Saturday, July 8

1:00 pm - 2:00 pm	***The Critical Role of Traffic Services in Traffic Incident and All-Hazards Emergency Management*** Dave Bergner, Monte Vista Associates, LLC Employees of local public works and state transportation agencies who install and maintain traffic control devices and roadway lighting frequently respond to traffic incidents and other emergencies. Because they are already trained, experienced and equipped for routine work zone traffic control and special events, they provide valuable support to police and fire responders. This session will discuss the same training opportunities in traffic incident and all-hazard emergency management available to traffic services that is required of the other disciplines.
1:00 pm - 2:30 pm	***How to Apply for an FCC Radio License*** Ralph Haller, IMSA This session will provide an overview of how to apply for a radio station license, including proper selection of frequencies, coverage prediction methods, and FCC Rules and Regulations. The session will also examine the role of frequency coordinators and demonstrate how to submit an application for a radio station license.
1:00 pm - 2:30 pm	***Fiber Optics For Managers*** Jim Hayes, The Fiber Optic Association Inc. (FOA) No one is more important to the success of a fiber optic project than the manager.

Certainly, the designers need to be experienced in the process of planning the project and installers need to be properly trained and certified. But it's the manager that makes the decisions who takes responsibility for the overall project's success. The manager needs to have an overall comprehension of the processes involved in design and installation so they can make the proper decisions that ensure everything in the project is successful. This session is aimed at those managers. It will outline the basic knowledge you need to oversee fiber optic projects and make decisions that will ensure the project's success.

2:30 pm - 4:00 pm

How 100 Years Later, Thomas Edison's Dream Battery is Keeping ITS Intelligent and Green

Dan Sisson, ZincFive, Inc.

If only the great Thomas Edison could see his dream battery at work in intelligent transportation today. In 1901, Edison received his first and only patent for a rechargeable nickel-zinc battery system. He liked nickel-zinc electrochemistry for its high-energy density, high efficiency rating and temperature tolerance. It took more than 100 years and some Thomas Edison aficionados to crack the nickel-zinc code and bring the chemistry and technology to the 21st century. One of those Edison disciples, Dan Sisson, is a battery historian and the inventor of the nickel-zinc battery technology. He will share a fascinating look back to the future.

2:30 pm - 4:00 pm

Fiber Optic Testing Demystified

Jim Hayes, The Fiber Optic Association Inc. (FOA)

Fiber optic testing is the most complex and least well understood aspect of fiber optics but the most important. It's testing that determines whether an installation has been done properly. Fiber optic testing can be confusing because there are often several ways to test the same properties of a fiber optic cable plant. Interpreting those results is the confusing part. This session will cover basic test methods, explain where they should be used and provide guidance in interpreting test results.

Sunday, July 9

8:00 am - 9:00 am

Advanced Traffic Controller Cabinet (ATCC) Overview

Scott Evans, Eberle Design Inc

This interactive panel session will provide an introduction to the architecture of the new Advanced Traffic Controller Cabinet (ATCC). The ATC Cabinet is an open architecture traffic control cabinet designed to take advantage of ultra-low power LED signals, enhanced fail-safe design and diagnostics, and compact double-density size and modularity. This industry expert panel discussion will present the standards background, cabinet architecture, and relevant features and functions of the new architecture including a low voltage 48VDC based version. Fully operational ATC Cabinets will be demonstrated. The presentation will consist of a general overview followed by a question and answer period directed at the panel experts.

8:00 am - 9:00 am

Smart Communities, Technology and Maintenance Implications

John Lower, iteris

Smart communities use information and communications technology to enhance livability,

work-ability and sustainability. What implications exist for the operations and maintenance staffs of smart communities? This presentation will review the three essential components to smart community operations: 1) collecting information about the community through sensors; 2) communicating that data using wired or wireless networks, and; 3) crunching (analyzing) that data to understand what's happening now and what's likely to happen next. Examples will be drawn from representative Smart City applications submitted for the recent USDOT competition and best practices of global smart communities will be shared.

8:00 am - 12:00 pm

Traffic Incident Management (TIM) Responder Training Program
Federal Highway Administration (FHWA)
This half-day program will cover the basic concepts, protocols and procedures for safe traffic incident management. The key to building stronger incident response teams is to train responders across all agencies together. Law enforcement, fire and rescue, emergency medical services, transportation agencies, towing and recovery professionals , notification and dispatch personnel, hazardous materials management responders, coroners and medical examiners and public works professionals are all part of the team.

You must also register
here: https://fhwatimtraining.wufoo.com/forms/tim-responder-training-registration-imsa-2017/

9:00 am - 10:00 am

Loop Detection Installation and Configuration 101
This session will review the fundamentals of loop detection from design to installation to configuration. Personnel who have grown up on video detection and other technologies may not be aware of the proper way to install loops or to set them up. A review of the basics will provide an understanding of the science of inductive loop detection.

9:00 am - 10:00 am

10:00 am - 11:00 am

Mass Notification Systems and Their Importance in a Post-9/11 World
Merton Bunker, Merton Bunker & Associates
This presentation will focus on Mass Notification Systems and Emergency Communications Systems. The following topics will be discussed: the history of MNS/ECS; the types of MNS/ECS including one-way, in-building ECS; MNS Basic Code Requirements for In-Building ECS; and other uses for MNS/ECS not covered by Code, such as highway Dynamic Messaging Signs (DMS), Giant Voice Systems, and Reverse 9-1-1 systems.

10:00 am - 11:30 am

Out with the Old and In With the New - Updating a Safety Management System (SMS) into a Modern Roadway Safety Management Program
Seth Chalmers, Pima County Department of Transportation
The Pima County, AZ Department of Transportation (PCDOT) Traffic Engineering Division (TED) has had a Safety Management System (SMS) in place since 2002. PCDOT has used the SMS to develop safety improvement projects and programs since that time This presentation will cover where PCDOT SMS has been, where it is and where it is going as it modernizes itself to a modern roadway safety management program.

11:00 am - 12:00 pm

Intersection Video Archive Pilot Project

Michael Wendtland, Redhawk Solutions LLC

Steve Mc kenzie, City of Peoria, Arizona

This session will present how a video archival concept was conceived in the aftermath of a rollover crash safety investigation in the City of Peoria, AZ. Law enforcement investigators asked traffic engineering for a recording from a nearby ITS camera. At the time of the incident the policy was not to record traffic video. This presentation will cover how a project brought together traffic engineering, technology, law enforcement and legal experts to look at the institutional, technical and policy challenges of archiving CCTV images for use in major crash investigations, defense of claims and for felony enforcement purposes.

1:00 pm - 2:00 pm

Getting Started In Fiber Optics

William Graham, Fiber Optic Association

Many technicians spent years working with only copper cabling and now find the industry is changing "at the speed of light" with the advent of optical fiber. This presentation will deal with the differences and the similarities between copper and fiber. This speaker will discuss the ten easy steps for the technician to take to enter this industry or make the transition from copper to fiber.

1:00 pm - 2:00 pm

Human-Centric Intersection: Reducing Pedestrian Fatality to Zero

Talmai Oliveira, Philips Lighting

This presentation will take a quantitative approach to help better understand the various factors contributing to intersection safety with an emphasis on pedestrian vulnerability. The speaker will present an exhaustive overview of crash statistics, key trends based on the data available at intersections and research efforts currently underway. A discussion of solutions, such as the Vision Zero initiative, which is designed to help make cities safer for pedestrians and vehicles alike, will also be included.

1:00 pm - 2:00 pm

Arapahoe County Sign Survey: A County Wide Sign Survey and Condition Assessment

Michael Comstock, Arapahoe County Government

This presentation will discuss how Arapahoe County, CO completed a county wide sign survey and condition assessment with in-house crews. It will include the thought process before the survey was started, how crews were trained to complete the task and how this process was able to transform into the new technology that the county is now using.

2:00 pm - 3:00 pm

Adaptive Traffic Signal Control - West Des Moines' Experience

Jim Dickinson, City of West Des Moines, Iowa

The City of West Des Moines, Iowa has been using adaptive traffic signal control technology since 2011 with excellent results. Of the 116 signalized intersections in the city, 82 are equipped with adaptive traffic signal control technology along ten major corridors. The presentation will discuss our cradle to grave experience deploying adaptive traffic control including system funding, installation, operation, and user benefits.

2:00 pm - 3:00 pm

Taking the Mystery out of Emergency Responder Radio Enhancement Systems

Merton Bunker, Merton Bunker & Associates

This presentation will focus on the design and use of Emergency Responder Radio

Enhancement Systems (ERRES) in modern buildings. The session will cover basic technology/frequencies, relevant building and fire code requirements, where ERRES are typically required, interfaces with the building fire alarm system, donor antenna considerations, distribution antenna layout and design considerations.

2:00 pm - 3:00 pm

Practical Ways to Manage the Electrical Grid Beast So The "Next Generation of Mobility" Actually Works

Dan Sisson, ZincFive, Inc.

This presentation will leave attendees with an understanding of our industry's aging electrical grid. All of our plans for ITS infrastructure automated/connected vehicles, fire alarm/mass notification systems, traffic operations, emergency operation centers and communications systems are worthless, even dangerous, unless they stay connected. This session will discuss the aging, stressed-out electrical grid system that's delivering electro-pollution or dirty power and how spikes, noise, surges, blackouts and brownouts will only increase as we continue to place more ITS equipment in our transportation systems. This presentation will discuss practical solutions to these problems.

3:00 pm - 4:00 pm

Signal Performance Measures (SPM) for Traffic Signal Maintenance

Speaker: Donald Maas, Jr., Director of Business Development, McCain, Inc.

Do you know if your signal timing strategies are working? Learn how to measure their effectiveness and improve traffic signal maintenance and operations with signal performance measures (SPM). This session will cover what SPMs are, why they're needed, and what to do with the data to identify if signal timing strategies are working. The speaker will review actual field cases using SPMs.

3:00 pm - 4:00 pm

How to Establish a Travelers' Information Service Broadcast Station

Ralph Haller, IMSA

This session will provide basic information regarding what the Travelers' Information Radio Service is, how TIS stations can be used to provide information to motorists and visitors to an area, how to select a frequency, and how to apply for a license from the FCC.

3:00 pm - 4:00 pm

Clean Power and its Direct Effect on Connected Vehicle Technologies

Dr Joseph Palsa, Clary Corp

Connections between vehicles and land based sensor and controls systems are our future. Advanced networking communications systems are utilizing both local and cloud based solutions which require ultra-reliable power sourcing under all operating conditions. This presentation will explain the new requirements for reliability and explore the latest advances with programmable digital power systems and their direct effect on operations and maintenance of ITS and traffic networking and communications equipment.

Monday, July 10

8:00 am - 9:00 am

Stop Dreaming: "Futuristic" Green Technologies Available Now to Meet Your ITS Goals

Dan Sisson, ZincFive, Inc.

As ITS infrastructure is planned out and deployed, consideration must be given to purchases that protect the environment right now, not later. Governments are increasingly

investigating and regulating chemistries and technologies that are quietly polluting the environment and endangering lives. Learn what green technologies are offering transportation planners in 2017.

8:00 am - 10:00 am

Basics of Optical Fiber for The ITS Technician

William Graham, Fiber Optic Association

This half-day intensive program will deal with the differences between copper and fiber cabling. We will discuss the types of fiber, applications for different types and methods of joining fiber with various types of connectors. Mechanical and fusion splicing as well as some of the testing methods used for testing fiber systems will be discussed. System emergency restoration will also be included.

8:00 am - 12:00 pm

ATC Equipment for Your ITS Needs Today and for Your Future

Ralph Boaz, Pillar Consulting, Inc.

The Advanced Transportation Controller (ATC) family of standards provides an open architecture hardware and software platform that provides new opportunities to meet your current ITS needs as well as preparing for USDOT initiatives such as Connected Vehicles and Smart Cities. This half day session provides the latest training on transportation field equipment featuring: an overview of each of the ATC standards, hands-on demonstrations of ATC equipment being deployed, and guidance for testing and migration planning for your agency. The session will cover the ATC 5201 Standard (controller architecture) the ATC 5401 Standard (application programming interface (API) software), and the ATC 5301 Standard (transportation field cabinet system and features).

9:00 am - 10:00 am

Enhancing Safety with Innovative Work Zone Technology

Peter Cusolito

This session will examine the application of technology to improve work zone safety through enhanced traffic management and motorist information. The presentation will discuss several technology pilot programs that have been conducted to measure improved traffic management during construction, minimizing delays and improving motorist and worker safety.

10:00 am - 11:30 am

IMSA Moderator Workshop

Jeff Knight, IMSA

The IMSA certification team will present an overview of new and existing policies and procedures related to moderating and administering IMSA certification programs. This session will address questions and issues that frequently arise prior to, during and after certification programs. The program is intended for all current moderators and those interested in becoming IMSA moderators. Questions from session attendees are encouraged.

10:00 am - 11:30 am

Sign Compliance

Joanne Conrad, TAPCO

Are your signs in compliance? What’s new for 2017 and going forward? This interactive presentation will cover MUTCD compliance of signs and how to go about meeting the specs. This session will touch on some of the day to day issues faced by the people in the shop who are producing signs and the maintenance people in the field. The speaker will

provide information on the new process of digital printing and updates on what's new and what's in the near future.

1:30 pm - 2:30 pm

Cybersecurity: System Assurance at the Intersection and V2X

Keith Golden, Econolite Group, Inc.

In the Internet of Things (IoT) realm, it is estimated that 17.6 billion devices are connected today. As connected and automated vehicle technologies march ahead, the appliances, sensors, components, and machines related to Vehicle-to-Vehicle (V2V) and Vehicle-to-Infrastructure (V2I) systems will almost certainly represent more than a billion of those connected devices. This presentation will examine the root causes of vulnerabilities in the traffic management domain, including some of the unintended flaws in hardware and software designs. It will also provide details on current and future measures that address system assurance for intersections today and intersections in the connected and automated vehicle near future.

1:30 pm - 2:30 pm

Effectively Maintain Reliable Power and Control of Preemption of Rail & Signal Control for New DC Traffic and ITS Systems

Dr Joseph Palsa, Clary Corp

This session will discuss rail crossing preemption systems and their importance to public safety along with the MUTCD and its applicable preemption instructions. The direct effect on various types of Rail and ITS systems including current and future traffic controllers, conflict monitors, cameras, and other devices will be covered. Related subjects will include costs associated with downtime and repair of cross warning with ITS and traffic equipment.

1:30 pm - 2:30 pm

Planning for Bicycle Traffic Control

Scott Robinson, Econolite Group, Inc.

This presentation will explore the critical aspects of planning for enhancing bicycle safety in the connected vehicle world of a Smart City including the capabilities of the infrastructure, especially at the intersection. The speaker will address the results of a recent survey of avid bicyclists and their safety concerns about roadways and how a requisite technology and road network planning can easily and quickly enhance safety and mitigate collisions. Data from a recent citywide bicycle safety system implementation will support how this technology is proving successful to bicycle and pedestrian safety.

2:30 pm - 4:00 pm

2:30 pm - 4:00 pm

NCUTCD Forum

Don Fullerton

IMSA is a sponsoring organization of the National Committee on Uniform Traffic Control Devices (NCUTCD) and has four members serving on NCUTCD Technical Committees that make recommendations to the FHWA on the content of the Manual on Uniform Traffic Control Devices (MUTCD). This panel will give an update on the current discussions happening within the NCUTCD, as well as give the latest FHWA update concerning the next rewrite of the MUTCD.

2:30 pm - 4:00 pm

Fully Programmable Digital DC and AC Power Sourcing for New DC Traffic and

ITS Control Cabinets
Dr Joseph Palsa, Clary Corp
The latest advances in Traffic and ITS Control cabinets require specialized low ripple, isolated, and specially regulated power systems. This discussion is centered around the significant advantages of a programmable power system that eliminates the problems of trying to utilize multiple power supplies and backup systems together. The speaker will review the importance of isolated protection from the many connected networks being tested in today's markets.

Tuesday, July 11

9:00 am - 10:00 am

Bike Detection Utilizing Inductive Loops
Matt Zinn, Reno A&E
Bike detection is becoming more relevant to today's traffic control at intersections. This session addresses the use of the most reliable and most often used technology to detect and differentiate bicycles from other vehicles to provide an input to the controller for bicycle timing. This session will review the technology and setup for bike detection at controlled intersections using inductive loop technology.

9:00 am - 10:00 am

IoT in ITS: Network Impacts
Robert Hemmerich, Alcatel-Lucent Enterprise
ITS field devices are becoming ever more sophisticated as Internet of Things (IoT) technologies arrive. The impact on the roadside network is not to be underestimated; what was once a "set it and forget it" utility is transforming into a living nerve center that is increasingly mission critical. Automation and security of this living network become a business imperative. Learn how managed field Ethernet switches are evolving to meet these challenges with embedded security, increased routing intelligence, flexible power options, self-provisioning and expansion capabilities to ensure the ITS devices of today and tomorrow can be supported.

9:00 am - 10:00 am

Creating a Fiber Optic Network: How do I get Started?
Douglas Pershall, George Butler Associates Systems Integration
This presentation will focus on the regional communication network being designed and deployed by St Charles County, Missouri, and their eight partner cities, to provide a high speed, high bandwidth communications system for the Countywide ATMS software and the upcoming Smart City technology deployments. The presentation will discuss the network architecture and connectivity along with the necessary partnerships and agreements needed for a regional communication network. It will also look at the benefits of a shared, Ethernet-capable managed network and the potential uses of the regional system for future Autonomous/Connected Vehicle and Smart City technology deployments.

11:00 am - 12:00 pm

The Grid Can Be Unreliable, But Your Traffic Signal Backup Power Solution Cannot
Vito Coletto, Altergy Fuel Cells
Research shows that batteries can be unreliable, and their life and capacity is adversely affected by temperature swings. Also, portable gas or diesel generators are loud, polluting,

a safety hazard for pedestrians and can be easily stolen. The speaker will review all well documented issues with previous generation technologies (batteries and generators) used for backup power today and show how modern, commercially proven fuel cell technology eliminates these and other issues associated with dark signals. Some examples of existing system installations in cities across the US will be reviewed.

11:00 am - 12:00 pm

Peer-to-Peer Communications: What It is and Why Cities Benefit

Speaker: Donald Maas, Jr., Director of Business Development, McCain, Inc.

What if you could coordinate closely spaced intersections without the bulkiness of an adaptive system? Wouldn't it be nice to coordinate intersections for transit signal priority or preemption without a central system? Or, how about improving traffic flow using the tools you already have? Peer-to-peer communication enables controllers to transmit and receive critical, real-time information to improve traffic operations. This session will introduce you to peer-to-peer and identify its uses and benefits. You will learn from real world examples of successful deployments and how you can leverage these successes.

11:00 am - 12:00 pm

Cellular Antennas Collocating with Streetlights: The Coming Trend

Kurt Blackbern, NOV, Ameron Pole Products

As cellular companies attempt to meet the ever-increasing needs for data on their networks there has been a fundamental shift in how these networks are being updated. Service providers are looking to distribute their network through local access small-cell sites rather than the centrally located macro-cell sites that had been the norm. This presentation will explore how streetlight poles, located in high population, high data, areas are one of the favorite siting solutions and how what appears to be a straight forward retrofit comes with many challenges that are often initially overlooked.

1:30 pm - 3:00 pm

Recent Developments In Traffic Signal Preemption, Where Science and Safety intersect.

Dave Gross, Collision Control Communications, Inc.

Jeff Williams, Collision Control Communications, Inc.

This session will cover recent technology developments that allow collision avoidance systems to be integrated into emergency vehicle preemption and transit signal priority.

1:30 pm - 3:00 pm

Why the Least Sexy Technology Ever Invented is Critical to Your Intelligent Transportation System Plans

Dan Sisson, ZincFive, Inc.

The lowly battery is making a comeback. Our world is becoming increasingly electrified and connected, critical for the Internet of Things to actually be anything at all. As our power grid grows increasingly stressed and unpredictable, batteries, specifically backup batteries (BBS or uninterruptible power supply (UPS), are now a key player in protecting infrastructure, technology and lives. This presentation will address how Smart Cities across North America are deploying these systems and the results.

1:30 pm - 3:00 pm

Fiber Optic Testing & Troubleshooting using an OTDR

Speaker: Phil Shoemaker, Light Brigade

This interactive session will review the set-up and operation of an Optical Time Domain Reflectometer (OTDR) and provide helpful testing and troubleshooting tips and

techniques. Topics covered will include: wavelengths; why test at multiple wavelengths, how to achieve the right trace resolution, why pulse width is so important, effects of dead zones and closely spaced connections, real time vs. averaging, when to use each setting, the significance of Index of Refraction (IOR) icons, event tables and trace analysis - what do you trust, and using your OTDR as a maintenance tool. New and experienced OTDR users will benefit from this presentation.