Appendix C – Outputs – Publications, Conference Papers, & Presentations
Grant No. 69A3551747108
Mountain-Plains Consortium, North Dakota State University
Reporting Period End Date: September 30, 2019
SAPR#5

Publications:

- Atadero, R. A., G. Jia, A. Abdallah, and M. E. Ozbek, "An Integrated Uncertainty-Based Bridge Inspection Decision Framework with Application to Concrete Bridge Decks," Infrastructures, 4(3), (2019): 50. DOI:10.3390/infrastructures4030050. Acknowledgement of Federal Support: Yes.

- Li, M. and G. Jia, "Bayesian Updating of Bridge Condition Deterioration Models Using Censored and Incomplete Inspection Data," Journal of Bridge Engineering, (Under Review) 2019. Acknowledgement of federal support: Yes.

- Al-Tarawneh, M., Y. Huang, P. Lu, and R. Bridgelall, "Weigh-In-Motion System in Flexible Pavements Using Fiber Bragg Grating Sensors Part A: Concept," Transactions on Intelligent Transportation Systems, T-ITS-18-11-1146.R1, (Accept after minor revision) 2019. Acknowledgement of federal support: Yes.

- Faisal, H.M.N., K.S. Katti, and D.R. Katti, "An Insight into Quartz Mineral Interactions with Kerogen in Green River Oil Shale," (Under Review) 2019. Acknowledgement of federal support: Yes.

- Thapa, K.B., K.S. Katti, and D.R. Katti, "Role of Clay-Fluid Interactions on the Compression of Na-Montmorillonite Swelling Clay: A Steered Molecular Modeling Dynamics Study," (Under Preparation) 2019. Acknowledgement of federal support: Yes.

- Dhingra, N., R. Bridgelall, P. Lu, J. Szmerekovsky, and B. Bhardwaj, "Autonomous Railroad Track Anomaly Tracking System: A Comparison of a New Comprehensive Technique with Traditional Inspection Methods," Transportation Research Record: Journal of the Transportation Research Board, (Under Review) 2019. Acknowledgement of federal support: Yes.

- Dhingra, N., R. Bridgelall, P. Lu, J. Szmerekovsky, and B. Bhardwaj, "Ranking Risk Factors in Financial Losses from Railroad Incidents: A Machine Learning Approach," Transportation Research Record: Journal of the Transportation Research Board, (Under Review) 2019.
- Acknowledgement of federal support: Yes.

- Zhou, Xiaoyi, Pan Lu, Zijian Zheng, and Denver Tolliver, "Accident Prediction Accuracy Assessment for Highway-Rail Grade Crossing Using Random Forest Algorithm," Journal of Transportation Engineering, Part A: Systems, (Under Review) 2019. Acknowledgement of federal support: Yes.

- Keramati, Amin, Pan Lu, Ying Huang, and Denver Tolliver, "A Simultaneous Safety Analysis of Crash Frequency and Severity for Highway-Rail Grade Crossings: The Competing Risk Method," Accident Analysis and Prevention, (Under Review) 2019. Acknowledgement of federal support: Yes.

- Chia, Leonard, Pan Lu, Bhavana Bhardwaj, Raj Bridgelall, Denver Tolliver, and Neeraj Dhingra, "Automatic Rail Track Surface Anomaly Detection with Smartphone Based Monitoring System," DEStch Transactions on Engineering and Technology Research, DOI:10.12783/dtetr/icicr2019/30565, 2019. Acknowledgement of federal support: Yes.

- Bhardwaj, B., R. Bridgelall, L. Chia, P. Lu, and N. Dhingra, "Signal Filter Cut-Off Frequency Determination to Enhance the Accuracy of Rail Track Irregularity Detection and Localization," IEEE Sensors, (Under Review). Acknowledgement of federal support: Yes.

- Bhardwaj, B., R. Bridgelall, P. Lu, and N. Dhingra, "Signal Feature Extraction and Combination to Enhance the Detection and Localization of Railroad Track Irregularities," Transportation Research Record, (Under Review). Acknowledgement of federal support: Yes.

- Ji, Y. and Y.J. Kim. "Durability Investigations into CFRP-Confined Concrete in H2SO4," Durability of Concrete Structures Incorporating   Conventional and Advanced Materials, SP-331. American Concrete Institute, Farmington Hills, MI, (2019):136-150. Acknowledgement of federal support: Yes.

- Kim, Y.J., Y. Chai, and I. Yoshitake, "Corrosion Mitigation of CFRP-Steel Interface with Sacrificial Anodes," Composite Interfaces, 26(7), (2019): 625-641, DOI:10.1080/09276440.2018.1522193. Acknowledgement of federal support: Yes.

- Kim, Y.J. and A. Al-Kubaisi, "Continuous Reinforced Concrete Beams with Various Carbon Fiber-Reinforced Polymer Systems under Soil Settlement," ACI Structural Journal, 116(4), (2019): 231-242. Acknowledgement of federal support: Yes.

- Ji, Y. and Y.J. Kim. "Durability Investigations into CFRP-Confined Concrete in H2SO4," Durability of Concrete Structures Incorporating   Conventional and Advanced Materials, SP-331. American Concrete Institute, Farmington Hills, MI, (2019):136-150. Acknowledgement of federal support: Yes.

- Kim, Y.J., Y. Chai, and I. Yoshitake, "Corrosion Mitigation of CFRP-Steel Interface with Sacrificial Anodes," Composite Interfaces, 26(7), (2019): 625-641, DOI:10.1080/09276440.2018.1522193. Acknowledgement of federal support: Yes.

- Kim, Y.J. and A. Al-Kubaisi, "Continuous Reinforced Concrete Beams with Various Carbon Fiber-Reinforced Polymer Systems under Soil Settlement," ACI Structural Journal, 116(4), (2019): 231-242. Acknowledgement of federal support: Yes.

- Haghighi, Nima, Robert Chamberlin, Kiavash Fayyaz, and Cathy Liu. Impact of Shared Autonomous Vehicles on Vehicle Miles Traveled in Utah. UT-19.10, Utah Department of Transportation, 2019. Acknowledgment of federal support: Yes.

- Zhang, Z., R. Yang, G. Blackwelder, and X. Yang, "Examing Driver Injury Severity in Left-turn Crashes Using Hierarchical Ordered Probit Models," Transportation Research Record: Journal of the Transportation Research Board, (Submitted) 2019. Acknowledgement of federal support: Yes.

- Moomen, M., M. Rezapour, M.N. Raja, S.S. Wulff, and K. Ksaibati, "Evaluating the Safety Effectiveness of Advance Downgrade Warning Signs in Preventing Downgrade Truck Crashes Using a Propensity Scores Framework," Transportation Research Record: Journal of the Transportation Research Board, 2673(7), (2019): 673-683, DOI:10.1177/0361198119847988. Acknowledgement of federal support: Yes.

- Albatayneh, Omar, Lars Forslöf, and Khaled Ksaibati, "Developing and Validating an Image Processing Algorithm for Evaluating Gravel Road Dust," International Journal of Pavement Research and Technology, 12(3),(2019):288-296, DOI:10.1007/s42947-019-0035-y. Acknowledgement of federal support: Yes.

- Aleadelat, W., Shaun Wulff, and Khaled Ksaibati, "Development of Performance Prediction Models for Gravel Roads Using Markov Chains," American Journal of Civil Engineering, 7(3), (2019):73-81, DOI: 10.11648/j.ajce.20190703.12. Acknowledgement of federal support: Yes.

- Albatayneh, Omar, Lars Forslöf, and Khaled Ksaibati, "Image Retraining Using TensorFlow Implementation of the Pre-trained Inception-v3 Model for Evaluating Gravel Road Dust," Journal of Infrastructure Systems, ASCE, (Under Review) 2019. Acknowledgement of federal support: Yes.

- Albatayneh, Omar, Waleed Aleadelat, and Khaled Ksaibati, "Dynamic Programming of 0/1 Knapsack Problem for Network-Level Pavement Asset Management System," International Journal of Pavement Engineering, (Under Review) 2019. Acknowledgement of federal support: Yes.

- Aleadelat, Waleed, Omar Albatayneh, and Khaled Ksaibati, "Developing an Optimization Tool for Selecting Gravel Roads Maintenance Strategies Using a Genetic Algorithm," Transportation Research Record: Journal of the Transportation Research Board, (Under Review) 2019.
- Acknowledgement of federal support: Yes.

- Albatayneh, Omar, Ahmed Farid, and Khaled Ksaibati, "A Developed Methodology for Determining Gravel Roads' Level of Service: A Case Study of Wyoming," Transportation Research Record: Journal of the Transportation Research Board, (Under Review) 2019. Acknowledgement of federal support: Yes.

- Albatayneh, Omar, Milhan Moomen, Ahmed Farid, and Khaled Ksaibati, "Complementary Modeling of Gravel Road Traffic-Generated Dust Levels Using Bayesian Regularization Feedforward Neural Networks and Binary Probit Regression," Transportation Research Record: Journal of the Transportation Research Board, (Under Review) 2019. Acknowledgement of federal support: Yes.

- Farid, Ahmed, Omar Albatayneh, and Khaled Ksaibati, "Assessing the Applicability of the Highway Safety Manual to Gravel Roads: A Case Study of Wyoming," Transportation Research Record: Journal of the Transportation Research Board, (Under Review) 2019. Acknowledgement of federal support: Yes.

- Farid, A. and K. Ksaibati, "Modeling Two-Labe Highway Passing Related Crashes using Mixed Ordinal Probit Regression," American Society of Civil Engineers: Journal of Transportation Engineering, (Under Review) 2019. Acknowledgement of federal support: Yes.

- Liu, Z. and Z. Song. "Strategic Planning of Dedicated Autonomous Vehicle Lanes and Autonomous Vehicle/Toll Lanes in Transportation Networks." Transportation Research Part C: Emerging Technologies, 106:381-403, 2019, DOI: 10.1016/j.trc.2019.07.022. Acknowledgement of federal support: Yes.

- Rahman, A. and M. Mekker, "Projections of Big Data from Autonomous Vehicle LiDAR Sensors," Transportation Research Record: Journal of the Transportation Research Board, (Under Review) 2019. Acknowledgement of federal support: Yes.

- Liu, Z., Z. Song, and Y. He, "Economic Analysis of On-Route Fast Charging for Battery Electric Buses: Case Study in Utah," Transportation   Research Record: Journal of the Transportation Research Board, 2673(5), (2019):119-130, DOI:10.1177/0361198119839971. Acknowledgement of federal support: Yes.

- Poudel, N. and P. Singleton, "Bicycle Safety at Roundabouts: A Literature Review," Transportation Research Record: Journal of the Transportation Research Board, (Under Review) 2019. Acknowledgement of federal support: Yes.

Conference Papers:

- Perry, B. and Y. Guo. "Unmanned Aerial Vehicle Enabled Building Information Modeling for Bridge Inspection." The 9th International Conference on Structural Health Monitoring of Intelligent Infrastructure, St. Louis, MO, August 2019.

- Perry, B. and Y. Guo. "Unmanned Aerial Vehicle Enabled Building Information Modeling for Bridge Inspection." The 9th International Conference on Structural Health Monitoring of Intelligent Infrastructure, St. Louis, MO, August 2019.

- Al-Tarawneh, M. and Y. Huang. "Road Vehicle Classification Using Machine Learning Techniques." Proceedings Volume 10970, Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems. Denver, CO, 2019. DOI:10.1117/12.2514320.

- Alshandah, M., Y. Huang, J. Gao, P. Lu, and D. Tolliver. "Experimental Crack Length Detection in Concrete Pavement Using Point Strain Sensors." Proceedings Volume 10970, Sensors and Smart Structures Technologies for Civil, Mechanical, and Aerospace Systems. Denver, CO, 2019. DOI:10.1117/12.2513680.

- Dhingra, N., R. Bridgelall, P. Lu, J. Szmerekovsky, and B. Bhardwaj. "Using Data Mining Methods to Rank the Importance of Factors in Railroad Accidents." Proceedings of the 98th Annual Meeting of the Transportation Research Board, 2019.

- Chia, Leonard, Pan Lu, Bhavana Bhardwaj, Raj Bridgelall, Denver Tolliver, and Neeraj Dhingra. "Automatic Rail Track Surface Anomaly Detection with Smartphone Based Monitoring System." International Conference on Informatics, Control and Robotics, Shanghai, China, June 2019. DOI: 10.12783/dtetr/icicr2019/30565.

- Bhavana, B., R. Bridgelall, P. Lu, and N. Dhingra. "Railroad Track Irregularities: Position Accuracy Assessments Using Low-Cost Sensors on a Hi-Rail Vehicle." Proceedings of the ASCE International Conference on Transportation and Development, Alexandria, VA, June 2019.
- DOI:10.1061/9780784482575.043.

- Seo, J. and I. Amatya. "Strength Testing for Dynamic Message Signs with Adhesive Connections." Proceedings of the 9th International Conference on Steel and Aluminum Structures, Bradford, United Kingdom, 2019.

- Coppola, N. and W. Marshall. "An Evaluation of Sidewalk Availability and Width: Analyzing Municipal Policy and Equity Disparities." Congress for the New Urbanism Annual Meeting. Louisville, KY, June 2019.

- Albatayneh, Omar, Lars Forslöf, and Khaled Ksaibati. "Utilizing Smartphones and Image Processing Analysis for Evaluating Dust on Gravel Roads." 12th TRB International Conference on Low Volume Roads, Kalispell, MT, September 18, 2019.

- Yue, Er and Khaled Ksaibati. "Analysis of Seasonal Tourism Traffic Patterns in Wyoming." Submitted to 2020 Transportation Research Record Conference.

- Zlatkovic, M., Z. Cvijovic, A. Stevanovic, and Y. Song. "Signal Control Priority Operations in Connected Vehicle Environment." 99th Annual TRB Meeting, Washington, DC, (Under Review) 2020.

- Cvijovic, Z. and M. Zlatkovic. "Fright Signal Priority Operations in Connected Vehicle Environment." VII International Symposium of Transport and Communications: New Horizons, (Under Review) 2019.

- Poudel, N. and P. Singleton. "Bicycle Safety at Roundabouts: A Literature Review." Annual Meeting of the Transportation Research Board, (Under Review) 2020.

Presentations
- Perry, B. and Y. Guo. "Unmanned Aerial Vehicle Enabled Building Information Modeling for Bridge Inspection." The 9th International Conference on Structural Health Monitoring of Intelligent Infrastructure, St. Louis, MO, August 4-7, 2019.

- Li, M. and G. Jia. "Improved Bridge Deterioration Prediction Using Bayesian Updating Considering Incomplete Data." ASCE Engineering Mechanics Institute Conference, CalTech, Pasadena, CA, June 18-21, 2019.

- Woolridge, D., J.D. Niemann, M. Perry, K. Bauer, and W. McCormick, "Identifying and Modeling Streamflow Production Mechanisms during Extreme Precipitation Events in the Colorado Front Range," ASDSO West Regional Conference, Westminster, Colorado, 2019.

- Knight, K.L. and A.S. Bhaskar. "Evaluation of Green Stormwater Infrastructure Network Effects on Incidences of Urban Roadway Flooding." Great Plains LID Symposium, Fort Collins, CO, June 2019.

- Knight, K.L. and A.S. Bhaskar. "Evaluating the Effects of Green Stormwater Infrastructure on Urban Street Flooding." American Geologic Union Hydrology Days, Fort Collins, CO, March 2019.

- Chen, Suren. "Resilience Modeling of Disrupted Urban Mobility Subjected to Hazards-From Infrastructure to System." The 19th COTA International Conference of Transportation Professional, Nanjing, China, July 6-8, 2019.

- Bradley, T. "CAVs Research." National Renewable Energy Laboratory, Invited Talk, Golden, CO, August 28, 2019.

- Perry, B. and Y. Guo. "Unmanned Aerial Vehicle Enabled Building Information Modeling for Bridge Inspection." The 9th International Conference on Structural Health Monitoring of Intelligent Infrastructure, St. Louis, MO, August 4-7, 2019.

- Al-Tarawneh, M. and Y. Huang. "Road Vehicle Classification Using Machine Learning Techniques." SPIE Smart Structures and NDE, Denver, CO, March 29, 2019.

- Alshandah, M., Y. Huang, J. Gao, P. Lu, and D. Tolliver. "Experimental Crack Length Detection in Concrete Pavement Using Point Strain Sensors." SPIE Smart Structures and NDE, Denver, CO, March 30, 2019.

- Huang, Y. and P. Lu. "Smart Concrete Pavement System for Integrated Performance and Traffic Monitoring." NDSU-BUST Research Workshop, Beijing, China, June 10, 2019.

- Huang, Y. and P. Lu. "Green Preservation: Carbon Nanotube Application in Smart Cementitious Materials." World Transportation Convention, Beijing, China, June 12, 2019.

- Katti, D.R. "Molecular Interactions Influence Macroscale Properties of Swelling Clays." Special Lecture at the University of Illinois at Urbana Champagne, IL, April 8, 2019.

- Katti, D.R. and K.S. Katti. "Molecular Origin of Engineering Properties of Swelling Clays: A Modeling and Experimental Investigation." Special Lecture at the University of Science and Technology Beijing, Beijing, China, June 8-13, 2019.

- Katti, D.R. and K.S. Katti. "Unlocking 'Oil' from Oil Shale: Kerogen Mineral Interactions in

Green River Oil Shale Rock Deposits." Special Lecture at the University of Science and Technology Beijing, Beijing, China, June 8-13, 2019.

- Katti, K.S. and D.R. Katti. "Use of Fourier Transform Infrared Spectroscopy to Evaluate Molecular Interactions in Swelling Clays and Their Role on Swelling 'Flow' and Other Macroscopic Properties." Special Lecture at the University of Science and Technology Beijing, Beijing, China, June 8-13, 2019.

- Katti, K.S. and D.R. Katti. "Use of Clays as Novel Biomaterials: Nanoclay Based Nanocomposite Scaffolds for Bone Tissue Engineering." Special Lecture at the University of Science and Technology Beijing, Beijing, China, June 8-13, 2019.

- Thapa, K.B. "The Design of Mechanically Stabilized Earth Retaining Wall Using Paper Reinforcement." Civil and Environmental Engineering Advisory Board Member Meeting, North Dakota State University, Fargo, ND, April 26, 2019.

- Thapa, K.B., K.S. Katti, and D.R. Katti. "Role of Clay-Fluids Molecular Interactions on the Compression of Swelling Clays." Poster Presentation, Engineering Mechanics Institute Conference, California Institute of Technology, Pasadena, CA, June 19, 2019.

- Faisal, H.M.N., K.B. Thapa, K.S. Katti, and D.R. Katti. "Molecular Dynamics Simulations of Major Mineral Constituents with Kerogen in Green River Oil Shale." Engineering Mechanics Institute Conference, California Institute of Technology, Pasadena, CA, June 19, 2019.

- Chia, Leonard, Pan Lu, Bhavana Bhardwaj, Raj Bridgelall, Denver Tolliver, and Neeraj Dhingra. "Automatic Rail Track Surface Anomaly Detection with Smartphone Based Monitoring System." International Conference on Informatics, Control and Robotics, Shanghai, China, June 2019.

- Bhavana, B., R. Bridgelall, P. Lu, and N. Dhingra. "Railroad Track Irregularities: Position Accuracy Assessments Using Low-Cost Sensors on a Hi-Rail Vehicle." ASCE International Conference on Transportation and Development, Alexandria, VA, June 2019.

- Abdallah, M. "Developing Innovative Commute Optimization System to Minimize Business Commute Negative Environmental Impacts, Time, and Cost." International Conference on Resource Sustainability - Cities, Adelaide, Australia, July 1, 2019.

- Abdallah, M. "Business Commute Optimization System." Employers Provided Mobility Workshop by National Renewable Energy Laboratory, Denver, CO, May 29, 2019.

- Marshall, W. "Understanding the Safe Systems Approach to Vision Zero through International Road Safety Disparities." Institute of Transportation Engineers Western District Annual Meeting, Monterey, CA, June 2019.

- Coppola, N. and W. Marshall. "An Evaluation of Sidewalk Availability and Width: Analyzing Municipal Policy and Equity Disparities." Congress for the New Urbanism Annual Meeting, Louisville, KY, June 2019.

- Fitzgerald, R. and F. Banaei-Kashani. "Constrained System-Optimal Route Planning in Support of Fleet Route Planning, Ridesourcing, and Ridesharing: An Overview of Plans." NREL Transportation Data Analysis Group, Golden, CO, August 15, 2019.

- Albatayneh, Omar. "Determining Dust Levels on Gravel Roads Using Image Processing." 12th TRB International Conference on Low Volume Roads, Kalispell, MT, September 18, 2019.

- Albatayneh, Omar. "Optimization Tool for Selecting Gravel Roads Maintenance Strategies." 12th TRB International Conference on Low Volume Roads, Kalispell, MT, September 18, 2019.

- Ward, J., S. Thompson, and P. A. Singleton. "Waiting for the Air to Clear: Evaluating the Effect of Poor Air Quality on Personal and Household Transportation Decisions." Utah State University Student Research Symposium, Logan, UT, April 2019.

- Rahman, A. and M. Mekker. "Uses and Challenges of Collecting LiDAR Data from a Growing Autonomous Vehicle Fleet." Joint ITE International and Texas District Annual Meeting and Exhibition, Austin, TX, July 23, 2019.