

Record of Professional Development Hours

Please enter the amount of PDH credits earned for each session in the **PDH Earned** column. The total PDH credits earned for the 2020 Virtual Conference & Expo will be shown at bottom.

FORM SUBMITTAL DEADLINE – OCTOBER 1, 2020

PLEASE NOTE: FORM MUST BE RECEIVED BY THE DEADLINE OR IT WILL NOT BE PROCESSED. THANK YOU.

Time (ET)	Session Description	PDH Credit	PDH Earned
Monday September 14, 2020			
1:00 PM	Communications & Signals Presentation Remote Device Monitoring		
1:00 PM	Maintenance-of-Way Presentation Emergency Slope Stabilization and Snowshed Repairs at Stampede Pass: A Complex Rockslide Requiring Evolving Mitigation Strategies		
1:45 PM	Structures Presentation Lower Sana Ana River BNSF Bridge Protection Project: A Case Study in BNSF Bridge Scour Protection by Implementing Unique Hydraulic and Construction Solutions in Order to Support a Major USACE Infrastructure Project		
1:45 PM	Passenger & Transit Presentation Virginia Rail Program More than DC2RVA Higher Speed Rail: A Case Study for Relieving Congestion on the I95 Corridor through Virginia		
2:30 PM	Track Presentation History of Heavy Axle Load Subgrade Research at Facility for Accelerated Service Testing (FAST)		
2:30 PM	Engineering Services Presentation Quantifying the Relative Influence of Classification Yard Performance Factors		
TOTAL for Monday General Session		3.0	

Tuesday | September 15, 2020

Technical Session: Communications & Signals

10:00 AM	Rail Asset Related Innovations from the International Railway Community with Potential for Use in North American Railways		
10:45 AM	Novel Detection and Prediction Tool for Bearing Damages on Heavy Haul Vehicles Using Way-Side Detectors		
11:30 AM	The Use of Ultra-Wideband in Rail Systems		
2:00 PM	Artificial Intelligence-Aided Railroad Trespassing Data Analytics based on Camera Video Data at Grade Crossings		

- 2:45 PM Jointless Track Circuits for Broken Rail Detection for use with PTC and CBTC Systems
- 3:30 PM Modeling Crash Frequency and Severity for Highway-Rail Grade Crossing Using Inventory and Historical Crash Data from North Dakota State

TOTAL for Communications & Signals Technical Session 3.0

Tuesday | September 15, 2020

Technical Session: Engineering Services

- 10:00 AM Use of Big Data for Optimizing Maintenance, Service and Capital Planning
- 10:45 AM Using Advanced PTC with Moving Blocks to Improve the Operational Feasibility of Short Trains on Single-Track Rail Corridors
- 11:30 AM Pavement Management Systems – Developing a Strategic Approach for Multi-Facility Planning
- 2:00 PM Roller Compacted Concrete Pavement for Intermodal Facilities
- 2:45 PM Intermodal Terminal Capacity Modeling
- 3:30 PM Planning to Meet the Rail Needs at San Pedro Bay Ports: A Programmatic Plan for Terminal Capacity and Its Integration with Line Capacity

TOTAL for Engineering Services Technical Session 3.0

Tuesday | September 15, 2020

Technical Session: Maintenance-of-Way

- 10:00 AM Infrastructure Resiliency: Planning for Disasters, Emergency Situations and Climate Change
- 10:45 AM Rail Inspection – A Railroad and Manufacturer Perspective
- 11:30 AM A Case Study: Lessons Learned in Design, Construction and Maintenance Challenges in MDOT MTA Reconstruction of Johns Hopkins Double Crossover Project, an Agency Perspective
- 2:00 PM Field Investigation of Spike Breakage Using Instrumented Spikes
- 2:45 PM Next Generation Turnout Design and a Performance Update on Clothoid Turnout Geometry
- 3:30 PM Smart Tamping: The Fundamentals of Tamping

TOTAL for Maintenance-of-Way Technical Session 3.0

Tuesday | September 15, 2020

Technical Session: Passenger & Transit

- 10:00 AM Laboratory Structural Investigation of the Heavy Rail Transit Direct Fixation Fastening System Capacity

- 10:45 AM Examining the Effects of Precision Scheduled Railroading on Passenger Rail Service
- 11:30 AM Main Street Bridge Replacement Project – Keeping Things Moving: Trains, Cars, Pedestrians and Bridges
- 2:00 PM Significance of Sustainable and Resilient Critical Infrastructure Systems
- 2:45 PM Rock Slope Stabilization While Maintaining Passenger Operations
- 3:30 PM Derailment Avoidance and Containment Barriers on High Speed Railways

TOTAL for Passenger & Transit Technical Session 3.0

Tuesday | September 15, 2020

Technical Session: Structures

- 10:00 AM Triumph on the Turkey River: A Case Study on the Emergency Replacement of 400' of Bridge Superstructure Washed out by Floodwaters
- 10:45 AM CSX Transportation Br. A605.25, over the St. Mary's River, Truss Counter Removals and Eye-Bar Conversions Without Disruption to Rail Traffic
- 11:30 AM MBTA Beverly Drawbridge – Fabrication Details and Installation Procedures for Rapid Installation
- 2:00 PM SMART Precast Concrete Trough Rail Bridges
- 2:45 PM Design & Construction Techniques to Maintain Rail Service Throughout Repairs to the CSX Bridge over Chef Menteur Pass
- 3:30 PM Design and Ownership Considerations for Remote Control Bridges

TOTAL for Structures Technical Session 3.0

Tuesday | September 15, 2020

Technical Session: Track

- 10:00 AM Fatigue Enhancement Technologies to Extend the Life of Rail-end Bolt Holes Evaluated Through Simulation Technologies to Predict Fatigue Failure and Verified Through Laboratory Testing
- 10:45 AM Fibre Optic Sensing for Thermal Stress Measurement
- 11:30 AM A Novel, Vision-Based and Reference-Free Procedure for RNT Measurements
- 2:00 PM Evaluation of ECHO-Rail Runner Scanning System for RCD Measurements
- 2:45 PM Belen to Dalies Capacity Improvement Project: A Case Study in the Installation of a Permanent Soil Nail Wall While Managing Limited Access in Challenging Soil Conditions
- 3:30 PM Controlling Risks of Trenchless Pipe Construction Beneath Railways

TOTAL for Track Technical Session 3.0

Wednesday | September 16, 2020**Technical Session: Communications & Signals**

- 10:00 AM Using LIDAR To Detect Rockfall – A Case Study of Using COTS Equipment for a Safety Critical Application
- 10:45 AM ACSES PTC: Past, Present, and Future – An Overview of this Transponder-Based PTC-Enabling Technology and How it Stacks Up Against its More Publicized GPS-Based Counterpart
- 11:30 AM Next Generation Track and Signal Surge Protection
- 2:00 PM Onboard Vibration and Temperature Monitoring System for Passenger Car Bearings
- 2:45 PM Increasing Capacity with Relative Distance Braking in Moving Block Systems at LRT Jakarta Network

TOTAL for Communications & Signals Technical Session 2.5

Wednesday | September 16, 2020**Technical Session: Engineering Services**

- 10:00 AM Phased Construction of Union Pacific Railroad’s LATC Intermodal Facility – Los Angeles, CA
- 10:45 AM A Risk Management Tool to Evaluate Adjacent Track Accidents on Shared-User Rail Corridors
- 11:30 AM Understanding Influences on Student Pursuit of Railway Education and Careers
- 2:00 PM Railroad Rights: ICCTA Preemption, the Shift in Regulators’ Understandings, and the Impact on Critical Railroad Project Schedules
- 2:45 PM “So you Want to Build a Railroad?” – An Environmental Clearance and Permitting Story

TOTAL for Engineering Services Technical Session 2.5

Wednesday | September 16, 2020**Technical Session: Maintenance-of-Way**

- 10:00 AM Effect of Tie Condition Distribution on the Life Expectancy of a Wood Crosstie
- 10:45 AM Identifying High Risk Areas in Vast Distributed Rail Networks to Support Decision Making through Predictive Analytics
- 11:30 AM Application of Premium Synthetic Grease at CP’s Western Corridor
- 2:00 PM Continuous Monitoring of Wheel/Rail Forces During In-Service Freight Operations Has Led to a Successful Performance Based Track Maintenance Plan

TOTAL for Maintenance-of-Way Technical Session 2.0

Wednesday | September 16, 2020**Technical Session: Passenger & Transit**

- 10:00 AM Michigan DOT: The Journey from Daily Slow Orders to Operating at 110MPH
- 10:45 AM Seattle King Street Yard Locomotive Shop
- 11:30 AM Noise-and Vibration-Mitigating Track Design Elements: Case Studies from Recent Projects around the Globe
- 2:00 PM The Feasibility of Year-Round MBTA Cape Flyer Service

TOTAL for Passenger & Transit Technical Session 2.0

Wednesday | September 16, 2020**Technical Session: Structures**

- 10:00 AM Improved Fatigue Life Estimation of Riveted DPG Railroad Bridge Using Reliability Analysis
- 10:45 AM Metra Bridge Z-100 over the Fox River: Using ABC Techniques and Innovative Design Details to Overcome Site Access Challenges
- 11:30 AM A Framework for Efficient Management of Railroad Bridge Strikes
- 2:00 PM Trinity Railway Express Bridge Replacement – Threading the Needle Between Clearance Requirements
- 2:45 PM Coos Bay Swing-Span Bridge Column Collapse and Repair – A Monumental Undertaking
- 3:30 PM Unmanned Aerial Systems for Railway Bridge Inspection

TOTAL for Structures Technical Session 3.0

Wednesday | September 16, 2020**Technical Session: Track**

- 10:00 AM Reduction of Train Derailments Based on Friction Management
- 10:45 AM Field Validation of Longitudinal Rail Load Distribution Model
- 11:30 AM Adaptive Prestressing System for Concrete Crossties using Shape Memory Alloys and Steel
- 2:00 PM Artificial Intelligence-Aided Prediction of Broken Rail Occurrence Using Railroad Big Data

TOTAL for Track Technical Session 2.0

Thursday | September 17, 2020

1:00 PM	Structures Presentation Emergency Rebuild of Norfolk Southern Railway's Grand River Bridge S-189.19 Near Brunswick, MO
1:00 PM	Passenger & Transit Presentation Chicago – St. Louis Higher Speed Rail Program Update
1:45 PM	Track Presentation Field Investigation of Load Environment in Revenue Service Track with Railroad Spike Failures Systems
1:45 PM	Engineering Services Presentation Incorporating Digital Engineering Tools into Project Design
2:30 PM	Communications & Signals Presentation Leveraging PTC Infrastructure for CTC over ITCM: Development to Implementation
2:30 PM	Maintenance-of-Way Presentation Union Pacific Composite Tie Roadmap – A History and Roadmap for the Future

TOTAL for Thursday General Session 3.0

TOTAL PDH Credits Earned

PLEASE NOTE: YOU MAY ONLY SUBMIT CREDIT FOR ONE FULL TECHNICAL SESSION ON TUESDAY AND WEDNESDAY. YOU CANNOT SPLIT TUESDAY AND WEDNESDAY CREDIT HOURS.

Return this form to AREMA via email (meetings@arema.org). Your PDF Certificate will be emailed to you after the deadline. For questions regarding this form, please contact Desirée Knight at dknight@arema.org.

Full Name		Member ID	
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<input type="checkbox"/> I certify that I attended the Sessions indicated above.			
Signature		Date	

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