

AREMA 2019

ANNUAL CONFERENCE

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 2019 Annual Conference will be shown at bottom.

FORM SUBMITTAL DEADLINE – OCTOBER 7, 2019

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

Time	Session Description	PDH Credit	PDH Earned
Monday September 23, 2019			
8:15 AM	Engineering Services Presentation Railway Resilience - Experience from the Kaikoura Earthquake		
8:45 AM	Communications & Signals Presentation Safety and Security of Movable Rail Bridges		
9:45 AM	Maintenance-of-Way Presentation Utilizing Surface and Subsurface Trackbed Inspection Techniques to Help Plan and De-risk Undercutting Operations on Amtrak's Northeast Corridor		
10:15 AM	Track Presentation Remediation of Unstable Rail Due to Surface Conditions		
10:45 AM	Structures Presentation Upgrades to Bridge Management Practices		
11:15 AM	Passenger & Transit Presentation CTrail Hartford Line: Rail Passenger Revival in New England		
TOTAL for Monday General Session		3.0	

Tuesday | September 24, 2019

Technical Session: Communications & Signals

8:00 AM	State of Good Repair for Railroad Electrical Distribution Infrastructure		
8:30 AM	Signal Modernization at Stockholm Metro		
9:00 AM	Prototype Rail Crossing Violation Warning (RCVW) Phase II – Advancing the Use of Connected Vehicle Technologies to Reduce Crashes at Grade Crossings by Warning Vehicle Drivers of Predicted Violations		
9:30 AM	Remote Condition Monitoring of Signal Assets – From Early Assessment to Production Results Review		

- 10:30 AM Grade Crossing Track Circuit Replacement Using Axle Counters: Best Practices from Whittier Tunnel Crossing Alaska
- 11:00 AM Simulation-based Risk Analysis for Traffic Disruptions Caused by DoS Attacks to Railroad Cyber-Physical Systems
- 11:30 AM Mission Critical Signaling and Monitoring – Using Private Wireless Communications Networks to Increase Security and Reliability
- 2:00 PM Cab Signaling with Crossings
- 2:30 PM Prevention of End-of-Track Collisions in Passenger Terminals via Positive Train Control: A Benefit-Cost Analysis
- 3:00 PM Proximity Warning System for Hyrail Work Equipment

TOTAL for Communications & Signals Technical Session 5.0

Tuesday | September 24, 2019

Technical Session: Engineering Services

- 8:00 AM Immersive Learning Using Virtual Reality Systems for Railway Education
- 8:30 AM Leveraging IoT Technology to Optimize Friction Management in Heavy Haul Track
- 9:00 AM BIM Modelling in Linear Infrastructure Projects
- 9:30 AM UAVs: Beyond Pretty Pictures; A Case Study in Analyzing the Integrity of UAV-Derived Data for Full-Scale Railroad Infrastructure Design
- 10:30 AM Railroad Trespassing Risk Management: A Literature Review
- 11:00 AM Fast-Tracked Pavement Maintenance Using Concrete Rubblization
- 11:30 AM Consideration of Alternative Transportation Use of a Railroad Corridor Asset: A Team Effort
- 2:00 PM AUSTRALIA’S INLAND RAIL PROJECT . . . Transforming the National Supply Chain
- 2:30 PM Erie County Industrial Development Agency (ECIDA), Bethlehem Steel Rail Improvements Phase II Project: Overcoming Challenges Associated with the Localized HDPE Lining of a 54 inch Diameter Pressurized Waterline for Cooper E80 Loading

TOTAL for Engineering Services Technical Session 4.5

Tuesday | September 24, 2019

Technical Session: Maintenance-of-Way

- 8:00 AM Rock Fall Hazard Management on the Canadian Pacific Railway
- 8:30 AM Using 3D Laser and Artificial Intelligence to Inspect Wooden and Concrete Ties

- 9:00 AM FRA Implementation of Nationwide Rail Temperature Predictions
- 9:30 AM A Risk Assessment Framework for Grade Crossing Accidents and Derailments in the United States: A Case Study of California Rail Network (2008-2017)
- 10:30 AM Integrated Rail Asset Management by Rail Milling
- 11:00 AM RailJET®: Soft Subgrade and Embankment Stabilization, Introduction of New Hi-Rail Technology for Subgrade Maintenance
- 11:30 AM Protecting Roadway Workers with an Electronic Overlay – a Demonstration
- 2:00 PM Louisville and Indiana Railroad Track Upgrade Program
- 2:30 PM Remediation of Ballast Pockets in a Railway Embankment
- 3:00 PM Facial Recognition for Ties: Development of a Convolutional Neural Network to Facilitate Crosstie Lifecycle Study
- 3:30 PM Remediation of a Progressive Slope Failure

TOTAL for Maintenance-of-Way Technical Session 5.5

Tuesday | September 24, 2019

Technical Session: Passenger & Transit

- 8:00 AM Understanding Options of Passenger Station Horizontal Clearances: Gauntlet Tracks, Flip-up Platform Edges, Movable Platform Edges, and Dedicated Station Sidings
- 8:30 AM 3D LiDAR Mapping of New York Penn Station
- 9:00 AM B&P Tunnel - Creating a Higher-Speed Alignment Through Historically Sensitive Baltimore
- 9:30 AM Sound Transit Expansion - Systems Integration Challenges
- 10:30 AM Use of HMA in Rail Track: Inefficiencies and Redudancy of the Present System
- 11:00 AM Enhancing Flood Resiliency of the New York City Subway System
- 11:30 AM VTA-Bart Berryessa Extension Project
- 2:00 PM Pedestrian Tunnel Installation under CN Mainlines in 44 hours - Collaboration between CN and Metrolinx
- 2:30 PM Stray Current Mitigation in Various Track Structures

TOTAL for Passenger & Transit Technical Session 4.5

Tuesday | September 24, 2019

Technical Session: Structures

- 8:00 AM CSX Emergency Bridge Replacement
- 8:30 AM BNSF Railway Bridge 380.12 over I-235 – Planning & Construction Challenges in Oklahoma City, Oklahoma
- 9:00 AM Railroad Bridge Transverse Displacement Measurement Using a Laser Doppler Vibrometer (LDV) Mounted on Unmanned Aerial Vehicles (UAV)

- 9:30 AM LIRC Bridge Replacement over Flatrock River
- 10:30 AM Alaska Railroad Bridge 370.7 Pier #3 Replacement
- 11:00 AM Accelerated Construction of Union Pacific Railroad Bridge over Kankakee River
- 11:30 AM Fatigue Screening of Railway Deck Girder Bridges
- 2:00 PM Long Life Coatings for Steel Bridges
- 2:30 PM Construction of a New Vertical Lift Bridge with Minimal Impact to Traffic
- 3:00 PM Remote Monitoring and Replacement of Norfolk Southern Bridge CF-35.40 over Cotton Run, Seven Mile, OH
- 3:30 PM Articulated Double Stack Car Effects on Bridges
- 4:00 PM Complex Bridge Inspection with Unmanned Aerial Vehicle (UAVs)
- 4:30 PM Articulated Double Stack Car Effects on Bridges

TOTAL for Structures Technical Session 6.5

Tuesday | September 24, 2019

Technical Session: Track

- 8:00 AM Quantification and Evaluation of Rail Flaw Inspection Practices and Technologies
- 8:30 AM Development of Optics-based Mobile Instrument for Evaluating Top of Rail Lubricity Trends on In-service Track
- 9:00 AM The Influence of Rail Copper Content on Thermite and Electric Flash Butt Weld Properties
- 9:30 AM Field Experience and Academic Inquiry to Understand Broken Spike Failures in Railroad Fastening Systems
- 10:30 AM Fatigue Performance Characterization of Direct Fixation Systems Under Heavy Rail Transit Loading Conditions
- 11:00 AM Effects of Track Geometry and Track Components on Rail Performance
- 11:30 AM An Innovative Prestressing System for Concrete Crossties Using Shape Memory Alloys
- 2:00 PM Industry Research and Development to Improve Turnout Performance
- 2:30 PM CN & EVRAZ Laboratory Evaluation of Gage Face Lubricants Using Disc-on-Disc Testing
- 3:00 PM Implementation of BNSF Railway's Geometry Car-based Ground Penetrating Radar Program
- 3:30 PM Field Loading and Tie Support Conditions Influencing Track Substructure – Modeling Ballast Behavior and Statistical Perspective
- 4:00 PM Emergency and Non-emergency Railroad Safe Earth Retaining Walls with Pressed-in Sheet Piles

TOTAL for Track Technical Session 6.0

Wednesday | September 24, 2019

- 8:45 AM **Passenger & Transit Presentation**
California High-Speed Rail - Construction Package 4: An Analysis of the Technical Design Challenges, Design Evolution and Collaborative Solutions Developed for the Next Phase of High-Speed Rail Construction That is Underway
- 9:15 AM **Maintenance-of-Way Presentation**
The Mobile Mud Spring vs. The Union Pacific Railroad
- 9:45 AM **Engineering Services Presentation**
CREATE and Improving Chicago Rail Operations
- 10:45 AM **Track Presentation**
Slope Stabilization and Enhancements
- 11:15 AM **Communications & Signals Presentation**
Wireless Avalanche Detection
- 11:45 AM **Structures Presentation**
NSR Over I-240 in Memphis, TN - A Case Study in CM/CG, Accelerated Bridge Construction and Seismic Design

TOTAL for Wednesday General Session 3.0

TOTAL PDH Credits Earned

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

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