Conference on Railway Operations Modelling and Analysis*, Lille, France, April 2017.

Van Dyk, B.J., J.R. Edwards, M.S. Dersch, C.J. Ruppert Jr. and C.P.L. Barkan. 2017. Evaluation of dynamic and impact wheel load factors and their application in design processes. *Journal of Rail and Rapid Transit*. 231 (1): 33-43, DOI:10.1177/0954409715619454.

Wandelt, S., Z. Wang and X. Sun. 2017. Worldwide railway skeleton network: Extraction methodology and preliminary analysis. *IEEE Transactions on Intelligent Transportation Systems*. 18 (8): 2206-2216 DOI: 10.1109/TITS.2016.2632998.

Wang, B.Z., C.P.L. Barkan and R. Saat. 2017. Principal Factors Contributing to Heavy Haul Freight Train Safety Improvements in North America: A Quantitative Analysis. In: *Proceedings of the 11th International Heavy Haul Association Conference*, Cape Town, South Africa, September 2017.

Z. Gao, M.S. Dersch, Y. Qian, M.V. Csenge and J.R. Edwards. 2017. Use of Ballast Support Condition Back-Calculator for Quantification of Ballast Pressure Distribution Under Concrete Sleepers. In: *Railways and Airfields*, 10th International Conference on the Bearing Capacity of Roads, June 2017.

Zhu, K., Y. Qian, J.R. Edwards and B.O. Andrawes. 2017. Finite element analysis of rail end bolt-hole and fillet stress on bolted rail joints. *Transportation Research Record: Journal of the Transportation Research Board*. 2607: 33-42.

2016

Bastos, J.C., M.S. Dersch, J.R. Edwards and B.O. Andrawes. 2016. Determination of the Influences of Deteriorated Track Conditions on Gauge Widening in Concrete Sleeper Track. In: *Proceedings of the 11th World Congress on Railway Research*, Milan, Italy, June 2016.

Csenge, M.V., Y. Qian, M.S. Dersch and J.R. Edwards. 2016. Resilient Concrete Crosstie and Fastening System Designs for Light Rail, Heavy Rail, and Commuter Rail Transit Infrastructure. In: *Proceedings of the 11th World Congress on Railway Research*, Milan, Italy, June 2016.

Dick, C.T. and D. Mussanov. 2016. Operational schedule flexibility and infrastructure investment: capacity trade-off on single-track railways. *Transportation Research Record: Journal of the Transportation Research Board*. 2546: 1-8. DOI: 10.3141/2546-01.

Dick, C.T., L. Sehgal, C.J. Ruppert Jr. and S. Gujuran. 2016. Superelevation Optimization for Mixed Freight and Higher-Speed Passenger Trains. In: *Proceedings of the American Railway Engineering and Maintenance-of-Way Association Annual Conference*, Orlando, FL, August 2016.

Gao, Z., H.E. Wolf, M.S. Dersch, Y. Qian and J.R. Edwards. 2016. Field Measurements and Proposed Analysis of Concrete Crosstie Bending Moments. In: *Proceedings of the American Railway Engineering and Maintenance-of-Way Association Annual Conference*, Orlando, FL, August 2016.

Ghosh, A., J.R. Edwards and M.S. Dersch. 2016. Effect of Design Rail Cant on Concrete Crosstie Rail Seat Pressure Distribution. In: *Proceedings of the 2016 Joint Rail Conference*, Columbia, SC, April 2016.

Ghosh, A., M.J. Greve, M.S. Dersch, J.R. Edwards and C.P.L. Barkan. 2016. Analyzing Rail Seat Load Distributions on Concrete Sleepers using Matrix Based Tactile Surface Sensors. In: *Proceedings of the 11th World Congress on Railway Research*, Milan, Italy, June 2016.

Greve, M.J., M.S. Dersch, J.R. Edwards, C.P.L. Barkan, J. Mediavilla and B. Wilson. 2016. Effect of particle intrusion on rail seat load distributions on heavy haul freight railroads. *International Journal of Rail Transportation*. 4 (2): 98-112; DOI: 10.1080/23248378.2016.1157048.

Holder, D.E., Y. Qian, M.V. Csenge, J.R. Edwards, M.S. Dersch and B.J. Van Dyk. 2016. Comparison of Lateral Load Performance of Concrete Crosstie Heavy Haul Fastening Systems. In: *Proceedings of the American Railway Engineering and Maintenance-of-Way Association Annual Conference*, Orlando, FL, August 2016.

Lin, C-Y., M.R. Saat and C.P.L. Barkan. 2016. Fault tree analysis of adjacent track accidents on shared-use rail corridors. *Transportation Research Record: Journal of the Transportation Research Board*. 2546: 129-136; DOI 10.3141/2546-16.

Lin, X., J.R. Edwards, M.S. Dersch and C.J. Ruppert Jr. 2016. Load Quantification for Light Rail, Heavy Rail, and Commuter Rail Transit Infrastructure. In: *Proceedings of the 11th World Congress on Railway Research*, Milan, Italy, June 2016.

Liu, X and C.T. Dick. 2016. Risk-based optimization of rail defect inspection frequency for petroleum crude oil transportation. *Transportation Research Record: Journal of the Transportation Research Board*. 2545: 27-35. DOI: 10.3141/2545-04.

Qian, Y., D. Mishra, E. Tutumluer, Y.M.A. Hashash and J. Ghaboussi. 2016. Moisture Effects on Degraded Ballast Shear Strength Behavior. In: *Proceedings of the 2016 Joint Rail Conference*, Columbia, SC, April 2016.

Sogin, S.L., Y-C. Lai, C.T. Dick and C.P.L. Barkan. 2016. Analyzing the transition from single- to double-track railway lines with nonlinear regression analysis. *Journal of Rail and Rapid Transit*. 230 (8): 1877-1889; DOI: 10.1177/0954409715616998.

Tang, H., C.T. Dick, B.M. Caughron, X. Feng, Q. Wang and C.P.L. Barkan. 2016. Model for optimal selection of projects to improve running time and operating cost efficiency on passenger rail corridors. *Transportation Research Record: Journal of the Transportation Research Board*. 2456: 33-42.

Van Dyk, B.J., A.J. Scheppe, J.R. Edwards, M.S. Dersch and C.P.L. Barkan. 2016. Methods for quantifying rail seat loads and a review of previous experimentation. *Journal of Rail and Rapid Transit*. 230 (3): 935-945; DOI: 10.1177/0954409715569862.

Wolf, H.E., J.R. Edwards, M.S. Dersch, Y. Qian and D.A. Lange. 2016. Field Measurement of Bending Moments in Prestressed Concrete Monoblock Sleepers. In: *Proceedings of the 11th World Congress on Railway Research*, Milan, Italy, June 2016.

Wolf, H.E., Y. Qian, J.R. Edwards, M.S. Dersch and D.A. Lange. 2016. Temperature-induced curl behavior of prestressed concrete and its effect on railroad crossties. *Construction and Building Materials*. 115 (2016) 319-326.

Yue, Y., S. Wang, L. Zhou, L. Tong and M.R. Saat. 2016. Optimizing train stopping patterns and schedules for high-speed passenger rail corridors. *Transportation Research Part C*. 63 (2016); 126-146.

Zhu, K., J.R. Edwards, Y. Qian and B.O. Andrawes. 2016. Finite element analysis of the effects of bolt condition on bolted rail joint stresses. *Transportation Research Record: Journal of the Transportation Research Board*. 2545: 36-45. DOI: 10.3141/2545-05.

Zhu, Z., J.R. Edwards, Y. Qian and B.O. Andrawes. 2016. Fatigue Analysis of Rail-Head-to-Web Fillet at Bolted Rail Joint under Various Impact Wheel Load Factors and Support Configurations. In: *Proceedings of the 2016 Joint Rail Conference*, Columbia, SC, April 2016.

2015

Atanasov, I. and C.T. Dick. 2015. Incremental Capacity in Transitioning from Double to Triple Track on Shared Rail Corridors. In: *Proceedings of the International Association of Railway Operations Research (IAROR) 6th International Conference on Railway Operations Modelling and Analysis*, Tokyo, Japan, March 2015.

Atanassov, I. and C.T. Dick. 2015. Capacity of single-track railway lines with short sidings to support operation of long freight trains. *Transportation Research Record: Journal of the Transportation Research Board*. 2475: 95-101.

Atanassov, I. and C.T. Dick. 2015. Delay and Required Infrastructure Investment to Operate Long Freight Trains on Single-track Railways with Short Sidings. In: *Proceedings of the International Heavy Haul Association Conference*, Perth, Australia, June 2015.

Atanassov, I. and C.T. Dick. 2015. Influence of Siding Connection Length, Position, and Order on the Incremental Capacity of Transitioning from Single to Double Track. In: *Proceedings of Transportation Research Board 94th Annual Conference*, Washington, D.C, January 2015.

Barkan, C.P.L., X. Liu and M.R. Saat. 2015. Enhanced Tank Car Design Improves the Safety of Transporting Crude Oil and Alcohol by Rail. *TR News*. 298: June – August, pp. 41-43.

Bastos, J.C., M.S. Dersch, J.R. Edwards and C.P.L. Barkan. 2015. Determination of Critical Track Conditions and their Impact on the Performance of Concrete Crossties and Fastening Systems. In: *Proceedings of the American Railway Engineering and Maintenance-of-Way Association Annual Conference*, Minneapolis, MN, October 2015.

Csenge, M.V., H.E. Wolf, M.S. Dersch, J.R. Edwards, R.G. Kernes and M.G. Romero. 2015. Exploration of Alternatives for Prestressed Concrete Monoblock Crosstie Design Based on Flexural Capacity. In: *Proceedings of the 2015 Joint Rail Conference*, San Jose, CA, March 2015.

Csenge, M.V., X. Lin, H.E. Wolf, M.S. Dersch and J.R. Edwards. 2015. Mechanistic Design of Concrete Monoblock Crossties for Rail Transit Loading Conditions. American Public Transportation Association 2015 Rail Conference, Salt Lake City, UT, June 2015.

DiDomenico, G.C. and C.T. Dick. 2015. Influence of System Characteristics and Scheduling Patterns on Commuter Rail Energy Efficiency. In: *Proceedings of the International Association of Railway Operations Research (IAROR) 6th International Conference on Railway Operations Modelling and Analysis*, Tokyo, Japan, March 2015.

DiDomenico, G.C. and C.T. Dick. 2015. Methods of analyzing and comparing energy efficiency of passenger rail systems. *Transportation Research Record: Journal of the Transportation Research Board*. 2475: 54-62.

Fullerton, G.A., G.C. DiDomenico and C.T. Dick. 2015. Sensitivity of freight and passenger rail fuel efficiency to infrastructure, equipment, and operating factors. *Transportation Research Record: Journal of the Transportation Research Board*. 2476: 59-66.

Fullerton, G.A. and C.T. Dick. 2015. Operational Considerations of Transitioning to Emerging Ultra-low Emission Locomotive Technologies for Heavy-haul Freight Rail Applications. In: *Proceedings of the International Heavy Haul Association Conference*, Perth, Australia, June 2015.

Fullerton, G.A., C.T. Dick, T. Hwang and Y. Ouyang. 2015. Exchange Point Delay and Mode Shift Associated with Regional Deployment of Alternative Locomotive Technology on the North American Line-Haul Freight Network. In: *Proceedings of the International Association of Railway Operations Research (IAROR) 6th International Conference on Railway Operations Modelling and Analysis*, Tokyo, Japan, March 2015.

Greve, M.J., M.S. Dersch, J.R. Edwards and C.P.L. Barkan. 2015. Evaluation of Laboratory and Field Experimentation Characterizing Concrete Crosstie Rail Seat Load Distributions. In: *Proceedings of the 2015 Joint Rail Conference*, San Jose, CA, March 2015.

Greve, M.J., M.S. Dersch, J.R. Edwards, C.P.L. Barkan, H. Thompson, T.R. Sussmann Jr. and M.T. McHenry. 2015. Examination of the effect of concrete crosstie rail seat deterioration on rail seat load distribution. *Transportation Research Record: Journal of the Transportation Research Board*. 2476: 1-7.

Greve, M.J., M.S. Dersch, J.R. Edwards, C.P.L. Barkan, J. Mediavilla and B. Wilson. 2015. The Effect of Particle Intrusion on Rail Seat Load Distributions on Heavy Haul Freight Railroads. In: *Proceedings of the International Heavy Haul Association Conference*, Perth, Australia, June 2015.

Holder, D.E., B.A. Williams, M.D. Dersch, J.R. Edwards and C.P.L. Barkan. 2015. Quantification of Lateral Forces in Concrete Sleeper Fastening Systems Under Heavy Haul Freight Loads. In: *Proceedings of the International Heavy Haul Association Conference*, Perth, Australia, June 2015.

Lautala, P.T., C.T. Dick, D. Rizos and D.B. Clarke. 2015. Toward the Next Generation of Railroad Professionals – Collaboration by NURail and Rail Industry. In: *Proceedings of the American Railway Engineering and Maintenance-of-Way Association Annual Conference*, Minneapolis, Minnesota, September 2015.

Lovett, A.H., C.T. Dick and C.P.L. Barkan. 2015. Determining Freight Train Delay Costs on Railroad Lines in North America. In: *Proceedings of the International Association of Railway Operations Research (IAROR) 6th International Conference on Railway Operations Modelling and Analysis*, Tokyo, Japan, March 2015.

Lovett, A.H., C.T. Dick, C.J. Ruppert Jr. and C.P.L. Barkan. 2015. Cost and delay of railroad timber and concrete crosstie maintenance and replacement. *Transportation Research Record: Journal of the Transportation Research Board*. 2476: 37-44.

Qian, Y., D. Mishra, H. Kazmee and E. Tutumluer. 2015. Geogrid-Aggregate Interlocking Mechanism Investigated via Discrete Element Modeling. In: *Geosynthetics 2015*, Portland, OR, February 2015.

Qian, Y., E. Tutumluer, D. Mishra and H. Kazmee. 2015. Characterization of geogrid reinforced ballast behavior at different levels of degradation through triaxial shear strength test and discrete element modeling. In Press, *Geotextiles and Geomembranes*.

Qian, Y., E. Tutumluer, Y.M.A. Hashash and J. Ghaboussi. 2015. Ballast settlement ramp to mitigate differential settlement in a bridge transition zone. *Transportation Research Record: Journal of the Transportation Research Board*. 2476: 45-52.

Qian, Y., E. Tutumluer, Y.M.A. Hashash and J. Ghaboussi. 2015. Effects of Ballast Degradation on Shear Strength Behavior from Large-scale Triaxial Tests. In: *From Fundamentals to Applications in Geotechnics: Proceedings of the XV Pan American Conference on Soil*

Mechanics and Geotechnical Engineering, Buenos Aires, Argentina, November 2015, pp. 170-179.

Saat, M.R. and J. Aguilar Serrano. 2015. Multicriteria high-speed rail route selection: application to Malaysia's high-speed rail corridor prioritization. *Transportation Planning and Technology*. 38 (2): 200 – 213.

Saat, M.R., F. Bedini Jacobini, E. Tutumluer and C.P.L. Barkan. 2015. Identification of High-Speed Rail Ballast Flight Risk Factors and Risk Mitigation Strategies – Final Report. Federal Railroad Administration, pp. 76, DOT/FRA/ORD-15/03.

Scheppe, A.J., J.R. Edwards, M.S. Dersch and C.P.L. Barkan. 2015. Quantifying Lateral Wheel Loading Variation Using Truck Performance Detectors. In: *Proceedings of Transportation Research Board 94th Annual Conference*, Washington, D.C, January 2015.

Scheppe, A.J., J.R. Edwards, M.S. Dersch and C.P.L. Barkan. 2015. Quantifying Lateral Wheel Loading Variation Using Truck Performance Detectors. In: *Proceedings of the International Heavy Haul Association Conference*, Perth, Australia, June 2015.

Shih, M-C., C.T. Dick and C.P.L. Barkan. 2015. Impact of passenger train capacity and level of service on shared rail corridors with multiple types of freight trains. *Transportation Research Record: Journal of the Transportation Research Board*. 2475: 63-71.

Shih, M-C., C.T. Dick and Y-C. Lai. 2015. Optimization of Siding Location for Single-track Lines with Non-Uniform Track Speed. In: *Proceedings of the International Association of Railway Operations Research (IAROR) 6th International Conference on Railway Operations Modelling and Analysis*, Tokyo, Japan, March 2015.

Shih, M-C., C.T. Dick and Y-C. Lai. 2015. Optimizing Location and Length of Passing Sidings on Single-track Lines for Long Heavy-haul Freight Trains. In: *Proceedings of the International Heavy Haul Association Conference*, Perth, Australia, June 2015.

Tang, H., C.T. Dick and X. Feng. 2015. Improving regenerative energy receptivity in metro transit systems: Coordinated train control algorithm. *Transportation Research Record: Journal of the Transportation Research Board*. 2534: 48-56.

Tang, H., C.T. Dick and X. Feng. 2015. Optimization of Train Speed Profiles for a Metro Transit System by Genetic Algorithms. In: *Proceedings of the International Association of Railway Operations Research (IAROR) 6th International Conference on Railway Operations Modelling and Analysis*, Tokyo, Japan, March 2015.

Tang, H., C.T. Dick, B.M. Caughron, X. Feng and C.P.L. Barkan. 2015. A Project Selection Model for Improving Running Time and Operating Cost Efficiency on a Passenger Rail

Corridor. In: *Proceedings of the International Association of Railway Operations Research (IAROR) 6th International Conference on Railway Operations Modelling and Analysis*, Tokyo, Japan, March 2015.

Williams, B.A., D.E. Holder, J.R. Edwards, M.S. Dersch and C.P.L. Barkan. 2015. Quantification of the lateral forces in concrete sleeper fastening systems. *Journal of Rail and Rapid Transit*. 230(7) 1714-1721; DOI: 10.1177/0954409715616997.

Williams, B.A., M.S. Dersch, J.R. Edwards and C.P.L. Barkan. 2015. Quantification of Lateral Forces in Concrete Crosstie Fastening Systems. In: *Proceedings of Transportation Research Board 94th Annual Conference*, Washington, D.C, January 2015.

Wolf, H.E., J.R. Edwards, M.S. Dersch and C.P.L. Barkan. 2015. Flexural Analysis of Prestressed Concrete Monoblock Sleepers for Heavy-haul Applications: Methodologies and Sensitivity to Support Conditions. In: *Proceedings of the International Heavy Haul Association Conference*, Perth, Australia, June 2015.

Wolf, H.E., S. Mattson, J.R. Edwards, M.S. Dersch and C.P.L. Barkan. 2015. Flexural Analysis of Prestressed Concrete Monoblock Crossties: Comparison of Current Methodologies and Sensitivity to Support Conditions. In: *Proceedings of Transportation Research Board 94th Annual Conference*, Washington, D.C, January 2015.

2014

Aguilar Serrano, J. and M.R. Saat. 2014. Flammable Liquid Fire Consequence Modeling. In: *Proceedings of the 2014 Joint Rail Conference*, Colorado Springs, USA, April 2014.

Aguilar Serrano, J., X. Liu and M.R. Saat. 2014. Methodology to Evaluate the Consequence of Hazardous Material Releases from Multiple Tank Cars Involved in Train Accidents. In: *Proceedings of Transportation Research Board 93rd Annual Conference*, Washington, D.C, January 2014.

Atanassov, I., C.T. Dick and C.P.L. Barkan. 2014. Siding Spacing and the Incremental Capacity of the Transition From Single to Double Track. In: *Proceedings of the 2014 Joint Rail Conference*, Colorado Springs, USA, April 2014.

Boler, H., Y. Qian and E. Tutumluer. 2014. Statistical analyses of railroad ballast aggregate packing influenced by changes in gradation and particle shape properties. *Transportation Research Record: Journal of the Transportation Research Board*. 2448: 94-104.

Chadwick, S.G., N. Zhou and M.R. Saat. 2014. Highway-Rail grade crossing safety challenges for shared operations of high-speed passenger and heavy freight rail in the U.S. *Safety Science*. 68 (2014) 128-137.

Chadwick, S.G., R. Saat, T. Dick and C. Barkan. 2014. Understanding the risk of level crossing derailments. *Railway Gazette International*. 170: March, pp. 28-32.

Chen, Z., M. Shin, B.O. Andrawes and J.R. Edwards. 2014. Parametric study on damage and load demand of prestressed concrete crosstie and fastening systems. *Engineering Failure Analysis*. 46 (2014) 49-61.

Dick, C.T. and J.R. Dimberger. 2014. Advancing the Science of Yard Design and Operations with the CSX Hump Yard Simulation System. In: *Proceedings of the 2014 Joint Rail Conference*, Colorado Springs, USA, April 2014.

Dick, C.T. and L.E. Brown. 2014. Design of Bulk Railway Terminals for the Shale Oil and Gas Industry. In: *Proceedings of the 2014 ASCE Shale Energy Engineering Conference*, Pittsburgh, PA, July 2014.

DiDomenico, G.C. and C.T. Dick. 2014. Analysis of Trends in Commuter Rail Energy Efficiency. In: *Proceedings of the 2014 Joint Rail Conference*, Colorado Springs, USA, April 2014.

Dingler, M.H., Y-C. Lai and C.P.L. Barkan. 2014. Effect of train-type heterogeneity on single-track heavy haul railway line capacity. *Journal of Rail and Rapid Transit*. 228 (8): 845-856.

do Carmo, T.B., J.R. Edwards, R.G. Kernes, B.O. Andrawes and C.P.L. Barkan. 2014. Laboratory and Field Investigation of the Rail Pad Assembly Mechanistic Behavior. In: *Proceedings of the 2014 Joint Rail Conference*, Colorado Springs, USA, April 2014.

do Carmo, T.B., J.R. Edwards, R.G. Kernes, C.P.L. Barkan and B.O. Andrawes. 2014. Mechanistic Behavior of Concrete Crosstie Fastening System Rail Pad Assemblies. In: *Proceedings of Transportation Research Board 93rd Annual Conference*, Washington, D.C., January 2014.

Flyvbjerg, B., T.C. Kao and A. Budzier. 2014. Report to the Independent Board Committee. MTR Corporation Limited (Hong Kong Railway Corporation).

Fullerton, G.A., G.C. DiDomenico, M-C. Shih and C.T. Dick. 2014. Congestion as a Source of Variation in Passenger and Freight Railway Fuel Efficiency. In: *Proceedings of the 2014 Joint Rail Conference*, Colorado Springs, USA, April 2014.

Greve, M., M.S. Dersch, J.R. Edwards, C.P.L. Barkan, J. Mediavilla and B.M. Wilson. 2014. Analysis of the Relationship Between Rail Seat Load Distribution and Rail Seat Deterioration in Concrete Crossties. In: *Proceedings of the 2014 Joint Rail Conference*, Colorado Springs, USA, April 2014.

Hamper, M.B., C.J. Ruppert Jr., C. Wei and A.A. Shabana. 2014. A Spatial Geometry Approach to Variable Cross-Section Rail Modeling: Application to Switches and Turnouts. In: *Proceedings of the 2014 Joint Rail Conference*, Colorado Springs, USA, April 2014.

Kernes, R.G., A.A. Shurpali, J.R. Edwards, M.S. Dersch, D.A. Lange and C.P.L. Barkan. 2014. Investigation of the mechanics of rail seat deterioration and methods to improve the abrasion resistance of concrete sleeper rail seats. *Journal of Rail and Rapid Transit*. 228 (6): 581-589.

Lin, C-Y. and M.R. Saat. 2014. Semi-Quantitative Risk Assessment of Adjacent Track Accidents on Shared-Use Rail Corridor. In: *Proceedings of the 2014 Joint Rail Conference*, Colorado Springs, USA, April 2014.

Lin, C-Y., M.R. Saat and C.P.L. Barkan. 2014. Causal Analysis of Passenger Train Accident on Shared-Use Rail Corridors. In: *Proceedings of Transportation Research Board 93rd Annual Conference*, Washington, D.C, January 2014.

Liu, X., A. Lovett, C.T. Dick, M.R. Saat and C.P.L. Barkan. 2014. Optimization of ultrasonic rail-defect inspection for improving railway transportation safety and efficiency. *ASCE Journal of Transportation Engineering*. 140 (10) 04014048.

Liu, X., C.T. Dick and M.R. Saat. 2014. Optimizing Ultrasonic Rail Defect Inspection to Improve Transportation Safety and Efficiency. In: *Proceedings of the Second ASCE Transportation and Development Institute Congress*, Orlando, FL, June 2014, pp. 765-774.

Liu, X., C.T. Dick, M.R. Saat and C.P.L. Barkan. 2014. Optimization of Rail Defect Inspection Frequency to Reduce Railroad Hazardous Materials Transportation Risk. In: *Proceedings of Transportation Research Board 93rd Annual Conference*, Washington, D.C, January 2014.

Liu, X., M.R. Saat and C.P.L. Barkan. 2014. Probability analysis of multiple-tank-car release incidents in railway hazardous materials transportation. *Journal of Hazardous Materials*. 276: 442-451.

Manda, K.R., M. Dersch, R.G. Kernes, J.R. Edwards and D. Lange. 2014. Vertical Load Path under Static and Dynamic Loads in Concrete Crosstie and Fastening Systems. In: *Proceedings of the 2014 Joint Rail Conference*, Colorado Springs, USA, April 2014.

Mishra, D., Y. Qian, H. Hai and E. Tutumluer. 2014. An integrated approach to dynamic analysis of railroad track transitions behavior. *Transportation Geotechnics*. 1 (2014): 188-200.

Mishra, D., Y. Qian, H. Kazmee and E. Tutumluer. 2014. Investigation of geogrid-reinforced railroad ballast behavior using large-scale triaxial testing and discrete element

modeling. *Transportation Research Record: Journal of the Transportation Research Board*. 2462: 98-108.

Moaveni, M., Y. Qian, H. Boler and E. Tutumluer. 2014. Investigation of Ballast Degradation and Fouling Trends Using Image Analysis. The Second International Conference on Railway Technology: Research, Development and Maintenance, Ajaccio, Corsica, France, April 2014.

Qian, Y., E. Tutumluer, D. Mishra and H. Kazmee. 2014. Behavior of Geogrid Reinforced Ballast at Different Levels of Degradation. GeoShanghai International Conference, Shanghai, China (Best Paper Award), May 2014.

Qian, Y., E. Tutumluer, Y.M.A. Hashash and J. Ghaboussi. 2014. Effects of Ballast Degradation on Permanent Deformation Behavior from Large-scale Triaxial Tests. In: *Proceedings of the 2014 Joint Rail Conference*, Joint Rail Conference, Colorado Springs, CO, April 2014.

Qian, Y., H. Boler, M. Moaveni, E. Tutumluer, Y.M.A. Hashash and J. Ghaboussi. 2014. Characterizing ballast degradation through Los Angeles abrasion test and image analysis. *Transportation Research Record: Journal of the Transportation Research Board*. 2448: 142-151.

Qian, Y., S.J. Lee, E. Tutumluer, Y.M.A. Hashash, D. Mishra and J. Ghaboussi. 2014. Discrete element method for simulating ballast shear strength from large scale triaxial tests. *Transportation Research Record: Journal of the Transportation Research Board*. 2374: 126-135.

Rapp, C.T, R.G. Kernes and M.R. Saat. 2014. Overview of issues and research related to special trackwork for shared high-speed-rail passenger and heavy-axle-load freight operations. *Journal of Rail and Rapid Transit*. 228 (5): 557-565.

Saat, M.R., C. J. Werth, D. Schaeffer, H. Yoon and C.P.L. Barkan. 2014. Environmental risk analysis of hazardous material rail transportation. *Journal of Hazardous Materials*. 264: 560-569.

Shih, M-C., C.T. Dick, S.L. Sogin and C.P.L. Barkan. 2014. Comparison of capacity expansion strategies for single-track railway lines with sparse sidings. *Transportation Research Record: Journal of the Transportation Research Board*. 2448: 53-61.

Shih, M-C., Y-C. Lai, C.T. Dick and M-H Wu. 2014. Optimization of siding location for single-track lines. *Transportation Research Record: Journal of the Transportation Research Board*. 2448: 71-79.

Shurpali, A.A., J.R. Edwards, R.G. Kernes, D. Lange and C.P.L. Barkan. 2014. Investigation of material improvements to mitigate the effects of abrasion mechanisms of concrete crosstie rail seat deterioration. *ASCE Journal of Transportation Engineering*. 140 (2) 04013009.

Tang, H., Q. Wang and C.T. Dick. 2014. Optimizing Train Speed Profiles to Improve Regeneration Efficiency of Transit Operations. In: *Proceedings of the 2014 Joint Rail Conference*, Colorado Springs, USA, 2014.

Van Dyk, B.J., M.S. Dersch, J.R. Edwards, C.J. Ruppert Jr. and C.P.L. Barkan. 2014. Evaluation of Dynamic and Impact Wheel Load Factors and their Application for Design. In: *Proceedings of Transportation Research Board 93rd Annual Conference*, Washington, D.C, January 2014.

Van Dyk, B.J., M.S. Dersch, J.R. Edwards, C.J. Ruppert Jr. and C.P.L. Barkan. 2014. Load characterization techniques and overview of loading environment in North America. *Transportation Research Record: Journal of the Transportation Research Board*. 2448: 80-86.

Wei, S., D.A. Kuchma, J.R. Edwards, M.S. Dersch and R.G. Kernes. 2014. Gauging of Concrete Crossties to Investigate Load Path in Laboratory and Field Testing. In: *Proceedings of the 2014 Joint Rail Conference*, Colorado Springs, USA, April 2014.

Williams, B.A., J.R. Edwards, R.G. Kernes and C.P.L. Barkan. 2014. Analysis of the Lateral Load Path in Concrete Crosstie Fastening Systems. In: *Proceedings of the 2014 Joint Rail Conference*, Colorado Springs, USA, April 2014.

Williams, B.A., J.R. Edwards, M.S. Dersch, C.P.L. Barkan and R.G. Kernes. 2014. Experimental Field Investigation of the Effects of Lateral Load Distribution on Concrete Crosstie Track. In: *Proceedings of the American Railway Engineering and Maintenance-of-Way Association Annual Conference*, Chicago, IL, September 2014.

Williams, B.A., R.G. Kernes, J.R. Edwards and C.P.L. Barkan. 2014. Lateral Force Measurement in Concrete Crosstie Fastening Systems. In: *Proceedings of Transportation Research Board 93rd Annual Conference*, Washington, D.C, January 2014.

Xiao, Y., E. Tutumluer and Y. Qian. 2014. DEM Approach for Engineering Aggregate Gradation and Shape Properties Influencing Mechanical Behavior of Unbound Aggregate Materials. In: *Geo-Congress 2014 Technical Papers*, ASCE Geo-Institute, Atlanta, GA, February 2014, pp. 2898 – 2910.

2013

Barkan, C.P.L., M.R. Saat, F. Gonzalez III and T.T. Treichel. 2013. Cooperative Research in Tank Car Safety Design. *TR News*. 286: May – June, pp.12-19.

Bedini Jacobini, F., E. Tutumluer and M.R. Saat. 2013. Identification of High-Speed Rail Ballast Flight Risk Factors and Risk Mitigation Strategies. In: *Proceedings of the 10th World Congress on Railway Research*, Sydney, Australia, November 2013.

Caughron, B.M., C. T. Dick and C.P.L. Barkan. 2013. A Project Selection Model for Improving Running Time on Passenger Rail Corridors. In: *Proceedings of the American Railway Engineering and Maintenance-of-Way Association Annual Conference*, Indianapolis, Indiana, September 2013.

Chadwick, S.G., C.T. Dick, M.R. Saat and C.P.L. Barkan. 2013. Statistical Modeling of Freight Train Derailments at Highway-Rail Level Crossings. In: *Proceedings of the 10th World Congress on Railway Research*, Sydney, Australia, November 2013.

Chadwick, S.G., M.R. Saat, C.T. Dick and C.P.L. Barkan. 2013. Decreasing Derailment Occurrence and Severity at Highway-Rail Grade Crossings. In: *Proceedings of the American Railway Engineering and Maintenance-of-Way Association Annual Conference*, Indianapolis, Indiana, September 2013, pp. 2-26.

Chen, Z., M. Shin and B.O. Andrawes. 2013. Finite Element Modeling of the Fastening Systems and Concrete Sleepers in North America. In: *Proceedings of the 10th International Heavy Haul Association Conference*, New Delhi, India, 2013.

Dingler, M.H., Y-C. Lai and C.P.L. Barkan. 2013. Mitigating train-type heterogeneity on a single-track line. *Journal of Rail and Rapid Transit*. 227 (2): 140-147.

do Carmo, T.B., J.R. Edwards, R.G. Kernes, B.O. Andrawes and C.P.L. Barkan. 2013. Analysis of the Shear Behavior of Rail Pad Assemblies as a Component of the Concrete Sleeper Fastening System. In: *Proceedings of the 10th World Congress on Railway Research*, Sydney, Australia, November 2013.

Grasse, J., D.A. Lange, S. Wei and D.A. Kuchma. 2013. Field Testing of Concrete Sleepers and Fastener Systems for the Understanding of Mechanistic Behavior. In: *Proceedings of the 10th International Heavy Haul Association Conference*, New Delhi, India, 2013.

Grasse, J.S., S. Wei, J.R. Edwards, D.A. Kuchma, M. Dersch and D.A. Lange. 2013. Investigating the Concrete Crosstie and Fastening System Load Path Through Field Instrumentation. In: *Proceedings of the American Railway Engineering and Maintenance-of-Way Association Annual Conference*, Indianapolis, Indiana, January 2013, pp. 223-247.

Greve, M.J., C.T. Rapp, M.S. Dersch, J.R. Edwards, C.P.L. Barkan, J. Mediavilla and B. Wilson. 2013. Quantification of Concrete Sleeper and Elastic Fastening System Demands Utilizing Concrete Sleeper Rail Seat Contact Area. In: *Proceedings of the 10th World Congress on Railway Research*, Sydney, Australia, November 2013.

Lautala, P.T., C.T. Dick, J.L. McKinney and D.B. Clarke. 2013. Railway Engineering Education Symposium (REES) – Universities and Industry Collaborate to Develop Railway Education. In: *Proceedings of the ASME Joint Rail Conference*, Knoxville, TN, April 2013.

Lin, C-Y., M.R. Saat and C.P.L Barkan. 2013. Causal Analysis of Passenger Train Accidents on Freight Rail Corridors. In: *Proceedings of the 10th World Congress on Railway Research*, Sydney, Australia, November 2013.

Liu, X., C.T. Dick, A.H. Lovett, M.R. Saat and C.P.L. Barkan. 2013. Seasonal Effect on the Optimization of Rail Defect Inspection Frequency. In: *Proceedings of the ASME 2013 Rail Transportation Division Fall Technical Conference*, Altoona, PA, October 2013.

Liu, X., M.R. Saat and C.P.L Barkan. 2013. Integrated Risk Management Framework for Improving the Safety of Hazardous Materials Transportation by Rail. In: *Proceedings of the 10th World Congress on Railway Research*, Sydney, Australia, November 2013.

Liu, X., M.R. Saat and C.P.L. Barkan. 2013. A Framework for Evaluating Cost-Effectiveness of Accident Prevention Strategies under Uncertainty. In: *Proceedings of Transportation Research Board 92nd Annual Conference, Washington D.C, January 2013*, 2013.

Liu, X., M.R. Saat and C.P.L. Barkan. 2013. Analysis of Major Derailment Causes on Heavy Haul Railways in the United States. In: *Proceedings of the 10th International Heavy Haul Association Conference*, New Delhi, India, February 2013.

Liu, X., M.R. Saat and C.P.L. Barkan. 2013. Integrated risk reduction framework to improve railway hazardous materials transportation safety. *Journal of Hazardous Materials*. 260: 131-140.

Liu, X., M.R. Saat and C.P.L. Barkan. 2013. Safety Effectiveness of Integrated Accident Prevention Strategies. In: *Proceedings of the ASME Joint Rail Conference*, Knoxville, TN, April 2013.

Liu, X., M.R. Saat and C.P.L. Barkan. 2013. Safety effectiveness of integrated risk reduction strategies for rail transport of hazardous materials. *Transportation Research Record: Journal of the Transportation Research Board*. 2374: 102-110.

Liu, X., M.R. Saat, X. Qin and C.P.L. Barkan. 2013. Analysis of U.S. freight-train derailment severity using zero-truncated negative binomial regression and quantile regression. *Accident Analysis and Prevention*. 59: 87-93.

Lovett, A.H., C.P.L. Barkan and C.T. Dick. 2013. An Integrated Model for the Evaluation and Planning of Railroad Track Maintenance. In: *Proceedings of the American Railway Engineering*

and Maintenance-of-Way Association Annual Conference, Indianapolis, Indiana, September 2013, pp. 1029-1044.

Lovett, A.H., C.T. Dick, C.J. Ruppert Jr., M.R. Saat and C.P.L. Barkan. 2013. Development of an Integrated Model for the Evaluation and Planning of Railroad Track Maintenance. In: *Proceedings of the ASME Joint Rail Conference*, Knoxville, TN, April 2013.

Lovett, A.H., G. Munden, M.R. Saat and C.P.L. Barkan. 2013. High-speed rail network design and station location; model and sensitivity analysis. *Transportation Research Record: Journal of the Transportation Research Board*. 2374: 1-8.

Lovett, A.H., M.R. Saat, C.T. Dick, C.J. Ruppert Jr. and C.P.L. Barkan. 2013. Development of an Integrated Railroad Track Maintenance Model. In: *Proceedings of the 10th World Congress on Railway Research*, Sydney, Australia, November 2013.

Mishra, D., Y. Qian, E. Tutumluer and H. Huang. 2013. An Integrated Approach to Dynamic Analysis of Railroad Track Transitions Behavior. 6th International Symposium on Environmental Vibration, Shanghai, China, November 2013.

Qian, Y., D. Mishra, E. Tutumluer and J. Kwon. 2013. Comparative Evaluation of Different Aperture Geogrids for Ballast Reinforcement through Triaxial Testing and Discrete Element Modeling. Geosynthetics 2013, Long Beach, CA, April 2013.

Qian, Y., D. Mishra, E. Tutumluer and J. Kwon. 2013. Discrete Element Modeling of Ballast Reinforced with Triangular Aperture Geogrid. 9th International Conference on Bearing Capacity of Roads, Railways and Airfields, Trondheim, Norway, June 2013.

Qian, Y., E. Tutumluer, D. Mishra and H. Kazmee. 2013. Effect of Geogrid Reinforcement on Railroad Ballast Performance Evaluated through Triaxial Testing and Discrete Element Modeling. 18th International Conference on Soil Mechanics and Geotechnical Engineering. Paris, France, September 2013.

Qian, Y., J. Han, S.K. Pokharel and R.L. Parsons. 2013. Performance of triangular aperture geogrid-reinforced base courses over weak subgrade under cyclic loading. *ASCE Journal of Materials in Civil Engineering*. 25(8): 1013-1021.

Rapp, C.T., M.S. Dersch, J.R. Edwards, C.P.L. Barkan, B. Wilson and J. Mediavilla. 2013. Measuring rail seat pressure distribution in concrete cross-ties; experiments with matrix-based tactile surface sensors. *Transportation Research Record: Journal of the Transportation Research Board*. 2374: 190-200.

Rapp, C.T., M.S. Dersch, J.R. Edwards, C.P.L. Barkan, J.R. Mediavilla and B. Wilson. 2013. Measuring Concrete Sleeper Rail Seat Pressure Distribution with Matrix Based Tactile

Surface Sensors. In: *Proceedings of the 10th International Heavy Haul Association Conference*, New Delhi, India, 2013.

Shin, M., Z. Chen, B.O. Andrawes, R.G. Kernes, M.S. Dersch and J.R. Edwards. 2013. Finite Element Models of Prestressed Concrete Sleepers and Fastening Systems in North America. In: *Proceedings of the 10th World Congress on Railway Research*, Sydney, Australia, November 2013.

Shurpali, A.A., J.R. Edwards, R.G. Kernes, X. Liu, D.A. Lange and C.P.L. Barkan. 2013. Investigation of Material Improvements to Mitigate the Effects of Abrasion Mechanism of Concrete Crosstie Rail Seat Deterioration (RSD) In: *Proceedings of Transportation Research Board 92nd Annual Conference*, Washington D.C, January 2013.

Shurpali, A.A., R.G. Kernes, J.R. Edwards, M.S. Dersch, D.A. Lange and C.P.L. Barkan. 2013. Investigation of the mechanics of rail seat deterioration (RSD) and methods to improve the abrasion resistance of concrete sleeper rail seats. In: *Proceedings of the 10th International Heavy Haul Association Conference (This article is not available electronically.)*, New Delhi, India, February 2013.

Shurpali, A.A., R.G. Kernes, J.R. Edwards, M.S. Dersch, D.A. Lange and C.P.L. Barkan. 2013. Investigation of the Mechanics of Rail Seat Deterioration (RSD) and Methods to Improve the Abrasion Resistance of Concrete Sleeper Rail Seats. In: *Proceedings of the 10th International Heavy Haul Association Conference*, New Delhi, India, 2013.

Sogin, S.L., C.T. Dick, Y-C. Lai and C.P.L. Barkan. 2013. Analyzing the Incremental Transition from Single to Double Track Railway Lines. In: *Proceedings of the International Association of Railway Operations Research (IAROR) 5th International Seminar on Railway Operations Modelling and Analysis*, Copenhagen, Denmark, May 2013.

Sogin, S.L., C.T. Dick, Y-C. Lai and C.P.L. Barkan. 2013. Analyzing the Progression from Single to Double Track Networks. In: *Proceedings of the ASME Joint Rail Conference*, Knoxville, TN, April 2013.

Sogin, S.L., Y-C. Lai, C.T. Dick and C.P.L. Barkan. 2013. Comparison of capacity of single- and double-track rail lines. *Transportation Research Record: Journal of the Transportation Research Board*. 2374: 111-118.

Tutumluer, E., Y. Qian, Y.M.A. Hashash, J. Ghaboussi and D. Davis. 2013. Discrete element modeling of ballasted track deformation behavior. *International Journal of Rail Transportation*. 1(1-2): 57-73.

Uzarski, D.R. and M.N. Grussing. 2013. Beyond mandated track safety inspections using a mission-focused, knowledge-based approach. *International Journal of Rail Transportation*. 1 (4): 218-326.

Van Dyk, B.J., C.T. Rapp, M.S. Dersch, J.R. Edwards, C.J. Ruppert Jr. and C.P.L. Barkan. 2013. Evaluation of Existing Loading Environment in North America for Improved Concrete Sleepers and Fastening Systems. In: *Proceedings of the 10th World Congress on Railway Research*, Sydney, Australia, November 2013.

Van Dyk, B.J., J.R. Edwards, C.J. Ruppert Jr. and C.P.L. Barkan. 2013. Considerations for Mechanistic Design of Concrete Sleepers and Elastic Fastening Systems in North America. In: *Proceedings of the 10th International Heavy Haul Association Conference*, New Delhi, India, February 2013.

Van Dyk, B.J., J.R. Edwards, C.J. Ruppert, Jr. and C.P.L. Barkan. 2013. Considerations for Mechanistic Design of Concrete Sleepers and Elastic Fastening Systems in North America. In: *Proceedings of the 10th International Heavy Haul Association Conference*, New Delhi, India, 2013.

Van Dyk, B.J., M.S. Dersch, J.R. Edwards, C.J. Ruppert Jr. and C.P.L. Barkan. 2013. Quantifying Shared Corridor Wheel Loading Variation Using Wheel Impact Load Detectors. In: *Proceedings of the ASME Joint Rail Conference*, Knoxville, TN, April 2013.

2012

Caughron, B.M., M.R. Saat and C.P.L. Barkan. 2012. Identifying and Prioritizing Shared Rail Corridor Technical Challenges. In: *Proceedings of the American Railway Engineering and Maintenance-of-Way Association Annual Conference*, Chicago, IL, September 2012.

Chadwick, S.G., M.R. Saat and C.P.L. Barkan. 2012. Analysis of Factors Affecting Train Derailments at Highway-Rail Grade Crossings. In: *Proceedings of the Transportation Research Board 91th Annual Meeting*, Washington, D.C, January 2012.

Gehringer, E., D. Read and E. Tutumluer. 2012. Characterization of Ballast Performance in Heavy Axle Loading (HAL) In: *Proceedings of the American Railway Engineering and Maintenance-of-Way Association Annual Conference*, Chicago, IL, September 2012.

Hajibabai, L., M.R. Saat, Y. Ouyang, C.P.L. Barkan, Z. Yang, K. Bowling, K. Somani, D. Lauro and X. Li. 2012. Wayside Defect Detector Data Mining to Predict Potential WILD Train Stops. In: *Proceedings of the American Railway Engineering and Maintenance-of-Way Association Annual Conference*, Chicago, IL, September 2012.

Kernes, R.G., J.R. Edwards, M.S. Dersch, D.A. Lange and C.P.L. Barkan. 2012. Investigation of the Dynamic Frictional Properties of a Concrete Crosstie Rail Seat and Pad and Its Effect on Rail Seat Deterioration (RSD) In: *Proceedings of the Transportation Research Board 91st Annual Meeting*, Washington, D.C, January 2012.

Liu, X., M.R. Saat and C.P.L. Barkan. 2012. Analysis of causes of major train derailment and their effect on accident rates. *Transportation Research Record: Journal of the Transportation Research Board.* 2289: 154-163.

Marruffo, A., H. Yoon, D.J. Schaeffer, C.P.L. Barkan, M.R. Saat and C.J. Werth. 2012. NAPL source zone depletion model and its application to railroad-tank-car spills. *Ground Water.* 50 (4): 627-632.

Moreu, F., H. Jo, J. Li, S. Cho, R. Kim, B.F. Spencer Jr. and J.M. LaFave. 2012. Reference-Free Displacement Estimation for Structural Health Monitoring of Railroad Bridges. In: *Proceedings of the American Railway Engineering and Maintenance-of-Way Association Annual Conference*, Chicago IL, September 2012.

Rapp, C.T., J.R. Edwards, M.S. Dersch, C.P.L. Barkan, B. Wilson and J. Mediavilla. 2012. Measuring Concrete Crosstie Rail Seat Pressure Distribution with Matrix Based Tactile Surface Sensors. In: *Proceedings of the ASME Joint Rail Conference*, Philadelphia, PA, April 2012.

Rapp, C.T., J.R. Edwards, M.S. Dersch, C.P.L. Barkan, B. Wilson and J. Mediavilla. 2012. Measuring Concrete Crosstie Rail Seat Pressure Distribution with Matrix Based Tactile Surface Sensors. In: *Proceedings of the American Railway Engineering and Maintenance-of-Way Association Annual Conference*, Chicago, IL, September 2012.

Shurpali, A.A., E. Van Dam, J.R. Edwards, D.A. Lange and C.P.L. Barkan. 2012. Laboratory Investigation of the Abrasive Wear Mechanism of Concrete Crosstie Rail Seat Deterioration (RSD) In: *Proceedings of the ASME Joint Rail Conference*, Philadelphia, PA, April 2012.

Sogin, S.L., B.M. Caughron and S.G. Chadwick. 2012. Optimizing Skip Stop Service in Passenger Rail Transportation. In: *Proceedings of the ASME Joint Rail Conference*, Philadelphia, PA, April 2012.

Sogin, S.L., C.P.L. Barkan, Y-C. Lai and M.R. Saat. 2012. Impact of Passenger Trains in Double Track Networks. In: *Proceedings of the ASME Joint Rail Conference*, Philadelphia, PA, April 2012.

Sogin, S.L., C.P.L. Barkan, Y-C. Lai and M.R. Saat. 2012. Measuring the Impact of Additional Rail Traffic Using Highway and Railroad Metrics. In: *Proceedings of the ASME Joint Rail Conference*, Philadelphia, PA, April 2012.

Tutumluer, E., T. D. Stark, D. Mishra and J.P. Hyslip. 2012. Investigation and Mitigation of Differential Movement at Railway Transitions for US High Speed Passenger Rail and Joint Passenger/Freight Corridors. In: *Proceedings of the ASME Joint Rail Conference*, Philadelphia, PA, April 2012.

Xiao, Y., E. Tutumluer, Y. Qian and J.A. Siekmeier. 2012. Gradation effects influencing mechanical properties of aggregate base/granular subbase materials in Minnesota. *Transportation Research Record: Journal of the Transportation Research Board*. 2267: 14 – 16. Best Paper Award.

Zeman, J.C., J.R. Edwards, D.A. Lange and C.P.L. Barkan. 2012. Hydraulic pressure cracking in rail seats of concrete crossties. *ACI Materials Journal*. 109 (6): 639-646.

2011

Davis, D.D., S.F. Kalay and C.P.L. Barkan. 2011. AAR' Smart Sixteen. *Railway Age*. 212: February, p. 42.

Dersch, M.S., M.J. Gutierrez Romero, J.R. Edwards, C.P.L. Barkan, B. Wilson and J. Mediavilla. 2011. Design and Performance of Elastic Fastening System Assemblies and Concrete Sleepers for Heavy-Haul Service. In: *Proceedings of the 2011 International Heavy Haul Association Conference*, Calgary, Canada, June 2011.

Gutierrez Romero, M.J., M.S. Dersch, J.R. Edwards, C.P.L. Barkan, B. Wilson and J. Mediavilla. 2011. Investigation of Concrete Sleeper Rail Seat Pressure Distributions for Varying Fastening Systems and Loading Conditions. In: *Proceedings of the 2011 International Heavy Haul Association Conference*, Calgary, Canada, June 2011.

Hart, J.M., L.F. Camargo Molina, E. Resendiz, J.R. Edwards, N. Ahuja and C.P.L. Barkan. 2011. Development of a Machine Vision System for the Inspection of Heavy-Haul Railway Turnout and Track Components. In: *Proceedings of the 2011 International Heavy Haul Association Conference*, Calgary, Canada, June 2011.

Kernes, R.G., J.R. Edwards, M.S. Dersch, D.A. Lange and C.P.L. Barkan. 2011. Investigation of the Impact of Abrasion as a Concrete Crosstie Rail Seat Deterioration (RSD) Mechanism. In: *Proceedings of the American Railway Engineering and Maintenance-of-Way Association Annual Conference*, Minneapolis, MN, September 2011.

Kumar, A., T.G. Rickett, A. Vemula, J.M. Hart, J.R. Edwards, N. Ahuja and C.P.L. Barkan. 2011. Aerodynamic Analysis of Intermodal Freight Trains Using Machine Vision. In: *Proceedings of the 9th World Congress on Railway Research*, Lille, France, May 2011.

Lai, Y-C. and C.P.L. Barkan. 2011. Comprehensive decision support framework for strategic railway capacity planning. *Journal of Transportation Engineering*. 137 (10): 738-749.

Lai, Y-C., A. Kawprasert, C-Y. Lin, M.R. Saat, C.H. Liang and C.P.L. Barkan. 2011. Integrated optimization model to manage risk of transporting hazardous materials on railroad

networks. *Transportation Research Record: Journal of the Transportation Research Board*. 2261: 115-123.

Liu, X, C.P.L. Barkan and M.R. Saat. 2011. Analysis of derailments by accident cause: evaluating railroad track upgrades to reduce transportation risk. *Transportation Research Record: Journal of the Transportation Research Board*. 2261: 178-185.

Liu, X., M.R. Saat and C.P.L. Barkan. 2011. Benefit-Cost Analysis of Heavy Haul Railway Track Upgrade for Safety and Efficiency. In: *Proceedings of the 2011 International Heavy Haul Association Conference*, Calgary, Canada, June 2011.

Molina Camargo, L.F., E. Resendiz, J.R. Edwards, J.M. Hart, C.P.L. Barkan and N. Ahuja. 2011. Condition Monitoring of Railway Turnouts and Other Track Components Using Machine Vision. In: *Proceedings of the Transportation Research Board 90th Annual Meeting*, Washington, D.C, January 2011.

Molina Camargo, L.F., J.R. Edwards and C.P.L. Barkan. 2011. Emerging Condition Monitoring Technologies for Railway Track Components and Special Trackwork. In: *Proceedings of the ASME/ASCE/IEEE Joint Rail Conference*, Pueblo, CO, April 2011.

Qian, Y., E. Tutumluer and H. Huang. 2011. A Validated Discrete Element Modeling Approach for Studying Geogrid-Aggregate Reinforcement Mechanisms. In: *Geotechnical Special Publication No. 211*, Geo-Frontiers 2011, ASCE Geo-Institute, Dallas, TX, March 2011.

Qian, Y., E. Tutumluer and H. Huang. 2011. Ballast Vibrations and Deformations due to Different Train Loading Scenarios Studied using the Discrete Element Method. 5th International Symposium on Environmental Vibration (ISEV2011), Chengdu, Sichuan, China, October 2011.

Qian, Y., J. Han, S.K. Pokharel and R.L. Parsons. 2011. Determination of Resilient Modulus of Subgrade Using Cyclic Plate Loading Tests. In: *Geotechnical Special Publication No. 211*, Geo-Frontiers 2011, ASCE Geo-Institute, Dallas, TX, March 2011.

Qian, Y., J. Han, S.K. Pokharel and R.L. Parsons. 2011. Stress analysis on triangular aperture geogrid-reinforced bases over weak subgrade under cyclic loading – an experimental study. *Transportation Research Record: Journal of the Transportation Research Board*. 2204: 83-91.

Rickett, T.G., J.M. Hart, J.R. Edwards, A. Kumar, C.P.L. Barkan and N. Ahuja. 2011. Monitoring the Aerodynamic Efficiency of Intermodal Train Loading Using Machine Vision. In: *Proceedings of Transportation Research Board 90th Annual Conference*, Washington D.C, January 2011.

Rickett, T.G., J.R. Edwards and C.P.L. Barkan. 2011. Review of Intermodal Train Loading Metrics for North American railroads. In: *Proceedings of the ASME/ASCE/IEEE Joint Rail Conference*, Pueblo, CO, April 2011.

Rose, J.G. and D.R. Uzarski. 2011. Performance-Based Trackbed Structural Design and Analysis Using Kentrack. In: *Proceedings of GEORAIL 2011: Symposium international Geotechnique ferroviaire*, Paris, France, May 2011.

Saat, M.R. and C.P.L. Barkan. 2011. Generalized railway tank car safety design optimization for hazardous materials transport: Addressing the trade-off between transportation efficiency and safety. *Journal of Hazardous Materials*. 189 (1-2): 62-68.

Sameni, M.K., M.H. Dingler, J.M. Preston and C.P.L. Barkan. 2011. Profit-Generating Capacity for a Freight Railroad. In: *Proceedings of Transportation Research Board 90th Annual Conference*, Washington D.C, January 2011.

Schlake, B.W., C.P.L. Barkan and J.R. Edwards. 2011. Reducing Heavy-Haul Railcar Maintenance Costs and Improving Terminal Performance Using Technology: A Lean Production Approach. In: *Proceedings of the 2011 International Heavy Haul Association Conference*, Calgary, Canada, June 2011.

Schlake, B.W., C.P.L. Barkan and J.R. Edwards. 2011. Reducing Network Costs Through Improved Vehicle Maintenance: A Lean Production Approach. In: *Proceedings of the 9th World Congress on Railway Research Conference*, Lille, France, May 2011.

Schlake, B.W., C.P.L. Barkan and J.R. Edwards. 2011. Train delay and economic impact of in-service failures of railroad rolling stock. *Transportation Research Record: Journal of the Transportation Research Board*. 2261: 124-133.

Sogin, S.L., C.P.L. Barkan and M.R. Saat. 2011. Simulating the Effect of Higher Speed Passenger Trains in Single Track Freight Networks. In: *Proceedings of the Winter Simulation Conference*, Phoenix, Arizona, December 2011.

Tutumluer, E., Y. Qian, Y.M.A. Hashash and J. Ghaboussi. 2011. Field Validated Discrete Element Model for Railroad Ballast. In: *Proceedings of the American Railway Engineering and Maintenance-of-Way Association Annual Conference*, Minneapolis, MN, September 2011.

Uzarski, D.R. 2011. Using RAILERTM to Develop Railroad Track M&R Plans and Budgets. In: *Transportation Systems 2000 Workshop, Sharing Technology for the Future*, February 2011, pp. 298-311 Zeman, J.C., J.R. Edwards, D.A. Lange and C.P.L. Barkan. 2011. Laboratory Testing to Address the Potential for Damaging Hydraulic Pressure in the Concrete Tie Rail Seat. In: *Proceedings of the Transportation Research Board 90th Annual Meeting*, Washington, D.C, January 2011.

Zeman, J.C., R.G. Kernes, J.R. Edwards, D.A. Lange and C.P.L. Barkan. 2011. Hydraulic Mechanisms of the Deterioration of Concrete Sleeper Rail Seats. In: *Proceedings of the 2011 International Heavy Haul Association Conference*, Calgary, Canada, June 2011.

Zeman, J.C., R.G. Kernes, J.R. Edwards, D.A. Lange and C.P.L. Barkan. 2011. Moisture-Driven Deterioration and Abrasion of Concrete Sleeper Rail Seats. In: *Proceedings of 9th World Congress on Railway Research*, Lille, France, February 2011.

2010

Dingler, M.H., A. Koenig, S.L. Sogin and C.P.L. Barkan. 2010. Determining the Causes of Train Delay. Proceedings of the American Railway Engineering and Maintenance-of-Way Association Annual Conference, Orlando, FL, August 2010.

Dingler, M.H., Y-C. Lai and C.P.L. Barkan. 2010. Effects of communications-based train control and electronically controlled pneumatic brakes on railroad capacity. *Transportation Research Record: Journal of the Transportation Research Board*. 2159: 77-84.

Gutierrez Romero, M.J., J.R. Edwards, C.P.L. Barkan, B. Wilson and J. Mediavilla. 2010. Advancements in Fastening System Design for North American Concrete Crossties in Heavy-Haul Service. In: *Proceedings of the American Railway Engineering and Maintenance-of-Way Association Annual Conference*, Orlando, FL, September 2010.

Kao, T.C., Y-C. Lai and M-C. Shih. 2010. Privatization versus public works for high-speed rail projects. *Transportation Research Record: Journal of the Transportation Research Board*. 2159: 18-26.

Kawprasert, A. and C.P.L. Barkan. 2010. Effect of train speed on risk analysis of transporting hazardous materials by rail. *Transportation Research Record: Journal of the Transportation Research Board*. 2159: 59-68.

Leng, Z. and I.L. Al-Qadi. 2010. Railroad ballast evaluation using ground-penetrating radar: Laboratory investigation and field validation. *Transportation Research Record: Journal of the Transportation Research Board*. 2159: 110-117.

Liu, X., M.R. Saat and C.P.L. Barkan. 2010. Benefit-Cost Analysis of Infrastructure Improvement for Derailment Prevention. In: *Proceedings of the ASME Joint Rail Conference*, Urbana, IL, March 2010.

Qian, Y., J. Han, S.K. Pokharel and R.L. Parsons. 2010. Experimental Study on Triaxial Geogrid-Reinforced Bases over Weak Subgrade under Cyclic Loading. In: *Geotechnical Special Publication No. 199*, Geo-Florida 2010, ASCE Geo-Institute, February 20-24, West Palm Beach, FL, February 2010.

Schlake, B.W., C.P.L. Barkan and J.R. Edwards. 2010. Impact of Automated Condition Monitoring Technologies on Railroad Terminal Performance. Proceedings of the American Railway Engineering and Maintenance-of-Way Association Annual Conference, Orlando, FL, August 2010.

Schlake, B.W., S. Todorovic, J.R. Edwards, J.M. Hart, N. Ahuja and C.P.L. Barkan. 2010. Machine vision condition monitoring of heavy-axle load railcar structural underframe components. *Journal of Rail and Rapid Transit*. 224 (5): 499-511.

Transportation Research Board. 2010. Conference Focuses on High-Speed and Intercity Passenger Rail. *TR News*. 269: July – August, p. 47.

Zeman, J.C., J.R. Edwards, D.A. Lange and C.P.L. Barkan. 2010. Evaluating the Potential for Damaging Hydraulic Pressure in a Concrete Tie Rail Seat. In: *Proceedings of the ASME Joint Rail Conference*, Urbana, IL, March 2010, April 2010.

Zeman, J.C., J.R. Edwards, D.A. Lange and C.P.L. Barkan. 2010. Investigation of Potential Concrete Tie Rail Seat Deterioration Mechanisms: Cavitation Erosion and Hydraulic Pressure Cracking. In: *Proceedings of the Transportation Research Board 89th Annual Meeting*, Washington, D.C, January 2010.

2009

Al-Qadi, I., W. Xie and R. Roberts. 2009. Optimization of antenna configuration in multiple-frequency ground penetrating radar system for railroad substructure assessment. *NDT&E International*. 43 (1): 20-28.

Barkan, C.P.L. 2009. Renewing the Partnership: Railroads Once Enjoyed Strong Relationships with the Academic Community. It' Time to Rebuild Them. *Railway Age*. 209: October, pp. 25-26.

Dingler, M.H., Y-C. Lai and C.P.L. Barkan. 2009. Impact of train type heterogeneity on single-track railway capacity. *Transportation Research Record: Journal of the Transportation Research Board*. 2117: 41-49.

Dingler, M.H., Y-C. Lai and C.P.L. Barkan. 2009. Impact of CBTC and ECP Brakes on Capacity. In: *Proceedings of the American Railway Engineering and Maintenance-of-Way Association Annual Conference*, Chicago, IL, September 2009.

Dingler, M.H., Y-C. Lai and C.P.L. Barkan. 2009. Impact of Operational Practices on Rail Line Capacity: A Simulation Analysis. In: *Proceedings of the American Railway Engineering and Maintenance-of-Way Association Annual Conference*, Chicago, IL, September 2009.

Grussing, M.N., D.R. Uzarski and L.R. Marrano. 2009. Building infrastructure functional capacity measurement framework. *Journal of Infrastructure Systems*. 15 (4): 371-377.

Hart, J.M., B.W. Schlake, S. Todorovic, J.R. Edwards, N. Ahuja and C.P.L. Barkan. 2009. Machine Vision Condition Monitoring of Railcar Structural Underframe Components. In: *Proceedings of the Fall Conference of the ASME Rail Transportation Division*, Ft. Worth, Texas, October 2009.

Huang, H., E. Tutumluer and W. Dombrow. 2009. Laboratory characterization of fouled railroad ballast behavior. *Transportation Research Record: Journal of the Transportation Research Board*. 2117: 93-101.

Judge, T. 2009. Learning for the Future. *Railway Track & Structures*. 105: December, pp. 27-30.

Kawprasert, A. and C.P.L. Barkan. 2009. Communication and interpretation of results of route risk analyses of hazardous materials transportation by railroad. *Transportation Research Record: Journal of the Transportation Research Board*. 2097: 125-135.

Lai, Y-C. and C.P.L. Barkan. 2009. Enhanced parametric railway capacity evaluation tool. *Transportation Research Record: Journal of the Transportation Research Board*. 2117: 33-40.

Lai, Y-C. and C.P.L. Barkan. 2009. Optimizing Railway Capacity Planning: A Decision Support Tool. In: *Proceedings of the 9th International Heavy Haul Conference*, Shanghai, China, June 2009.

Ouyang, Y., X. Li, Y-C. Lai, C.P.L. Barkan and A. Kawprasert. 2009. Optimal locations of railroad wayside defect detection installations. *Computer-Aided Civil and Infrastructure Engineering*. 24 (5): 309-319.

Peltier, D.C. and C.P.L. Barkan. 2009. Characterizing and inspecting for progressive epoxy debonding in bonded insulated rail joints. *Transportation Research Record: Journal of the Transportation Research Board*. 2117: 85-92.

Pokharel, S.K., J. Han, R.L. Parsons, Y. Qian, D. Leshchinsky and I. Halahmi. 2009. Experimental Study on Bearing Capacity of Geocell-reinforced Bases. 8th International Conference on Bearing Capacity of Roads, Railways and Airfields, Champaign, IL, June 2009.

Sawadisavi, S., J.R. Edwards, E. Resendiz, J.M. Hart, C.P.L. Barkan and N. Ahuja. 2009. Machine-Vision Inspection of Railroad Track. In: *Proceedings of the Transportation Research Board 88th Annual Meeting*, Washington, DC, January 2009.

Schlake, B.W., J.R. Edwards, J.M. Hart, C.P.L. Barkan, S. Todorovic and N. Ahuja. 2009. Automated Inspection of Railcar Underbody Structural Components Using Machine Vision Technology. In: *Proceedings of the Transportation Research Board 88th Annual Meeting*, Washington, DC, January 2009.

Schlake, B.W., J.R. Edwards, J.M. Hart, C.P.L. Barkan, S. Todorovic and N. Ahuja. 2009. Machine Vision Condition Monitoring of Heavy-Haul Railcar Structural Underframe Components. In: *Proceedings of the 9th International Heavy Haul Conference*, Shanghai, China, June 2009.

Tutumluer, E., H. Huang, Y.M.A. Hashash and J. Ghaboussi. 2009. AREMA Gradations Affecting Ballast Performance Using Discrete Element Modeling (DEM) Approach. In: *Proceedings of the American Railway Engineering and Maintenance-of-Way Association Annual Conference*, Chicago, IL, September 2009.

Yoon, H., C. J. Werth, C.P.L. Barkan, D.J. Schaeffer and P. Anand. 2009. An environmental screening model to assess the consequences to soil and groundwater from railroad-tank-car spills of light non-aqueous phase liquids. *Journal of Hazardous Materials*. 165: 332-344.

Zeman, J.C., J.R. Edwards, C.P.L. Barkan and D. Lange. 2009. Failure Mode and Effect Analysis of Concrete Ties in North America. In: *Proceedings of the 9th International Heavy Haul Conference*, Shanghai, China, June 2009.

Zeman, J.C., J.R. Edwards, D.A. Lange and C.P.L. Barkan. 2009. Investigating the Role of Moisture in Concrete Tie Rail Seat Deterioration. In: *Proceedings of the American Railway Engineering and Maintenance-of-Way Association Annual Conference*, Chicago, IL, September 2009.

2008

Barkan, C.P.L. 2008. 1968 – 2008 Moving Toward Green: Forty Years of Railroad Environmental Practice. *Railway Age*. 209: October, pp. 24-27.

Barkan, C.P.L. 2008. Building an Education Infrastructure for Railway Transportation Engineering: Renewed Partnerships on New Tracks. *TR News*. 257: July – August, pp. 18-23.

Barkan, C.P.L. 2008. Improving the design of higher-capacity railway tank cars for hazardous materials transport: Optimizing the trade-off between weight and safety. *Journal of Hazardous Materials*. 160: 122-134.

Dick, C.T. 2008. Alignment Analysis and Comparison Techniques for Small Railroad Projects in the 21st Century. In: *Proceedings of the 2008 Annual Conference, American Railway Engineering and Maintenance-of-Way Association*, Salt Lake City, Utah, September 2008.

- Grussing, M.N. and D.R. Uzarski. 2008. Framework for short-line railroad track asset management and condition reporting. *Infrastructure Reporting and Asset Management*, American Society of Civil Engineers, May, pp. 172-177.
- Hart, J.M., E. Resendiz, B. Freid, S. Sawadisavi, C.P.L. Barkan and N. Ahuja. 2008. Machine Vision Using Multi-Spectral Imaging for Undercarriage Inspection of Railroad Equipment. In: *Proceedings of the 8th World Congress on Railway Research*, Seoul, Korea, May 2008.
- Kawprasert, A. and C.P.L. Barkan. 2008. Effects of route rationalization on hazardous materials transportation risk. *Transportation Research Record: Journal of the Transportation Research Board*. 2043: 65-72.
- Lai, Y-C. and C.P.L. Barkan. 2008. A Quantitative Decision Support Framework for Optimal Railway Capacity Planning. In: *Proceedings of the 8th World Congress on Railway Research*, Seoul, Korea, May 2008.
- Lai, Y-C., C.P.L. Barkan and H. Önal. 2008. Optimizing the aerodynamic efficiency of intermodal freight trains. *Transportation Research Part E: Logistics and Transportation Review*. 44 (5): 820-834.
- Lai, Y-C., Y. Ouyang and C.P.L. Barkan. 2008. A rolling horizon model to optimize aerodynamic efficiency of intermodal freight trains with uncertainty. *Transportation Science*. 42 (4): 466-477.
- Peltier, D.C. and C.P.L. Barkan. 2008. Modeling the Effects of Epoxy Debonding on Bonded Insulated Rail Joints Subjected to Longitudinal Loads. In: *Proceedings of the Transportation Research Board 87th Annual Meeting*, Washington, DC, January 2008.
- Saat, M.R. and C.P.L. Barkan. 2008. Optimizing Railroad Tank Car Safety Design to Reduce Dangerous Goods Transportation Risk. In: *Proceedings of the 8th World Congress on Railway Research*, Seoul, Korea, May 2008.
- Sawadisavi, S., J.R. Edwards, E. Resendiz, J.M. Hart, C.P.L. Barkan and N. Ahuja. 2008. Machine-Vision Inspection of Railroad Track. In: *Proceedings of the American Railway Engineering and Maintenance-of-Way Association Annual Conference*, Salt Lake City, UT, September 2008.
- Schaeffer, D.J., C.W. Werth, C.P.L. Barkan, H. Yoon and N. Hridaya. 2008. *Hazardous Materials Transportation Environmental Consequence Model: Verification and Validation Document*. Railroad Engineering Program, University of Illinois at Urbana-Champaign (for the Association of American Railroads), Urbana, IL.

Schafer, D.H. and C.P.L. Barkan. 2008. A Hybrid Logistic Regression/Neural Network Model for the Prediction of Broken Rails. In: *Proceedings of the 8th World Congress on Railway Research*, Seoul, Korea, May 2008.

Schafer, D.H. and C.P.L. Barkan. 2008. A Prediction Model for Broken Rails and an Analysis of Their Economic Impact. In: *Proceedings of the American Railway Engineering and Maintenance-of-Way Association Annual Conference*, Salt Lake City, UT, September 2008.

Schafer, D.H. and C.P.L. Barkan. 2008. Relationship between train length and accident causes and rates. *Transportation Research Record: Journal of the Transportation Research Board*. 2043: 73-82.

Socie, D. and C.P.L. Barkan. 2008. Smart Sensor System for Monitoring Railcar Braking Systems, HSR 51 Final Report. High-Speed Rail IDEA Program, Transportation Research Board, National Research Council, Washington, DC.

Tutumluer, E., W. Dombrow and H. Huang. 2008. Laboratory Characterization of Coal Dust Fouled Ballast Behavior. In: *Proceedings of the American Railway Engineering and Maintenance-of-Way Association Annual Conference*, Salt Lake City, UT, September 2008.

Uzarski, D.R. and M.N. Grussing. 2008. Building condition assessment metrics: Best practices. *Infrastructure Reporting and Asset Management*. 147-152.

2007

Ahuja, N. and C.P.L. Barkan. 2007. Machine Vision for Railroad Equipment Undercarriage Inspection Using Multi-Spectral Imaging, HSR 49 Final Report. High-Speed Rail IDEA Program, Transportation Research Board, National Research Council, Washington, DC.

Barkan, C.P.L., S. Ukkusuri and S.T. Waller. 2007. Optimizing the design of railway tank cars to minimize accident-caused releases. *Computers & Operations Research*. 34: 1266-1286.

Dirnberger, J.R. and C.P.L. Barkan. 2007. Lean railroading for improving railroad classification terminal performance. *Transportation Research Record: Journal of the Transportation Research Board*. 1995: 52-61.

Edwards, J.R., J.M. Hart, S. Todorovic, C.P.L. Barkan, N. Ahuja, Z. Chua, N. Kocher and J.C. Zeman. 2007. Development of Machine Vision Technology for Railcar Safety Appliance Inspection. In: *International Heavy Haul Conference Specialist Technical Session – High Tech in Heavy Haul*, Kiruna, Sweden, June 2007, pp. 745-752.

Freid, B., C.P.L. Barkan, N. Ahuja, J.M. Hart, S. Todorovic and N. Kocher. 2007. Multispectral Machine Vision for Improved Undercarriage Inspection of Railroad Rolling Stock.

In: *International Heavy Haul Conference Specialist Technical Session – High Tech in Heavy Haul*, Kiruna, Sweden, June 2007, pp. 737-744.

Kao, T.C. and C.K. Lin. 2007. Taiwan High Speed Rail & Its Impact to Regional Development. In: *Proceedings of the 4th Asian Civil Engineering Coordinating Council (ACECC) International Conference*, Taipei, Taiwan, January 2007.

Lai, Y-C., C.P.L. Barkan, J. Drapa, N. Ahuja, J.M. Hart, P.J. Narayanan, C.V. Jawahar, A. Kumar, L. Milhon and M.P. Stehly. 2007. Machine vision analysis of the energy efficiency of intermodal freight trains. *Journal of Rail and Rapid Transit*. 221: 353-364.

Lai, Y-C., Y. Ouyang and C.P.L. Barkan. 2007. A Rolling Horizon Framework for Intermodal Loading Assignment to Improve Fuel Efficiency. In: *International Heavy Haul Conference Specialist Technical Session – High Tech in Heavy Haul*, Kiruna, Sweden, June 2007, pp. 129-136.

Pecknold, D., H. Sehitoglu, C.P.L. Barkan, S. Kibey and O-C. Lee. 2007. Tank Car Reliability Design and Analysis, (DOT/FRA/ORD-07/05). U.S. Department of Transportation, Federal Railroad Administration, Office of Research and Development, Washington, DC.

Peltier, D.C., C.P.L. Barkan, S. Downing and D. Socie. 2007. Measuring Degradation of Bonded Insulated Rail Joints. In: *Proceedings of the American Railway Engineering and Maintenance-of-Way Association Annual Conference*, Chicago, IL, September 2007.

Peltier, D.C., C.P.L. Barkan, S. Downing and D. Socie. 2007. Using Strain Gauges to Detect Epoxy Debonding in Insulated Rail Joints. In: *International Heavy Haul Conference Specialist Technical Session – High Tech in Heavy Haul*, Kiruna, Sweden, June 2007, pp. 151-158.

Tutumluer, E., H. Huang, Y. Hashash and J. Ghaboussi. 2007. Discrete Element Modeling of Railroad Ballast Settlement. In: *Proceedings of the American Railway Engineering and Maintenance-of-Way Association Annual Conference*, Chicago, IL, September 2007.

Uzarski, D.R., M.N. Grussing and J.B. Clayton. 2007. Knowledge-based condition survey inspection concepts. *Journal of Infrastructure Systems*. 13 (1): 72-79.

2006

Anand, P. and C.P.L. Barkan. 2006. Exposure of soil and groundwater to spills of hazardous materials transported by rail: A geographic information system analysis. *Transportation Research Record: Journal of the Transportation Research Board*. 1943: 12-19.

Chen, Y., F.V. Lawrence, C.P.L. Barkan and J.A. Dantzig. 2006. Heat transfer modelling of rail thermite welding. *Journal of Rail and Rapid Transit*. 220: 207-217.

Chen, Y., F.V. Lawrence, C.P.L. Barkan and J.A. Dantzig. 2006. Weld defect formation in rail thermite welds. *Journal of Rail and Rapid Transit*. 220: 373-384.

Dirnberger, J.R. and C.P.L. Barkan. 2006. Implementing Bottleneck Management Techniques and Establishing Quality of Sort Relationships to Improve Terminal Processing Capacity. In: *Proceedings of the 7th World Congress on Railway Research*, Montreal, Canada, June 2006.

Dirnberger, J.R. and C.P.L. Barkan. 2006. Improving Railroad Classification Yard Performance Through Bottleneck Management Methods. In: *Proceedings of the American Railway Engineering and Maintenance-of-Way Association Annual Conference*, Louisville, KY, September 2006.

Edwards, J.R, C.P.L. Barkan, S. Todorovic, J.M. Hart and N. Ahuja. 2006. Improving the Efficiency and Effectiveness of Railcar Safety Appliance Inspection Using Machine Vision Technology. In: *Proceedings of the IEEE/ASME Joint Rail Conference*, Atlanta, GA, April 2006.

Edwards, J.R, C.P.L. Barkan, S. Todorovic, J.M. Hart and N. Ahuja. 2006. Improving the Efficiency and Effectiveness of Railcar Safety Appliance Inspection Using Machine Vision Technology. In: *Proceedings of the Transportation Research Board 85th Annual Meeting*, Washington, 2006.

Grimes, G.A. and C.P.L. Barkan. 2006. Cost-effectiveness of railway infrastructure renewal maintenance. *Journal of Transportation Engineering*. 132 (8): 601-608.

Grussing, M.N., D.R. Uzarski and L.R. Marrano. 2006. Condition and Reliability Prediction Models Using the Weibull Probability Distribution. In: *Proceedings of the Ninth International Conference Applications of Advanced Technologies in Transportation*, American Society of Civil Engineers, August 2006, pp. 19-24.

Grussing, M.N., D.R. Uzarski and L.R. Marrano. 2006. Optimizing Facility Component Maintenance, Repair, and Restoration Investment Strategies Using Financial ROI Metrics and Consequence Analysis. In: *Proceedings of the Ninth International Conference Applications of Advanced Technologies in Transportation*, August 2006, pp. 81-86.

Lai, Y-C. and C.P.L. Barkan. 2006. Improving Energy Efficiency of Intermodal Trains Using Machine Vision and Operations Research Analysis. In: *Proceedings of the 7th World Congress on Railway Research*, Montreal, Canada, June 2006.

Lai, Y-C., J.M. Hart, J. Drapa, N. Ahuja, C.P.L. Barkan and L. Milhon. 2006. A Computer Vision System for Monitoring the Energy Efficiency of Intermodal Trains. In: *Proceedings of the IEEE/ASME Joint Rail Conference*, Atlanta, GA, April 2006.

Painter, T.D. and C.P.L. Barkan. 2006. Prospects for Dynamic Brake Energy Recovery on North American Freight Locomotives. In: *Proceedings of the IEEE/ASME Joint Rail Conference*, Atlanta, GA, April 2006.

Saat, M.R. and C.P.L. Barkan. 2006. *Risk Analysis of Rail Transport of Chlorine and Ammonia on U.S. Railroad Mainlines*. Railroad Engineering Program, University of Illinois at Urbana-Champaign (for the Association of American Railroads), Urbana, IL.

Saat, M.R. and C.P.L. Barkan. 2006. The Effect of Rerouting and Tank Car Safety Design on the Risk of Rail Transport of Hazardous Materials. In: *Proceedings of the 7th World Congress on Railway Research*, Montreal, QC, Canada, June 2006.

Treichel, T.T., J.P. Hughes, C.P.L. Barkan, R.D. Sims, E.A. Phillips, M.R. Saat, Y.K. Wen and D.G. Simpson. 2006. *Safety Performance of Tank Cars in Accidents: Probabilities of Lading Loss, RA-05-02*. RSI-AAR Railroad Tank Car Safety Research and Test Project, Leesburg, VA.

Uzarski, D.R. 2006. Deficiency vs. Distress-based Inspection and Asset Management Approaches: A Primer. *APWA Reporter, American Public Works Association*.73: June, pp. 50-52.

Wang, C.P., B.L. Smith, D.R. Uzarski and S.C. Wong, (Eds.) 2006. *Applications of Advanced Technology in Transportation*. ASCE Specialty Conference Proceedings.

2005

Anand, P., C.P.L. Barkan, D.J. Schaeffer, C.J. Werth and B.S. Minsker. 2005. Environmental Risk Analysis of Chemicals Transported in Railroad Tank Cars. In: *Proceedings of the 8th International Heavy Haul Conference*, Rio de Janeiro, June 2005, pp. 395-403.

Anderson, R.T. and C.P.L. Barkan. 2005. Derailment Probability Analyses and Modeling of Mainline Freight Trains. In: *Proceedings of the 8th International Heavy Haul Conference*, Rio de Janeiro, June 2005, pp. 491-497.

Clayton, J.B. and D.R. Uzarski. 2005. A Revolutionary Approach to Building Inspection, Condition Assessment, and Functionality Assessment. In: *Proceedings of 2005 International Facility Management Association (IFMA) Conference and Expo*, October 2005.

Lai, Y-C. and C.P.L. Barkan. 2005. Options for improving the energy efficiency of intermodal freight trains. *Transportation Research Record: Journal of the Transportation Research Board*. 1916: 47-55.

Lai, Y-C., J.M. Hart, P. Vemuru, J. Drapa, N. Ahuja, C.P.L. Barkan, L. Milhon and M.P. Stehly. 2005. Machine Vision Analysis of the Energy Efficiency of Intermodal Trains. In: *Proceedings of the 8th International Heavy Haul Conference*, Rio de Janeiro, April 2005, pp. 387-394.

Saat, M.R. and C.P.L. Barkan. 2005. Release risk and optimization of railroad tank car safety design. *Transportation Research Record: Journal of the Transportation Research Board*. 1916: 78-87.

Saat, M.R., C.P.L. Barkan and T.T. Treichel. 2005. *Statistical Approach to Estimating Surge Pressure Reduction Devices' Performance*. Railroad Tank Car Safety Research and Test Project, Transportation Technology Center, Inc., Pueblo, CO.

Saat, M.R., C.P.L. Barkan and T.T. Treichel. 2005. *Statistical Approach to Estimating Surge Pressure Reduction Devices' Performance, RA-04-02*. RSI-AAR Railroad Tank Car Safety Research and Test Project, Transportation Technology Center, Inc., Pueblo, CO.

2004

Anderson, R.T. and C.P.L. Barkan. 2004. Railroad accident rates for use in rail transportation risk analysis. *Transportation Research Record: Journal of the Transportation Research Board*. 1863: 88-98.

Barkan, C.P.L. 2004. Cost effectiveness of railroad fuel spill prevention using a new locomotive refueling system. *Transportation Research Part D: Transport and Environment*. 9 (4): 251-262.

Barkan, C.P.L. 2004. The North American Locomotive Fueling Interface Standard for Spill-Proof Refueling of Diesel-Electric Locomotives. In: *Proceedings of the 2nd International Railway Energy Efficiency Conference*, Paris, January 2004.

Grussing, M.N. and D.R. Uzarski. 2004. Improved Railroad Track SRM Planning through RAILER EMS and GIS. In: *Transportation Systems 2004 Workshop*, 2004.

Hart, J.M., N. Ahuja, C.P.L. Barkan and D.D. Davis. 2004. A Machine Vision System for Monitoring Railcar Health: Preliminary Results, TD-04-008. Association of American Railroads, Pueblo, CO.

Lai, Y-C. and C.P.L. Barkan. 2004. Train Braking Distance Ratio: A Parameter for Railway Signal System Design. In: *Proceedings of the Transportation Research Board 83rd Annual Meeting*, Washington, DC, January 2004.

Treichel, T.T., C.P.L. Barkan and E. Hirsch. 2004. *Verification of a Test Stand for Surge Pressure Reduction Devices Protecting Tank Car Rupture Disc Devices, R-971 (RA-04-01)*. Transportation Technology Center, Inc., Pueblo, CO.

Uzarski, D.R., M.N. Grussing and W.A. Gannon. 2004. RAILER RED Speeds and Improves the Consistency of Railroad Track Inspection. In: *Transportation Systems 2004 Workshop*, March 2004.

2003

Barkan, C.P.L., C.T. Dick and R.T. Anderson. 2003. Railroad derailment factors affecting hazardous materials transportation risk. *Transportation Research Record: Journal of the Transportation Research Board*. 1825: 64-74.

Day, K.R. and C.P.L. Barkan. 2003. Model for evaluating the cost-effectiveness of retrofitting railway bridges for seismic resistance. *Transportation Research Record: Journal of the Transportation Research Board*. 1845: 203-212.

Dick, C.T., C.P.L. Barkan, E. Chapman and M.P. Stehly. 2003. Multivariate statistical model for predicting occurrence and location of broken rails. *Transportation Research Record: Journal of the Transportation Research Board*. 1825: 48-55.

Lawrence, F.V., J.P. Cyre, C.P.L. Barkan and J. Kristan. 2003. *Increasing Thermite Weld Fatigue Life Through Improvements in Weld Profile, TD 03-005*. Pueblo, CO.

2002

Chuang, S.L., A. Hsu, E. Young, C.P.L. Barkan, R. Reiff, M. Schroeder, D. Williams and T. Johnson. 2002. Fiber-optic sensor technology for railroad technologies. In: H.L. Reis and C.P.L. Barkan, (Eds.) *Nondestructive Testing for the Railroad Industry, Topics on Nondestructive Evaluation (TONE) Series -Volume 5*, The American Society for Nondestructive Testing, Columbus, OH, January, pp. 89-100.

Davis, D.D., C.P.L. Barkan and S.F. Kalay. 2002. The Search for Beneficial New Technologies for Rail Transportation – TTCIR&D – Association of American Railroads' Technology Scanning Program. *Railway Track & Structures*. 98: November, pp.18-20.

Day, K.R. and C.P.L. Barkan. 2002. The Potential Impact of a Mid-America Earthquake on the Railroad Network. In: *Proceedings of the American Railway Engineering and Maintenance-of-Way Association*, Washington, DC, 2002.

Dick, C.T., C.P.L. Barkan, E. Chapman and M.P. Stehly. 2002. Predicting the Occurrence of Broken Rails: A Quantitative Approach. In: *Proceedings of the 2002 American Railway Engineering and Maintenance-of-Way Association Annual Conference*, Washington DC, January 2002.

Liegner, N. 2002. Determining the stress pattern in the HH railroad ties due to dynamic loads. *Periodica Polytechnica Ser. Civ. Eng.* 46 (1): 125-148.

Reis, H. and C.P.L. Barkan, (Eds.) 2002. Nondestructive Testing for the Railroad Industry, Topics on Nondestructive Evaluation (TONE) Series -Volume 5. The American Society for Nondestructive Testing, Columbus, Ohio.

2001

Barkan, C.P.L. and P. Sargent. 2001. The AAR Standard for a Spill-Proof Locomotive Refueling System. In: *Proceedings of the 2001 American Railway Engineering and Maintenance-of-Way Association Annual Conference*, Chicago, IL, January 2001.

Bendixen, L., T. Treichel, C. Barkan and C. Burke. 2001. Risk assessment for national transportation of selected hazardous materials. *Transportation Research Record*. 1763: 114-124.

Brownlee, R.C. and C.P.L. Barkan. 2001. Maintaining Performance of Automatic Shutoff Nozzles Used For Locomotive Fueling, R-919. Association of American Railroads, Washington, D.C.

Dick, C.T. and A.M. Clayton. 2001. Impact of new railway technology on grain transportation in western Canada. *Transportation Research Record: Journal of the Transportation Research Board*. 1742: 45-53.

Dick, C.T., C.P.L. Barkan, E. Chapman and M.P. Stehly. 2001. Analysis of Factors Affecting the Location and Frequency of Broken Rails. In: *Proceedings of the World Congress on Railway Research*, Cologne, Germany, 2001.

Koch, K.D., W. T. Riddell, T. T. Treichel and C. P. L. Barkan. 2001. Structural Response and Coupler Forces During Tank Car Impacts. In: *43rd Mechanical Working and Steel Processing Conference Proceedings Volume XXXIX*, Charlotte, NC, October 2001, pp. 837-848.

Lawrence, F.V., Y-R. Chen, J. Cyre and C.P.L. Barkan. 2001. Strategies for Improving the Fatigue Resistance of Thermite Weldments. In: *Proceedings of the 2001 American Railway Engineering and Maintenance-of-Way Association Annual Conference*, Chicago, IL, September 2001.

2000

Barkan, C.P.L., T.T. Treichel and G. W. Widell. 2000. Reducing hazardous materials releases from railroad tank car safety vents. *Transportation Research Record: Journal of the Transportation Research Board*. 1707: 27-34.

Dick, C.T. and C.P.L. Barkan. 2000. Railway Digital Base Maps, Location Reference Systems and Interoperability of Positive Train Control Systems. In: *Proceedings of Transportation Research Board 79th Annual Conference*, Washington, DC, January 2000.

Flaherty, J.M., S.C. Geiger, D.M. Sowko, B.H. Jones, R.P. Andes and C.P.L. Barkan. 2000. *Comparative TPH analyses of aged diesel contamination at four railroad sites, R-942*. Association of American Railroads, Washington, D.C.

Geiger, S., R. Andes and C.P.L. Barkan. 2000. *Development of Risk-Based Cleanup Goals for Diesel-Contaminated Soils at a Southeastern Rail Yard Site, R-940*. Association of American Railroads, Washington, DC.

Uzarski, D.R. and M.J. Smejkal. 2000. RAILER GIS as a Tool to Help Manage Railroad Track Networks. In: *Transportation Systems 2000 Workshop*, February 2000, pp. 289-297.

1999

Barkan, C.P.L. and D.J. Pasternak. 1999. Evaluating New Technologies for Railway Tank Car Safety Through Cooperative Research. In: *Proceedings of the World Congress on Railway Research*, Tokyo, Japan, January 1999.

Gharaibeh, N.G., M.I. Darter and D.R. Uzarski. 1999. Development of a prototype highway asset management system. *Journal of Infrastructure Systems*. 5 (2): 61-68.

1998

Andes, R.P., C.P.L. Barkan, P.T. Kostecki and E.J. Calabrese, (Eds.) 1998. Principles and Practices for Diesel Contaminated Soils: Volume VII. Amherst Scientific Publishers, Amherst, MA.

Flaherty, J.M., S.C. Geiger, D.M. Sowko, B.H. Jones, R.P. Andes and C.P.L. Barkan. 1998. TPH analytical verification protocol for multiple field sites. In: R.P. Andes, C.P.L. Barkan, P.T. Kostecki and E.J. Calabrese, (Eds.) *Principles and Practices for Diesel Contaminated Soils: Volume VII*, Amherst Scientific Publishers, Amherst, MA, pp. 109-172.

Kao, T.C. 1998. Land Reclamation in Southeast Asia. In: *Proceedings of the 13th Southeast Asia Geotechnical Conference*, Taipei, Taiwan, November 1998.

Rajagopalan, N., I.S. Han, J. Pickowitz, T.C. Lindsey, W. Wu, R.P. Andes and C.P.L. Barkan. 1998. *Evaluation of Ultra filtration for Recycling Alkaline Cleaners at Railroad Facilities, R-904*. Association of American Railroads, Washington, D.C.

Treichel, T.T., G.W. Widell and C.P.L. Barkan. 1998. *The Effectiveness of Tank Car Safety Vent Surge Pressure Reduction Devices, TD 98-001*. Washington, DC.

1997

Andes, R.P., K. Rajagopalan, T. Lindsey, J. Pickowitz and C.P.L. Barkan. 1997. *Extending the Life of Railroad Shop Cleaners Using Ultrafiltration Technology, TD 97-043*. Washington, DC.

Barkan, C.P.L., P.T. Kostecki and E.J. Calabrese, (Eds.) 1997. *Principles and Practices for Diesel Contaminated Soils: Volume VI*. Amherst Scientific Publishers, Amherst, MA.

Barkan, C.P.L., R.P. Andes, K. Rajagopalan, T. Lindsey, J. Pickowitz and D.G. Girard. 1997. *Use of Ultrafiltration to Recycle Cleaning Solutions Used in North American Railroad Maintenance and Repair Facilities*. In: *Proceedings of the World Congress on Railway Research*, Florence, Italy, 1997, pp. Volume E, pp. 7-13.

Flaherty, J.M., B.H. Jones, D.V. Nakles, R.P. Andes and C.P.L. Barkan. 1997. *Comparison of Analytical Methods for Use in Evaluating the Risk From Petroleum Hydrocarbons in Soil, R-903*. Association of American Railroads, Washington, DC.

Flaherty, J.M., B.H. Jones, D.V. Nakles, R.P. Andes, and C.P.L. Barkan. 1997. Comparison of analytical methods for use in evaluating the risk from petroleum hydrocarbons in soil. In: C.P.L. Barkan, P.T. Kostecki and E.J. Calabrese, (Eds.) *Principles and Practices for Diesel Contaminated Soils: Volume VI*, Amherst Scientific Publishers, Amherst, MA, pp. 41-79.

Pasternak, D.J. and C.P.L. Barkan. 1997. 26 Years of Cooperative Research on North American Railroad Tank Car Safety. In: *Mechanical Working and Steel Processing Conference Proceedings, Iron and Steel Society of AIME*, Warrendale, PA, 1997, pp. 1139-1147.

1996

Barkan, C.P.L., E.J. Calabrese and P.T. Kostecki, (Eds.) 1996. *Principles and Practices for Diesel Contaminated Soils: Volume V*. Amherst Scientific Publishers, Amherst, MA.

Barkan, C.P.L., R.C. Brownlee and T.C. Borer. 1996. *Prevention of Spillage During Direct Truck to Locomotive Fueling, TD 96-009*. Washington, DC.

Lin, C-Y., M.R. Saat and C.P.L. Barkan. 2018. *Major Factors Affecting Passenger Train Accident Occurrence and Severity in the United States: 1996 – 2015*. In: *Proceedings of Transportation Research Board 97th Annual Conference*, Washington, D.C, 2018.

Nakles, D.V., J.W. Lynch, D. Edwards, J.G. Tell, T.L. Potter, R.P. Andes and C.P.L. Barkan. 1996. *Risk-Based Management of Diesel Contaminated Soil*, R-897. Association of American Railroads, Washington, DC, p. 190.

Ronning, T. and C.P.L. Barkan. 1996. *Environmental Aspects of Railroad Locomotive Coolant Discharge*, R-900. Association of American Railroads, Washington, DC, p. 66.

Treichel, T.T., C.P.L. Barkan and M.R. Johnson. 1996. *TCFIRE: A Computer Simulation Model of Fire-Induced Pressure Increases in Tank Cars*, TD 96-003. Washington, DC.

1995

Barkan, C.P.L., P.T. Kostecki and E.J. Calabrese, (Eds.) 1995. *Principles and Practices for Diesel Contaminated Soils: Volume IV*. Amherst Scientific Publishers, Amherst, MA.

Dirnberger, J.R. and C.P.L. Barkan. 2007. Lean railroading for improving railroad classification terminal performance. *Transportation Research Record: Journal of the Transportation Research Board*. 1995: 52-61.

Kao, T.C. 1995. A New Method of Coastal Land Reclamation. In: *Proceedings: The 14th World Dredging Congress*, Amsterdam, The Netherlands, November 1995.

1994

Barkan, C.P.L., G.R. Cataldi and C.E. Taylor. 1994. The Influence of Environmental Issues on North American Railroad Technology. In: *Proceedings: WCRR '94 World Congress on Railway Research*, Paris, France, 1994, pp. 363-368.

Brubaker, G.R., M.S. Westray, D.V. Nakles, J.W. Lynch, M. Schlauch and C.P.L. Barkan. 1994. *A Guide for Railroad Industry Use of In Situ Bioremediation*, R-857. Association of American Railroads, Washington Systems Center, Washington, DC, p. 136.

Brubaker, G.R., M.S. Westray, D.V. Nakles, J.W. Lynch, M. Schlauch and C.P.L. Barkan. 1994. *Railroad Industry Research Needs for In Situ Bioremediation*, R-858. Association of American Railroads, Washington Systems Center, Washington, DC, p. 73.

Gauger, K., R.E. Fronczak, M. Schlauch and C.P.L. Barkan. 1994. *Selection and Use of Bioenhancement Products and Processes*, R-860. Association of American Railroads, Washington Systems Center, Washington, DC.

Hockensmith, E., J.E. Waggener and C.P.L. Barkan. 1994. The environmental impact of lubricating railroad rails. In: P.T. Kostecki, E.J. Calabrese and C.P.L. Barkan, (Eds.) *Principles*

and Practices for Diesel Contaminated Soils: Volume II, Amherst Scientific Publishers, Amherst, pp. 43-69.

Hockensmith, E., M. Schlauch and C.P.L. Barkan. 1994. *A Review of Toxicity Characteristic Leaching Procedure Testing of Railroad Crossties, R-861*. Association of American Railroads, Washington Systems Center, Washington, DC.

Kostecki, P.T., E.J. Calabrese and C.P.L. Barkan, (Eds.) 1994. *Principles and Practices for Diesel Contaminated Soils: Volume II*. Amherst Scientific Publishers, Amherst, MA.

Kostecki, P.T., E.J. Calabrese and C.P.L. Barkan, (Eds.) 1994. *Principles and Practices for Diesel Contaminated Soils: Volume III*. Amherst Scientific Publishers, Amherst, MA.

1993

Gifford, J., D.R. Uzarski and S. McNeil, (Eds.) 1993. *Infrastructure Management – New Challenges, New Methods*. ASCE Specialty Conference Proceedings.

Hockensmith, E., J.E. Waggener, C.M. West and C.P.L. Barkan. 1993. The environmental impact of lubricating railroad rails. In: G. Jean Doucet, Collete Sguin and Michel Gigure, (Eds.) *Proceedings of the Fifth International Symposium on Environmental Concerns in Rights-of-Way Management*, Vice Presidence Environment Hydro-Quebec. Montreal, Quebec, Canada.

Uzarski, D.R., M.I. Darter and M.R. Thompson. 1993. Development of condition indexes for low-volume railroad trackage. *Transportation Research Record: Journal of the Transportation Research Board*. 1381: 42-52.

1992

Barkan, C.P.L., J. Waggener and E. Hockensmith. 1992. Treating Storm Water. *Railway Track & Structures*. 88: pp. 24-26, 39.

1991

Barkan, C.P.L., T.S. Glickman and A.E. Harvey. 1991. Benefit-Cost Analysis of Using 105 Type Tank Cars Instead of Type 111 Tank Cars to Ship Environmentally Sensitive Chemicals, R-794. Association of American Railroads, Chicago, IL, p. 36.

Barkan, C.P.L., T.S. Glickman and A.E. Harvey. 1991. Benefit-cost evaluation of using different specification tank cars to reduce the risk of transporting environmentally sensitive chemicals. *Transportation Research Record: Journal of the Transportation Research Board*. 1313: 33-43.

1990

Ayers, M.E., M.R. Thompson and D.R. Uzarski. 1990. Rapid shear strength evaluation of in situ granular materials. *Transportation Research Record: Journal of the Transportation Research Board*. 1227: 134-146.

Brown, D.G., D.R. Uzarski and R.W. Harris. 1990. Detailed inspection of U.S. Army railroad trackage and application to civilian short-line railroads. *Transportation Research Record: Journal of the Transportation Research Board*. 1241: 16-26.

1989

Uzarski, D.R. and D.E. Plotkin. 1989. Interim method of maintenance management for U.S. Army railroad track networks. *Transportation Research Record: Journal of the Transportation Research Board*. 1177: 84-94.

Uzarski, D.R., C.S. Melching and J.S. Liebman. 1989. Prioritizing U.S. Army railroad track segments for major maintenance and repair. *Transportation Research Record: Journal of the Transportation Research Board*. 1177: 95-102.

1987

Uzarski, D.R., D.E. Plotkin and S.K. Wagers. 1987. Component identification and inventory of U.S. Army railroad trackage. *Transportation Research Record: Journal of the Transportation Research Board*. 1131: 89-98.