18th International Conference
Road Safety on Five Continents
Jeju, Korea, May 16-18, 2018

Programme

#rs5c
www.vti.se/RS5C
The Swedish National Road and Transport Research Institute (VTI), is an independent and internationally prominent research institute in the transport sector.

Our principal task is to conduct research and development related to infrastructure, traffic and transport. We are dedicated to the continuous development of knowledge pertaining to the transport sector, and in this way contribute actively to the attainment of the goals of Swedish transport policy.

Our operations cover all modes of transport, and the subjects of pavement technology, infrastructure maintenance, vehicle technology, traffic safety, traffic analysis, users of the transport system, the environment, the planning and decision making processes, transport economics and transport systems. Knowledge that the institute develops provides a basis for decisions made by stakeholders in the transport sector. In many cases our findings lead to direct applications in both national and international transport policies.

VTI conducts commissioned research in an interdisciplinary organisation. Employees also conduct investigations, provide counseling and perform various services in measurement and testing. The institute has a wide range of advanced research equipment and world-class driving simulators. There are also laboratories for road material testing and crash safety testing.

In Sweden VTI cooperates with universities engaged in related research and education. We also participate continuously in international research projects, networks and alliances.

We promise to open up a bright future without traffic accidents.

Safety
- Vehicle inspection
- Railroad safety
- Aviation safety

Creativity
- Vehicle safety research
- Transportation safety investigation research
- Advanced traffic information system

Trust
- Commercial vehicle management
- Transportation safety management in transportation companies
- Safe driving training
- Supporting families of traffic accident victims and community service activities

We dream about safe transportation and happiness of fifty million people of Korea.

From safe road free of traffic accidents to railroads accompanied by restful leisure, Reliable skyway, and scientific and systematic transportation safety management, KOTSA has continued to work in these areas to bring safety and happiness to the community.

As a human-centered global transportation safety organization, KOTSA places transportation, safety, and people at the center of consideration. With the efficient, smooth transportation at the core, KOTSA considers safety as the top priority and treats people foremost among transportation and safety, so that everyone can use roads, railroads, and flight without worries.

KOTSA dreams the future of bright and happy life free of traffic accidents, in which transportation, safety, and people are at the center.
## Conference Programme Overview

<table>
<thead>
<tr>
<th>Time</th>
<th>Wednesday May 16th</th>
<th>Thursday May 17th</th>
<th>Friday May 18th</th>
</tr>
</thead>
<tbody>
<tr>
<td>9:00 am</td>
<td>9:30 Opening Session</td>
<td>Keynote Session I</td>
<td>Keynote Session II</td>
</tr>
<tr>
<td>10:30 am</td>
<td>Coffee break</td>
<td>Coffee break</td>
<td>Coffee break</td>
</tr>
<tr>
<td>11:00 am</td>
<td>Keynote Session I</td>
<td>3A Transportation Safety Management using Transportation Big data</td>
<td>5A Finding the way of transport in safety and disaster management</td>
</tr>
<tr>
<td>12:30 pm</td>
<td>Lunch break</td>
<td>Lunch break</td>
<td>Lunch break</td>
</tr>
<tr>
<td>2:00 pm</td>
<td>1A Vision Zero and Safe System</td>
<td>3B Traffic Safety Issues in Building Livable Communities, part 1</td>
<td>5B Vulnerable road users – safety of cyclists</td>
</tr>
<tr>
<td>3:30 pm</td>
<td>Coffee break</td>
<td>4A Traffic Safety analysis, part 2</td>
<td>5C Public transport and urban safety</td>
</tr>
<tr>
<td>4:00 pm</td>
<td>2A Traffic Safety Policy and Strategy to reduce fatalities</td>
<td>3C Risk factors in traffic, part 1 – impaired driving</td>
<td></td>
</tr>
<tr>
<td>5:30 pm</td>
<td>Poster Session</td>
<td>3D iRAP and 3-star or Better Roads</td>
<td></td>
</tr>
<tr>
<td>6:30 pm</td>
<td>Conference Dinner</td>
<td>4A Monitoring road safety attitudes &amp; performance – the ESRA approach</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>6B Vulnerable road users – safety of children and pedestrians</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>6C Traffic safety analysis, part 3</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>7A Safety, friction and monitoring infrastructure</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>7B Vulnerable road users – safety of motorcyclists</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>7C Traffic safety analysis, part 4</td>
<td></td>
</tr>
</tbody>
</table>
“Road safety concerns each and every one of us. Europe has a very good track record in road safety which has been achieved through exchange of best practices and learning from each other. The same should be done globally in order to tackle the growing epidemic of road fatalities and serious injuries. I very much encourage cooperation and knowledge exchange at the international level which will be essential in order to deliver concrete results and make citizens across the globe safer as road users. Europe is certainly ready to play its role in this process.”

– Ms. Violeta Bulc, European Commissioner for Transport
<table>
<thead>
<tr>
<th>Session 1A</th>
<th>Session 1B</th>
<th>Session 1C</th>
<th>Session 1D</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2:00 pm - 3:30 pm, Ramada Ballroom 1</strong>&lt;br&gt;Vision Zero and Safe System&lt;br&gt;Organised by: KOTI/VTI&lt;br&gt;Chair: Sangjin Han, KOTI, Korea, Anna Vadeby, VTI, Sweden&lt;br&gt;<strong>Renewed Commitment to Vision Zero</strong>&lt;br&gt;Kenneth Svensson, Swedish Transport Administration, Sweden&lt;br&gt;<strong>Vision Zero and traffic safety impact</strong>&lt;br&gt;Anna Vadeby, VTI, Sweden&lt;br&gt;<strong>Safe system version 3.0 in the Netherlands</strong>&lt;br&gt;Rob Eenink, SWOV, the Netherlands&lt;br&gt;<strong>Safe system in Australia</strong>&lt;br&gt;Jennifer Oxley, Monash University, Australia&lt;br&gt;<strong>Development of road safety performance indicators and its application to Korea</strong>&lt;br&gt;Sangjin Han, KOTI, Korea</td>
<td><strong>2:00 pm - 3:30 pm, Ramada Ballroom 2</strong>&lt;br&gt;Economics and Road Safety&lt;br&gt;Chair: Åsa Forsman, VTI, Sweden&lt;br&gt;<strong>Private and Public Willingness to Pay for Safety: A validity test with an empirical test based on preferences for road safety</strong>&lt;br&gt;Henrik Andersson, University of Toulouse Capitole, France&lt;br&gt;<strong>The costs of road injuries in France: some preliminary outcomes</strong>&lt;br&gt;Laurent Carnis, Ifsttar, France&lt;br&gt;<strong>Economic feasibility analysis of high friction surface treatments in Pennsylvania</strong>&lt;br&gt;Seri Park, Villanova University, USA&lt;br&gt;<strong>Analysis of the impact of socio-economic development on road safety based on the example of Baltic Sea Region countries</strong>&lt;br&gt;Aleksandra Romanowska, Gdansk University of Technology, Poland&lt;br&gt;<strong>Does corruption affect road safety in developed countries?</strong>&lt;br&gt;Byung-Jung Park, Myongji University, Korea</td>
<td><strong>2:00 pm - 3:30 pm, Ramada Ballroom 3</strong>&lt;br&gt;Traffic Safety Analysis, part 1&lt;br&gt;Chair: Astrid Linder, VTI, Sweden&lt;br&gt;<strong>European road safety policy by 2020: A forecast on topics and activities</strong>&lt;br&gt;Armin Kaltenegger, KFV Austrian Road Safety Board, Austria&lt;br&gt;<strong>Occupant safety assessment in European regulatory tests: review of occupant models, gaps and suggestion for bridging any gaps</strong>&lt;br&gt;Astrid Linder, VTI and Chalmers University of Technology, Sweden&lt;br&gt;<strong>Empirical tunnel traffic safety analysis in Sweden</strong>&lt;br&gt;Per Strömgreen, Movea AB, Sweden&lt;br&gt;<strong>Motorway incident response prioritization in Thailand</strong>&lt;br&gt;Jiralak Suttitum, Kasetsart University, Thailand&lt;br&gt;<strong>Synthesis of state highway worker safety practice and programs in the United States</strong>&lt;br&gt;Zachary Wesley Barlow, Oregon State University, USA</td>
<td><strong>2:00 pm - 3:30 pm, Ramada Ballroom 4</strong>&lt;br&gt;Communication between motor vehicles and VRUs not least when considering vehicle automation&lt;br&gt;Organised by: ICTCT&lt;br&gt;Chair: Ralf Risser, FACTUM OG, Austria&lt;br&gt;<strong>Traffic channelization method in T-intersections with multiple traffic modes in Beijing</strong>&lt;br&gt;Chenjiechao Hujiangbi, Beijing University of Technology, China&lt;br&gt;<strong>Traffic channelization method at cross intersection for urban road under multi traffic mode in Beijing</strong>&lt;br&gt;Chenli Hujiangbi, Beijing University of Technology, China&lt;br&gt;<strong>Pedestrian-driver communication and decision strategies at marked crossings</strong>&lt;br&gt;Ralf Risser, FACTUM OG, Austria&lt;br&gt;<strong>ITS and the effects on vulnerable road users: The case of pedestrians</strong>&lt;br&gt;Trauls Vaa, Institute for Transport Economy, Norway&lt;br&gt;<strong>Concerns related to the interaction between autonomous vehicles and other transport users</strong>&lt;br&gt;Vít Gabrihel, Petr Zamecnik, Centre for Transport Research, Czech Republic&lt;br&gt;<strong>Autonomous driving and possible outcome for bicyclists – Technology which helps to identify hazards</strong>&lt;br&gt;Christine Chaloupka, FACTUM OG, Austria&lt;br&gt;<strong>The courteous automated vehicle. Slowing down as Informal Communication Signal to Pedestrians</strong>&lt;br&gt;Matthias Beggiato, Chemnitz University of Technology, Germany</td>
</tr>
</tbody>
</table>
### Session 2A
4:00 pm - 5:30 pm, Ramada Ballroom 1

**Traffic Safety Policy and Strategy to reduce fatalities**
Organised by: MOLIT

Chair: Cheol Oh, Hanyang University, Korea

- Introduction of the Korean road safety plan
- Management by objectives – a systematic approach for traffic safety in Sweden
- Virginia’s Highway Safety Improvement Program
- Global and regional mandates and updates on road safety situations in Asia and the Pacific

Chair: Leif Sjögren, VTI, Sweden

**Infrastructure and traffic safety**

- Exploring roundabout safety in the context of time series: case study with state of Pennsylvania
- Analysis of merging freeways with decreasing number of lanes: A driving simulator study
- Before-after analysis and crash modification factor development for high friction surface treatments in Pennsylvania
- A Field Experiment on the Accuracy of Visual Assessment of Winter Road Conditions
- Proposed pavement markings to reduce right-turning vehicular crashes

Chair: Jennifer Oxley, Monash University, Australia

- Road user behavioural adaptation to infrastructure safety treatments – evidence, implications and mitigation
- Empathy, conformity and cultural factors related to aberrant driving behaviour in a sample of Turkish urban drivers
- Traffic safety of tourist drivers in an unfamiliar driving environment
- The importance of reaction time abilities for drivers with visual deficits
- Older adult’s use of hearing and vision aids for driving

### Session 2B
4:00 pm - 5:30 pm, Ramada Ballroom 2

**Automation and ITS**

Chair: Henrik Andersson, University of Toulouse Capitole, France

- Avoidable collision controls under a connected and autonomous vehicles environment
- Public commitment and implementation scenarios for self driving and connected vehicles
- Fast dash: program overview and key findings from initial technology evaluations
- Detecting and tracking vehicles, pedestrians, and bicyclists at intersections with a stationary Lidar
- A resource scheduling decision support model for mobile photo enforcement

### Session 2C
4:00 pm - 5:30 pm Ramada Ballroom 3

**Traffic Safety and road user capabilities**

Chair: Birgitta Thorslund, VTI, Sweden

- The importance of reaction time abilities for drivers with visual deficits
- Older adult’s use of hearing and vision aids for driving

### Session 2D
4:00 pm - 5:30 pm Ramada Ballroom 4

**End of Day One**
Thursday May 17th

Keynote Session II

9:00 am - 10.30 am, Ramada Ballroom 1
Chair: Jonas Jansson, VTI, Sweden

Vehicle occupant and road users safety evaluation – present and future
Associate Professor Astrid Linder, VTI and Chalmers University of Technology, Sweden

Advanced Driver Assistance Systems: impact assessment and the role of human behaviour
Mr Rob Eenink, SWOV, the Netherlands

Coffee Break 10.30 - 11.00 am
### Session 3A

<table>
<thead>
<tr>
<th>Time</th>
<th>Location</th>
<th>Session Title</th>
<th>Organiser</th>
<th>Chair:</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:00 am - 12:30 pm</td>
<td>Ramada Ballroom 1</td>
<td>Transportation Safety Management using Transportation Big data</td>
<td>KOTSA</td>
<td>Youlim Jang, KOTSA, Korea</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Study on the development of safety grade model for roads in Korea using digital tachograph and traffic accident data</td>
<td>Ilsoo Yun, Ajou University, Korea</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Develop safety surrogate measure for evaluating motor carrier companies and drivers</td>
<td>Kitae Jang, Korea Advanced Institute of Science and Technology, Korea</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Analysis on taxi operation using digital tachograph and meter data in Korea</td>
<td>Seungmo Kang, School of Civil, Environmental &amp; Architectural Engineering, Korea University, Korea</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Prediction for danger zone of Gyeongbu expressway using digital tachograph data</td>
<td>Youlim Jang, Korea Transportation Safety Authority, Korea</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Panelist: [Jungcheol Bae (KOTSA, Korea), Juyoung Kim (KOTI, Korea), Byungkyu Park (University of Virginia, USA), Joyoung Lee (University Heights Newark, USA)]</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Session 3B

<table>
<thead>
<tr>
<th>Time</th>
<th>Location</th>
<th>Session Title</th>
<th>Organiser</th>
<th>Chair:</th>
</tr>
</thead>
<tbody>
<tr>
<td>11:00 am - 12:30 pm</td>
<td>Ramada Ballroom 2</td>
<td>Traffic Safety Issues in Building Livable Communities, part 1</td>
<td>Western Michigan University</td>
<td>Jun-Seok Oh, Western Michigan University</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Identification of factors associated with pedestrian hot crash spots – spatial and statistical analysis approach</td>
<td>Deo Chimba, Tennessee State University, USA</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>An automated evaluation method for bicycling environments</td>
<td>Cheol Oh, Hanyang University, Korea</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Using crowd sourcing to locate and characterize conflicts for vulnerable modes</td>
<td>Stephen Mattingly, University of Texas at Arlington, USA</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Evaluation of bicycle safety environment and risk factors</td>
<td>Jun-Seok Oh, Western Michigan University, USA</td>
<td></td>
</tr>
</tbody>
</table>

### Lunch 12:30 - 2:00 pm in the hotel restaurant
<table>
<thead>
<tr>
<th>Session 4A</th>
<th>Session 4B</th>
<th>Session 4C</th>
<th>Session 4D</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>2:00 pm - 3:30 pm, Ramada Ballroom 1</strong>&lt;br&gt;Traffic safety analysis, part 2&lt;br&gt;Chair: Laurent Carnis, Ifsttar, France&lt;br&gt;Exploring microscopic crash mechanisms of freeway-to-freeway interchange ramps&lt;br&gt;Mohamed Abdel-Aty, University of Central Florida, USA&lt;br&gt;Analysis of safety impact of freeway designs using data mining techniques&lt;br&gt;Juneyoung Park, University of Central Florida, USA&lt;br&gt;Crash effects of hard shoulder runnings in freeways&lt;br&gt;Jaisung Choi, The University of Seoul, Korea&lt;br&gt;Identification of collision formation trends based on traffic characteristics for freeway networks&lt;br&gt;Claire Edwina Silverstein, George Washington University, USA&lt;br&gt;Evaluation of factors affect freeway accident occurrence using regression models focused on the Gyeongbu expressway from W.Ulsan IC to Yeongcheon IC&lt;br&gt;Da-Woon Jeong, Seoul National University, Korea</td>
<td><strong>2:00 pm - 3:30 pm, Ramada Ballroom 2</strong>&lt;br&gt;Traffic Safety Issues in Building Livable Communities, part 2&lt;br&gt;Organised by: Western Michigan University&lt;br&gt;Chair: Deo Chimba, Tennessee State University, USA&lt;br&gt;Safety of older drivers - What is unique about older adults?&lt;br&gt;Jun-Seok Oh, Western Michigan University, USA&lt;br&gt;Effectiveness using random effects generalized models with nonlineartizing link functions&lt;br&gt;Juneyoung Park, University of Central Florida, USA&lt;br&gt;Integrated multivariate approach for pedestrian and bicycle trips and crashes in the framework of transportation safety planning&lt;br&gt;JaeYoung Lee, University of Central Florida, USA&lt;br&gt;Assessing crash risks considering vehicle interactions with trucks using point detector data&lt;br&gt;Kate (Kyung) Hyun, University of Texas at Arlington, USA&lt;br&gt;Connected vehicle data for crash hotspots&lt;br&gt;Byungkyu Brian Park, University of Virginia, USA</td>
<td><strong>2:00 pm - 3:30 pm, Ramada Ballroom 3</strong>&lt;br&gt;Risk factors in traffic, part 2&lt;br&gt;Chair: Jan Andersson, VTI, Sweden&lt;br&gt;Exploring the effects of driving environment on driver perception time (PT) using SHRP2 naturalistic driving study data&lt;br&gt;Kun-Feng Wu, National Chiao Tung University, Taiwan&lt;br&gt;The impact of perceptual countermeasures on driving behaviour in rural-urban transition: a driving simulator study&lt;br&gt;Ali Pirdavani, IMOB, Hasselt University, Belgium&lt;br&gt;Effects of ADHD on driver attention and speed evaluated in a driving simulator&lt;br&gt;Birgitta Torslund, VTI, Sweden&lt;br&gt;Distraction potential of unmanned aircraft systems (UAS) near roadways&lt;br&gt;Zachary Wesley Barlow, Oregon State University, USA&lt;br&gt;Analysis of factors influencing traffic accidents: a case study of Tiruchirappalli city&lt;br&gt;Hemanthini Allirani, National Institute of Technology, Tiruchirappalli, India</td>
<td><strong>2:00 pm - 3:30 pm, Ramada Ballroom 4</strong>&lt;br&gt;Suicide in Road Traffic&lt;br&gt;Organised by: Swedish Transport Administration&lt;br&gt;Chair: Kenneth Svensson, Swedish Transport Administration, Sweden&lt;br&gt;The overall suicide problem in Korea&lt;br&gt;Jong-Woo Paik, Kyung Hee University college of medicine, Korea&lt;br&gt;Suicide in traffic in Korea including classification method&lt;br&gt;Mr. Seokmin Lee, Statistics Korea, Korea&lt;br&gt;Suicide and accident classification method used in Sweden&lt;br&gt;Kenneth Svensson, Swedish Transport Administration, Sweden&lt;br&gt;Analysis of suicides in road traffic in Sweden 2010-2016&lt;br&gt;Kenneth Svensson, Swedish Transport Administration, Sweden</td>
</tr>
</tbody>
</table>

**Coffee Break 3:30-4:00 pm**

**Thursday May 17th**
Thursday May 17th

Poster Session

4.00 pm - 5.30 pm  
Ramada Ballroom 2/Lobby  
Chair: Anna Vadeby, VTI, Sweden

1. Exploring factors contributing to road traffic crashes in hintalo wejerat district, Ethiopia. A qualitative study  
Nigus Asefa, University of Groningen, the Netherlands

2. Drivers distraction at curves under distraction task in static driving simulator  
Ana Paula C. Larocca, University of Sao Paulo, Brazil

3. Application of nationwide weather data for traffic safety analysis in the United States: a spatial analysis and crash prediction modeling  
Jaeyoung Lee, University of Central Florida, USA

4. Impact of reduced conflict intersection on large truck exposure and conflicts  
Shauna Hallmark, Iowa State University, USA

5. Quantitative evaluation of the relationship between the road surface conditions measured by continuous testing vehicles and the rate of winter traffic accidents  
Akira Saida, Civil Engineering Research Institute for Cold Region, Japan

6. Daylight, twilight, and night variation in road environment-related freeway traffic crashes in Korea  
Sungmin Hong, Korea Transportation Safety Authority, Korea

7. Rheological evaluation of asphalt modified with automobile waste engine oil  
Touqeer Shoukat, Korea Institute of Civil Engineering and Building Technology (KICT), Korea

8. A study on the effects of aggressive driving on traffic safety based on driving behavior analysis  
Sungmin Hong, Korea Transportation Safety Authority, Korea

9. A study on plastic deformation resistance test between glass fiber reinforced asphalt and modified SMA mixture  
Kisoo Park, Korea Institute of Civil Engineering and Building Technology, Korea

10. Automatic speed control in Sweden – Key performance indicators  
Eva Lundberg, Swedish Transport Administration, Sweden

12. Accomplishments and lessons learned of the first four years of the implementation of the Puerto Rico strategic highway safety plan  
Benjamin Colucci, University of Puerto Rico at Mayagüez, Puerto Rico

13. A study on vehicle fuel consumption in various driving condition and driving mode  
Ju Young Kim, Korea Transportation Safety Authority, Korea

14. Road safety policy issue exploration methodology on limited subjects using LDA topic model  
Chang-Seok Oh, The Board of Audit and Inspection, Korea

15. Evaluation of the effectiveness of vertical devices as a speed transition zone countermeasures in small, rural communities  
Shauna Hallmark, Iowa State University, USA

16. A pilot study aiming to increase speed compliance of taxi drivers in Sweden  
Âsa Forsman, VTI, Sweden

17. Methodological proposal for generating a Pedestrian Crosswalk Safety Index (PCSI)  
Jorge Alberto Montejano Escamilla, Centro de Investigacion en Geografia y Geomatica Ing. Jorge L Tamayo A.C. (CentroGeo), Mexico

18. Part-time shoulder use effects on safety: a visim-based case study in southeast Pennsylvania  
Seri Park, Villanova University, USA

19. Usefulness and acceptance of assessments of drivers with disabilities in simulation test rigs  
Birgitta Thorstund, VTI, Sweden

20. A bivariate ordered probit modeling for Korean young drivers’ risky behavior and perception  
Jaeyoung Lee, University of Central Florida, USA

Welcome to enjoy an evening of entertainment, tasty food and the possibility to socialize with other conference participants.

Nun bit, meaning ‘white eyes, pure heart’, is a creative group of Korean Gayageum players. Gayageum is a traditional Korean instrument.

Beverages and finger snacks will be served during the Poster Session.

End of Day Two
Friday May 18th

<table>
<thead>
<tr>
<th>Session 5A</th>
<th>Session 5B</th>
<th>Session 5C</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>9:00 am - 10:30 am, Ramada Ballroom 1</strong></td>
<td><strong>9:00 am - 10:30 am, Ramada Ballroom 3</strong></td>
<td><strong>9:00 am - 10:30 am, Ramada Ballroom 4</strong></td>
</tr>
<tr>
<td><strong>Finding the way of transport in safety and disaster management</strong></td>
<td><strong>Vulnerable road users - safety of cyclists</strong></td>
<td><strong>Public transport and urban safety</strong></td>
</tr>
</tbody>
</table>
| Organised by: KOTI  
Chair: Jeong Bok YU, Korea Transport Institute, Korea | Chair: Astrid Linder, VTI, Sweden  
**How close is close? An experimental study of cycling safety related to cycling on rural roads.**  
Christopher Patten, VTI, Sweden  
**An evaluation of re-designed rural roads**  
Henriette Wallén Warner, VTI, Sweden  
**Bicyclist injuries leading to emergency room visits**  
Gudmundur F Ulfarsson, University of Iceland, Iceland  
**Prevention of turning accidents between vehicles and cyclists at urban intersections**  
Janina Sachs, Technische Universitaet Berlin, Germany | Chair: Tomas Svensson, VTI, Sweden  
**Safety impacts of implementing median bus lane system in Seoul Metropolitan area: vehicle-to-vehicle and vehicle-to-pedestrian crashes**  
Yongju Yi, Ajou University, Korea  
**Safety assessment of road facilities through visualization of dangerous driving behavior in Seoul city bus**  
Christian Kapuku, Seoul National University, Korea  
**Reducing traffic crash risk through driver rescheduling a case study on intercity bus drivers**  
Shuo-Yen Wang, National Chiao Tung University, Taiwan  
**Judgement of urban transport security, risk perception, and travel mode use**  
Torbjorn Rundmo, NTNU, Norway  
**Determining the optimal access design of managed lanes considering dynamic pricing**  
Jaeyoung Lee, The Korea Transport Institute, Korea |
| Preemptive reallocation of fire services in emergency response for small municipalities  
Peter Park, York University, Canada  
**Natural disaster and emergency information management research in Australia**  
Jinwoo (Brian) Lee, Queensland University of Technology, Australia  
**Evacuation policies and strategies for infrastructure construction and supporting method development against huge disasters**  
Kiihiro Hatoyama, Nagaoa University of Technology, Japan  
**Lessons learned on the passage of category 5 Hurricane Maria over the island of Puerto Rico: road safety infrastructure perspective**  
Colucci Benjamin, University of Puerto Rico, Puerto Rico  
**Disaster prevention and mitigation: designing national emergency road**  
Jun Lee, The Korea Transport Institute, Korea  
**Panel**  
Ministry of Land, Infrastructure and Transport,  
The Ministry of Public Safety and Security,  
Seoul National University,  
University of Seoul,  
Ulsan National Institute of Science and Technology,  
Chungang University,  
National Graduate Institute for policy studies,  
Queens land University of Technology,  
York University,  
The Korea Transport Institute,  
Korea Road Traffic Authority,  
Korea Transportation Safety Authority | **How close is close? An experimental study of cycling safety related to cycling on rural roads.**  
Christopher Patten, VTI, Sweden  
**An evaluation of re-designed rural roads**  
Henriette Wallén Warner, VTI, Sweden  
**Bicyclist injuries leading to emergency room visits**  
Gudmundur F Ulfarsson, University of Iceland, Iceland  
**Prevention of turning accidents between vehicles and cyclists at urban intersections**  
Janina Sachs, Technische Universitaet Berlin, Germany | **Safety impacts of implementing median bus lane system in Seoul Metropolitan area: vehicle-to-vehicle and vehicle-to-pedestrian crashes**  
Yongju Yi, Ajou University, Korea  
**Safety assessment of road facilities through visualization of dangerous driving behavior in Seoul city bus**  
Christian Kapuku, Seoul National University, Korea  
**Reducing traffic crash risk through driver rescheduling a case study on intercity bus drivers**  
Shuo-Yen Wang, National Chiao Tung University, Taiwan  
**Judgement of urban transport security, risk perception, and travel mode use**  
Torbjorn Rundmo, NTNU, Norway  
**Determining the optimal access design of managed lanes considering dynamic pricing**  
Jaeyoung Lee, The Korea Transport Institute, Korea |
<p>| <strong>Coffee Break 10:30 - 11:00 am</strong> | <strong>Coffee Break 10:30 - 11:00 am</strong> | <strong>Coffee Break 10:30 - 11:00 am</strong> |</p>
<table>
<thead>
<tr>
<th>Session 6A</th>
<th>Session 6B</th>
<th>Session 6C</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Meeting &amp; Venue</strong></td>
<td><strong>Meeting &amp; Venue</strong></td>
<td><strong>Meeting &amp; Venue</strong></td>
</tr>
<tr>
<td>11:00 am - 12:30 pm, Ramada Ballroom 1</td>
<td>11:00 am - 12:30 pm, Ramada Ballroom 3</td>
<td>11:00 am - 12:30 pm, Ramada Ballroom 4</td>
</tr>
<tr>
<td>Monitoring road safety attitudes &amp; performance – the ESRA approach</td>
<td>Vulnerble road users - safety of children and pedestrians</td>
<td>Traffic safety analysis, part 3</td>
</tr>
<tr>
<td>Organised by: Vias Institute</td>
<td>Chair: Birgitta Torslund, VTI, Sweden</td>
<td>Chair: Henrik Andersson, University of Toulouse Capitole, France</td>
</tr>
<tr>
<td>Chair: Uta Meesman, Vias Institute, Belgium</td>
<td>Korea’s 96% reduction in child traffic fatalities</td>
<td>Implementation of Ramp Metering to Improve Safety of Congested Expressway Weaving Segments</td>
</tr>
<tr>
<td>The ESRA survey: cross national initiative to monitor road users’ attitudes and performance</td>
<td>Jaehoon Sul, Korea Transport Institute, Korea</td>
<td>Mohamed Abdel-Aty, University of Central Florida, USA</td>
</tr>
<tr>
<td>Uta Meesman, Vias Institute, Belgium</td>
<td>An investigation of awareness, perception and usage of child car seats in developing countries: A case study of Pakistan</td>
<td>Factors affecting the severity of out-of-control single-vehicle crashes in Singapore</td>
</tr>
<tr>
<td>Comparison of self-declared mobile use while driving in Canada, the United States, and Europe</td>
<td>Amna Chaudhry, University of Engineering and Technology, Lahore</td>
<td>Mo Zhou, National University of Singapore, Singapore</td>
</tr>
<tr>
<td>Ward Vanlaar, Traffic Injury Research Foundation (TIRF), Canada</td>
<td>Children way of travelling to school in towns outside the capital area in Iceland. Does the highway affect?</td>
<td>Application of the Lomax distribution to estimate the conditional probability of crash</td>
</tr>
<tr>
<td>Characteristics of road users’ safety behavior and attitude in Korea: findings from ESRA survey</td>
<td>Erna Bara Hreinsdottir, ICRA Icelandic road and costal administration, Iceland</td>
<td>Andrew P Tarko, Purdue University, USA</td>
</tr>
<tr>
<td>Sangjin Han, The Korea Transport Institute, Korea</td>
<td>An ecological study of road safety for children undertaking active travel in Melbourne, Australia</td>
<td>The in-depth accident study to evaluate the advanced automatic collision notification system in Japan</td>
</tr>
<tr>
<td>Subjective versus objective safety: combining ESRA with care accident data</td>
<td>Jennifer Oxley, Monash University, Australia</td>
<td>Toru Kiuchi, Institute for Traffic Accident Research and Data Analysis, Japan</td>
</tr>
<tr>
<td>Gerald Furian, Austrian Road Safety Board, Austria</td>
<td>Pedestrian crash analysis: a case study in Louisiana</td>
<td>Revisiting the modified areal unit problem in macro-level crash modeling</td>
</tr>
<tr>
<td>Potential for growth - new countries joining</td>
<td>Xiaoduan Sun, University of Louisiana, USA</td>
<td>Jaeyoung Lee, University of Central Florida, USA</td>
</tr>
<tr>
<td>Uta Meesman, Vias Institute, Belgium</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Lunch 12:30 - 2:00 pm in the hotel restaurant
Friday May 18th

Session 7A
2:00 pm - 3:30 pm, Ramada Ballroom 1

Safety, friction and monitoring infrastructure
Organised by: KICT/VTI
Chair: Leif Sjögren, VTI, Sweden, Yongseok Kim, KICT, Korea
A study on design criteria for slope walking facilities to reduce the aged’s falling
Chang-gyun Roh, Korea Institute of Civil Engineering and Building Technology, Korea
A deep learning approach for pavement evaluation using 2D and 3D imaging systems
Hae-Bum Yun, University of Central Florida, USA
A simple method for automatic incident detection using vehicle detector data
Jinhwan Jang, Korea Institute of Civil Engineering and Building Technology, Korea
Friction requirements on roads, paths and cycleways in summer road condition in Sweden
Leif Sjögren, VTI, Sweden
Friction in road design safety
Yongseok Kim, Korea Institute of Civil Engineering and Building Technology, Korea

Session 7B
2:00 pm - 3:30 pm, Ramada Ballroom 3

Vulnerable road users - safety of motorcyclists
Chair: Christopher Patten, VTI, Sweden
Recent trends in fatal motorcycle crashes in the U.S.
Chanyoung Lee, Center for Urban Transportation Research, USA
Injured motorcyclists in Sweden – an analysis of where on the road network motorcyclists are injured.
Asa Forsman, VTI, Sweden
Impacts of helmet law changes on motorcyclists’ fatalities in the United States
Jaeyoung Lee, University of Central Florida, USA
Evaluation of accident avoidance supporting system at intersections for motorcyclists using ADAS
JooHyong Lee, Kagawa University, Japan
Police-like high visibility vests for motorcyclists - How does this affect interactions between road users?
Henriette Wallén Warner, VTI, Sweden

Session 7C
2:00 pm - 3:30 pm, Ramada Ballroom 4

Traffic safety analysis, part 4
Chair: Magnus Hjälmdahl, Sweco, Sweden
Road safety study for roadway functional and preliminary designs rehabilitation of Belize’s northern highway between miles 9.5 -24.5
Andres Enrique, Morrison Hershfield, Canada
Influence of traffic flow separation devices on road safety in Brazil’s multilane highways
Gabriel Andrade Lanzaro, University of Brasilia - UnB, Brazil
Evaluating the impact of kinematic wave on rear-end collision using spatiotemporal wave reconstruction
Eui-Jin Kim, Seoul National University, Korea
Comparative evaluation on left turn safety measures at signalized intersections in New York City
H.Joon Park, New York City Dept. of Transportation, USA

Closing Session
3:30 - 4.00 pm, Ramada Ballroom 1
Dr. Anna Vadeby. Chair of R5SC, VTI, Sweden
Dr. Dong Su Kang, KOTSA, Korea
Committees and reviewers

**Steering Committee**
- Chair: Dr. Anna Vadeby, VTI, Sweden
- General Secretary: Ms. Therese Jomander, VTI, Sweden
- Dr. Tomas Svensson, Director General, VTI, Sweden

**Organising Committee**
- Chair: Dr. Anna Vadeby, VTI, Sweden
- General Secretary: Ms. Therese Jomander, VTI, Sweden
- Ms. So-yeon Park, MOLIT, Korea
- Dr. Byongho Choe, KOTSA, Korea
- Dr. Saerona Choi, KOTSA, Korea
- Dr. Eun Kyung Cho, KOTSA, Korea

**Scientific Committee**
- Chair: Dr. Anna Vadeby, VTI, Sweden
- Ass. Prof. Anna Anund, VTI, Sweden
- Ass. Prof. Astrid Linder, VTI, Sweden
- Mr. Bernado Kleiner, TRB, USA
- Dr. Camilla Sloth Andersen, Aalborg University, Denmark
- Prof. Cheol Oh, Hanyang University, Korea
- Prof. Christine Traverso Nodari, Universidade Federal do Rio Grande do Sul, Brazil
- Prof. Dong-kyu Kim, Seoul National University, Korea
- Prof. Eumji Park, Mokwon University, Korea
- Prof. Flávio Cunto, Universidade Federal do Ceará, Brazil
- Dr. Henriette Wallén Warner, VTI, Sweden
- Ass. Prof. Henrik Andersson, Université Toulouse, France
- Ass. Prof. Booo Yun, Ajou University, Korea
- Dr. Jennifer Oxley, Murdoch University, Australia
- Prof. Kenjiro Suzuki, Kagawa University, Japan
- Dr. Kiyoung Kim, KOTSA, Korea
- Dr. Kyunghun Choi, KOTSA, Korea
- Dr. Laurent Carnis, IFSTTAR, France
- Dr. Leif Nilsen, VTI, Sweden
- Dr. Lena Nilsson, VTI, Sweden
- Prof. Maria Alice Jacques, University of Brasilia, Brazil
- Prof. Mohamed Abdel-Aty, University of Central Florida, USA
- Dr. Myohee Myeong, KoROAD, Korea
- Dr. Niklas Strand, VTI, Sweden
- Chief Research Officer Rune Eidevik, TØI, Norway
- Dr. Shinhae Lee, The Seoul Institute, Korea
- Dr. Yongseok Kim, KICT, Korea
- Dr. You-Lim Jang, KOTSA, Korea
- Dr. Åsa Forsman, VTI, Sweden

**Additional reviewers**
- Dr. Christer Ahlström, VTI, Sweden
- Prof. Jan Andersson, VTI, Sweden
- Dr. Jessica Berg, VTI, Sweden
- Ms. Jenny Eriksson, VTI, Sweden
- Dr. Sonja Forsman, VTI, Sweden
- Dr. Ellen Grumert, VTI, Sweden
- Dr. Matthias Hjort, VTI, Sweden
- Dr. Jonas Jansson, VTI, Sweden
- Dr. Björn Kalman, VTI, Sweden
- Dr. Katja Kitcher, VTI, Sweden
- Dr. Björn Lidenstam, VTI, Sweden
- Dr. Lena Nilsson, VTI, Sweden
- Dr. Anna Niska, VTI, Sweden
- Dr. Aey P Silvano, VTI, Sweden
- Dr. Jan-Erik Swärth, VTI, Sweden
- Dr. Birgitta Thorslund, VTI, Sweden
Conference organisers:

vti 스웨덴 국립도로교통연구원
The Swedish National Road and Transportation Research Institute

With support from:

FERSI
Road Safety Research

In association with: