



**IRF** Executive Seminar

# Road Network Safety Management

*Preventive Risk Diagnosis for Safer Roads*



**Dubai, UAE**  
**September 4-8, 2016**

Endorsed by



UNITED ARAB EMIRATES  
MINISTRY OF INFRASTRUCTURE  
DEVELOPMENT



## ABOUT THE IRF

The International Road Federation is a non-governmental, not-for-profit membership organization founded in Washington, DC in 1948 with the mission to encourage and promote development and maintenance of better, safer and more sustainable roads and road networks around the world.

The IRF has a major role to play in all aspects of road policy and development worldwide:

- For governments and financial institutions, the IRF provides a wide base of expertise for planning road development strategy and policy.
- For the private sector, the IRF is a business network, a link to multilateral institutions, such as United Nation agencies and the World Bank, and a platform to access government officials and decision makers.
- For the community of road professionals, including national road associations, engineering societies, advocacy groups, and institutes of higher learning, the IRF provides an invaluable information and knowledge platform.

## THE ROAD INDUSTRY'S MOST TRUSTED BRAND IN CONTINUING EDUCATION

For more than 50 years, an essential part of the IRF's mission has been the organization and delivery of training courses that provide continuing professional development for individuals and contribute to the dissemination of knowledge and expertise throughout the world.

As a strong believer in continuing education, the IRF provides members, as well as road professionals worldwide with educational opportunities that are recognized by engineering and transportation societies worldwide. The IRF's Global Training Curriculum provides technical expertise in classroom and practical settings where attendees can learn from and have direct access to seasoned professionals. Each course not only provides the most relevant, up-to-date information and best practices and solutions, but is also designed to assist attendees in learning to correctly apply the knowledge gained.

IRF Executive Seminars are specifically developed to meet the needs of today's highway managers. Whether you are a representative of a highway agency, a member of a financing institution, consultant or contractor, IRF seminars will give you the necessary tools to make improvements in your organization. Our mission is facilitate road progress whenever and wherever we can by organizing constructive events, furnishing needed information and assisting with the training and transfer of best practices and technologies around the world.

For more information on meeting your continuing education goals, please visit:

[www.irfnews.org/training](http://www.irfnews.org/training)

## VENUE

Ministry of Infrastructure Development  
Al Nahda Street, Dubai

## COURSE DESCRIPTION

Preventive risk assessment is an effective and essential instrument to help road authorities reduce the number of crashes and casualties, because design standards alone cannot guarantee road safety in all conditions .

Risk assessment procedures can typically be applied at successive stages of road planning, design, opening and operations. They all serve the common purpose of identifying risk factors related to road design or traffic control that may lead to crashes, or make crashes more severe. In many cases, they help network highway operators and city traffic departments identify engineering weaknesses and hazardous road sections, even in the absence of robust traffic injury data.

In 2015, 82.5% of countries reported implementing one or more of these procedures , yet over 70% of roads surveyed by the International Road Assessment Program in emerging countries were rated under 2 stars across at least one user category . These figures suggest a startling disconnect between the theoretical merits of safe road infrastructure management and the actual results experienced by countless road users every day.

As a global leader in road safety, the IRF is well positioned to present state of the art methodologies and cutting edge technologies that have been field tested to forecast crashes and reduce traffic injury risk. Seminar attendees will receive the necessary theoretical background and applied practices on traffic injury risk identification and reduction to ensure their programs are the most effective globally.

## LEARNING OUTCOMES

- Learn how to focus on road deficiencies that lead to severe and fatal injuries
- Identify the different network safety management tools available to practitioners as they apply to all users of the road network
- Understand the benefits, resources and liability issues associated with each tool & identify the practical requirements to implement them
- Understand the scope of, and correctly utilize national and international reference manuals
- Identify data sources available to support decision making and how to overcome integrity & quality issues
- Use advanced technology to forecast and analyze traffic safety conditions in streets and highways
- Learn how to present audit findings to decision makers and make a compelling case for safety investments

## SPONSORS



## DAY 1 – NETWORK SAFETY MANAGEMENT ESSENTIALS

- 08.30-09.00 **OPENING REMARKS**
- His Excellency Dr. Abdullah Belhaif AlNuaimi, Minister of Works, UAE
- 09.00-10.30 **WHAT WE WANT TO ACHIEVE**
- What the “Safe System” means for road & highway professionals
  - Factors that contribute to road crashes
  - Theory and application of Crash Reduction Factors
- 11.00-12.30 **NETWORK SAFETY MANAGEMENT IN SELECT COUNTRIES**
- Incorporating traffic safety management in the national road safety action plans
  - Practical applications of road safety countermeasures
  - Examples of effective interventions – Abu Dhabi Case
- 13.30-15.00 **PREVENTIVE APPROACHES**
- Proactive and reactive approaches to road infrastructure safety management
  - Stages at which to conduct audits & inspections
  - Cost-effectiveness criteria in road safety audits & inspections
  - Applications of road safety auditing to vulnerable road users
- 15.00-16.00 **REACTIVE APPROACHES**
- High Risk Site Management
  - Network Safety Ranking
  - Key Performance Indicators
  - Examples of effective interventions
- 16.00-16.30 **DAY 1 WRAP-UP**

## DAY 2 – DATA & RISK ANALYSIS

- 09.00-11.00 **CRASH & INJURY DATA ANALYSIS**
- Collision causes and the role of the vehicle, the road environment and the driver
  - Practical application of identifying causes of traffic safety problems, Abu Dhabi Case
  - Overcoming data quality issues and building robust crash data systems, Abu Dhabi Case (TIMS)
  - Recent applications to road safety engineering solutions and enforcement applications
- 11.30-12.30 **BIG DATA & ROAD SAFETY**
- Using large-scale data sets to triangulate and forecast traffic trends & safety problems
- 13.30-15.30 **TECHNOLOGY BRIEF: VIDEO ANALYTICS OF NEAR-MISS CONFLICTS AND PRO-ACTIVE DIAGNOSTICS**
- Why Surrogate Measures of Road Safety: Proactive Diagnostic Ability
  - Types of Conflict Analysis: Manual, Automated, and Hybrid
  - Automated Video Conflict Analysis
  - Future Directions for Video Analytics
- 15.45-16.30 **PROACTIVE DIAGNOSTICS – PREVENTIVE MEASURES FOR A MOTORWAY NETWORK FREE OF INJURIES**
- 16.30-17.15 **BEST PRACTICES FOR ROAD SAFETY AUDIT IN UAE**
- 17.15-17.30 **DAY 2 WRAP-UP**

## DAY 3 – CONDUCTING A ROAD SAFETY AUDIT & INSPECTION

- 09.00-10.30 **CONDUCTING A SAFETY AUDIT**
- How to conduct field observations
  - Using safety audit manuals and prompt lists
  - Structure of an audit report
  - Preparing, finalizing and presenting a road safety audit report
  - How to ensure audit findings are implemented
- 10.30-12.30 **USING ROAD SAFETY AUDIT MANUALS**
- Overview of Manuals & Guides related to safety audits in UAE
  - Auditing an urban scheme: classroom exercise
- 13.30-15.30 **TECHNOLOGY BRIEF: DELIVERING SAFETY AUDITS THROUGH ENHANCED REALITY**
- Google Glass and Beyond – Overview of the Smart Glass and AR technology revolution
  - Using Smart Glass and AR for Training and Capacity Building in Road Safety
  - Use of Smart Glass and AR for Remote Participation and Expert Collaboration
  - Use of Heads-up Data Displays to aid in Diagnostics & Streamline Inspection
  - Anticipated Directions for Second and Third Generation Smart Glass Devices
  - Case Study of Canadian Pilot
  - Trial of Devices
- 15.30-16.00 **CHOOSING YOUR AUDIT TEAM**
- Who to include in a road safety audit team
  - Qualification requirements for Road Safety Auditor Team Leaders
  - National & international accreditation mechanisms
- 16.00-16.30 **DAY 3 WRAP-UP**

## DAY 4 – URBAN SAFETY ISSUES

- 09.00-10.00 **LIVABILITY, WALKABILITY, AND SAFETY IN URBAN ENVIRONMENTS**
- 10.00-12.00 **SAFER STREETS BY DESIGN**
- Understanding urban “black spots”
  - Setting urban speed limits
  - Forecasting safety impacts of urban planning decisions
- 12.00-13.00 **PREPARING THE URBAN FIELD REVIEWS**
- How to conduct field observations
  - Expected outputs of the field review
  - Presentation of sites
- 14.00-17.00 **URBAN FIELD REVIEW**  
Conducted in team of 4/5 participants

## DAY 5 – FINDINGS & WORKSHOP CONCLUSIONS

- 09.00-12.00 **PRESENTATION OF FIELD REVIEWS & GROUP DISCUSSION**
- 12.30-13.30 **PROFICIENCY EXAM & CERTIFICATES**
- 14.00-18.00 **OPTIONAL PROGRAM OF VISITS**



## LEAD INSTRUCTOR



**Michael Dreznes**  
**Executive Vice President, International Road Federation, USA**

Michael G. Dreznes assumed his current position of Executive Vice-President of the International Road Federation (IRF) in February of 2012.

Dreznes has spent the last thirty years working to make the roads safer around the world. He is recognized as one of the world's leading specialists on roadside safety promoting the concept of "Forgiving Roads," and has conducted multiple road safety training seminars on roadside safety, work zone safety, vulnerable user safety and road safety audit in more than sixty countries around the world.

Dreznes is the Co-Chairman of the Transportation Research Board (TRB) AFB20 (2) Roadside Safety Subcommittee on International Research Activities, Co-Chairman of the United Nations Road Safety Collaboration (UNRSC) Decade of Action Pillar 2: Safer Roads and Mobility Project Group, a member of the PIARC Road Safety Technical Committee 3.2 Design and Operation of Safer Road Infrastructure, a member of TASK FORCE 13 Committee on Work Zone Safety. In January 2015, Dreznes was named the winner of the TRB AFB20 Roadside Safety Design Kenneth Stonex Lifetime Achievement Award.

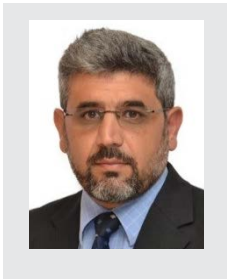
## GUEST SPEAKERS



**Craig Milligan, PhD CE, B.Sc. CE, P.Eng., Ing.**  
**Managing Director, Fireseeds North Infrastructure**

Craig Milligan, P.Eng., is the Managing Director of Fireseeds North Infrastructure. He holds a Ph.D. in road safety from University of Manitoba, Canada. He has completed more than 75 safety audits and in-service road safety reviews, and developed more than 200 collision prediction models for multiple jurisdictions. Craig previously held safety specialist positions with Manitoba Infrastructure and Transportation and the World Bank, where he was the lead author of the road safety chapter on their flagship report for transport capital budget allocation decisions. He is Vice Chair of the Transportation Association of Canada Road Safety Standing Committee and a member of the Canadian Association of Road Safety Professionals Board of Directors. He is a coauthor of

numerous guidelines as well as peer-reviewed articles in top-ranked road safety journals, and has taught several undergraduate civil and transportation engineering courses at the University of Manitoba.



**Tawab Kazemi, MSc (Eng), BSc**  
**Country Director and Head of Transportation Middle East, TRL**

Tawab is the Country Director and Head of Transportation Middle East at the UAE office of the Transport Research Laboratory (TRL) and has been based in the Middle East for the past nine years. He is a professional traffic engineer and road safety specialist with significant experience in transport planning and traffic engineering. Tawab has more than 22 years' experience in project management and execution of traffic engineering, road safety engineering, public transport planning and sustainable transport planning projects in the UK, UAE, India and Qatar. He has delivered major transportation projects in Dubai and he is familiar with the local road infrastructure and driver behaviour. Tawab has also developed and delivered Traffic Engineering, Traffic Signal

Design and Safety Engineering related courses for governmental and private sector clients. Tawab has conducted more than 100 Road Safety Audits in the region.



**Atef Garib, PhD CE**  
**Senior Road & Traffic Expert**

Dr. Garib received his Ph.D. in Civil Engineering (Transportation) from University of Central Florida, USA in 1995. He has more than 25 years of experience in the Transportation industry through working at several organizations in different capacities. From June, 2009 till date, he is working as a Senior Road and Traffic Expert in the traffic engineering and road safety Department, Abu Dhabi police GHQ, he has been assigned with conducting studies to investigate road and traffic safety conditions in Abu Dhabi and proposing effective countermeasures to improve safety conditions.



**Jérôme Ferre**  
**Operation Head Manager Responsible, Abertis**

Mr Jérôme Ferre is a robotics and artificial intelligence engineer. Jérôme has 16 years of experience in the field of motorway operation within the French Motorway Company Sanef. At the company, Jérôme, held many positions, including project manager, head of technology maintenance, head of traffic management and maintenance, and then head of toll management.

Most recently, Jérôme has taken over responsibility in Abertis Corporation (Sanef Shareholder) as the head operations manager. He is responsible for the operation and harmonization of practices and policies across all the Abertis concession roads (over 8.200 km, 15.000 people in 12 countries over the world).



**Hany Hassan, PhD CE**  
**Head of Roads Design and Safety Division, Tatweer**

Dr. Hassan received his Ph.D. degree in Civil Engineering (transportation engineering with specialization in roads safety) from the University of Central Florida (UCF) in 2011.

Dr. Hassan has more than 15 years experience in the Transportation industry through working at several Transportation Engineering firms. He has worked on multiple projects (funded by Florida department of Transportation USA and Abu Dhabi Police, UAE) that addresses ITS, human factors and road safety issues.

Dr. Hassan is currently managing several projects including: developing a GIS-based traffic safety management system for Abu Dhabi, and developing a national transportation tracking system for UAE.



**Siegfried Grosskopf, Pr Eng.**  
**Road Safety Manager, Parsons International Limited, Dubai, UAE**

Siegfried Grosskopf is a registered professional engineer in South Africa and specializes in the field of road safety engineering. He has a special interest in the effect that improved attention to human factors would have on the improvement of road safety.

Since 1986, he has been extensively involved with road safety and road traffic signage when he participated in the development of a Road Traffic Safety Management System for the South African National Department of Transport. He co-authored the South African Road Safety Manual, updated the South African Road Safety Audit Manual and developed a long term road safety strategy for the Republic of Namibia. He co-authored a road safety

strategy study for the World Bank for implementation in Sub-Sahara Africa. Siegfried has done extensive road safety audits in the UAE and Qatar and in Southern Africa covering all stages of the road safety audit process from pre-feasibility to pre-opening stages.

He actively participated in international conferences on road safety and also lectured in Road Safety and Highway Design at undergraduate and post-graduate levels at the University of Pretoria, South Africa.



**Daniel Albuquerque, PhD**  
**Assistant Professor of Transportation Engineering, UAE University**

Dr. Albuquerque currently works as an Assistant Professor of Transportation Engineering at the United Arab Emirates University (UAEU). He earned his Ph.D. from the University of Nebraska, USA. Dr. Albuquerque is one of the recipients of the prestigious International Road Federation Scholar award and brings over 10 years of experience in Transportation research and consultancy.

Before joining UAEU, Dr. Albuquerque worked at Abu Dhabi Municipality (ADM) where he was involved with a variety of road safety projects and initiatives. Prior to his ventures in Abu Dhabi, Dr. Albuquerque worked for several years at the Nebraska Transportation Center (NTC) where he honed his research capabilities and had the

chance to be involved in State- and Federally-funded research projects. He is actively involved in the Transportation Research Board (TRB) AFB20 (2) Roadside Safety Sub-Committee.



**Jaap van den Hoek**  
**Business Development Manager, Inrix**

Jaap van den Hoek is the Business Development Manager for the EMEA region.

Originally involved in sourcing all the data needed for the development of INRIX services in over 45 countries for the last 5 years, he has now also engaged in building relationships with customers in Europe and the Middle East.

NRIX provides a comprehensive portfolio of traffic-powered solutions across Europe for the automotive, mobile, public sector, fleet, Internet and media markets. We deliver the broadest and highest quality traffic information available, providing coverage in more countries and more roadways within cities than any other company. Our deep expertise with traffic data, mobile apps and automotive platforms ensures you have access to breakthrough

technologies and tools. We go further by providing your customers with insights into the fastest routes, travel journey times and other driver services that save time and money while reducing fuel consumption.

# GLOBAL

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BUSINESS OPPORTUNITIES • BEST PRACTICES

## BUILDING INDUSTRY PARTNERSHIPS

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**Better Roads. Better World.**

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**International Road Federation**

**GLOBAL HEADQUARTERS**

Madison Place  
500 Montgomery Street, Suite 525  
Alexandria, VA 22314 USA  
Telephone: +1 703 535 1001 Facsimile: +1 703 535 1007