



Intelligent Compaction Data Management (ICDM)/ Veta WORKSHOP

June 03-04, 2019

Transport and Main Roads Queensland
Gold Coast, Australia

OBJECTIVES

- To understand the basics of the intelligent compaction (IC) technologies and Veta software.
- To understand the IC data collection, data characteristics, and trouble shooting.
- To practice hands-on equipment demo and Veta analysis to understand the IC technologies and to meet construction requirements.

AGENDA

DAY 1 – Classroom Computer Hands-on Training

08:30 am	Veta software setup and checks
09:00 am	Session 1 - IC Basics
09:45 am	Session 2 - IC Field Data Collection & Management (I)
10:30 am	Break
10:45 am	Session 3 - IC Field Data Collection & Management (II)
12:00 pm	Break
01:00 pm	Session 4 - IC Data Analysis & Interpretation
02:15 pm	Break
02:30 pm	Session 5 - IC Vendors' presentation
03:30 pm	Session 6 - Review and Discussion
04:00 pm	Adjourn for Day 1

DAY 2 – Field Equipment Hands-on Training and Data Analysis of Trial Run Data

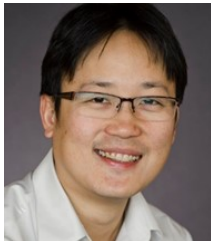
08:30 am	Session 7 - IC Field Equipment Setup and Trial Runs (I)
10:30 am	Break
10:45 am	Session 8 - IC Field Equipment Setup and Trial Runs (II)
12:00 pm	Break
01:00 pm	Session 9 - Veta analysis of the Trial Run data
02:15 pm	Break
02:30 pm	Session 10 – IC Trouble Shooting
03:30 pm	Open Discussion
04:00 pm	Adjourn

ICDM TRAINERS



Dr. George K. Chang, P.E.
Director of Research
The Transtec Group
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Dr. George Chang is recognized as the expert on pavement smoothness and intelligent compaction/construction technologies. His research, teaching, specification development and software tools (such as ProVAL and Veta) have helped made significant technology advancements in the above fields. Dr Chang has been the principal investigator for numerous projects that enhancing pavement materials/structures, pavement surface characteristics, etc. Recognized for his energetic, lively teaching style, Dr. Chang delivers smoothness and intelligent compaction/construction related workshops around world. Dr. Chang has been the chairman for the International Intelligent Construction Technologies Group (IICTG), Road Profile Users' Group (RPUG), TRB AFD90 Pavement Surface Properties and Vehicle Interaction committee, etc. Dr. Chang received many awards including a Kummer Lecture Award, Meyer-Horne Award, and ASTM Billiard-Stubstad Award from the ASTM; and NOVA award from Construction Innovation Forum, Founders' Award from RPUG. His research work has been featured in over 50 professional publications and 100+ reports.



Dr. Jeffrey Lee, Ph.D., CPEng, F.IEAust
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Dr. Lee is currently a principal pavement engineer at the Australian Road Research Board (ARRB) responsible for the management and delivery of research projects for the Department of Transport and Main Roads, and other members of the Australian road authorities. Dr. Lee has more than 19 years of experience in the areas of pavement materials and nondestructive testing for major transportation infrastructure projects. He has authored over 20 research publications. Recent project highlights include evaluating the performance of flood-affected roads for the state of Queensland, exploring ways to utilize the \$3m ARRB iPAVE equipment (also known as traffic speed deflectometer) for road network assessment, incorporating the use of recycled crumb rubber in the sprayed seal and open graded asphalt in Queensland and Western Australia.

DAY 1 - VETA SOFTWARE FOR CLASSROOM HANDS-ON TRAINING



All workshop participants will be required to bring their laptop computer for the hands-on exercises with the Veta software.

The Veta software **6.0** can be downloaded from the following weblink (~ 50MB)

(TBA – to be provided to participants 2 weeks prior to the workshop)

The Veta example files can be downloaded from the following weblink (~ 95MB)

(TBA – to be provided to participants 2 weeks prior to the workshop)

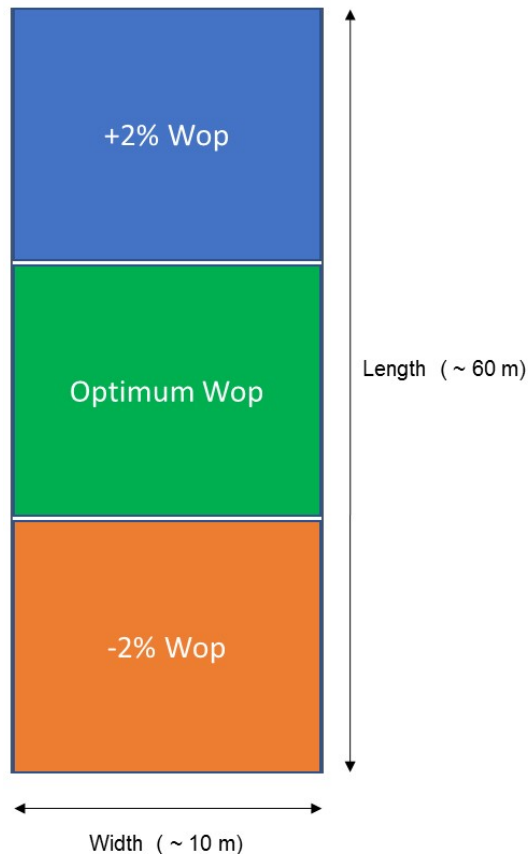
The system requirements are: **64-bit versions of Windows 7** SP1 or later with Microsoft .NET 4.5.2 installed.

Participants need to pre-install the Veta software on their laptop computers prior to the workshop. Email any installation questions to ICSupport@TheTranstecGroup.com.

DAY 2 - FIELD IC EQUIPMENT TRAINING

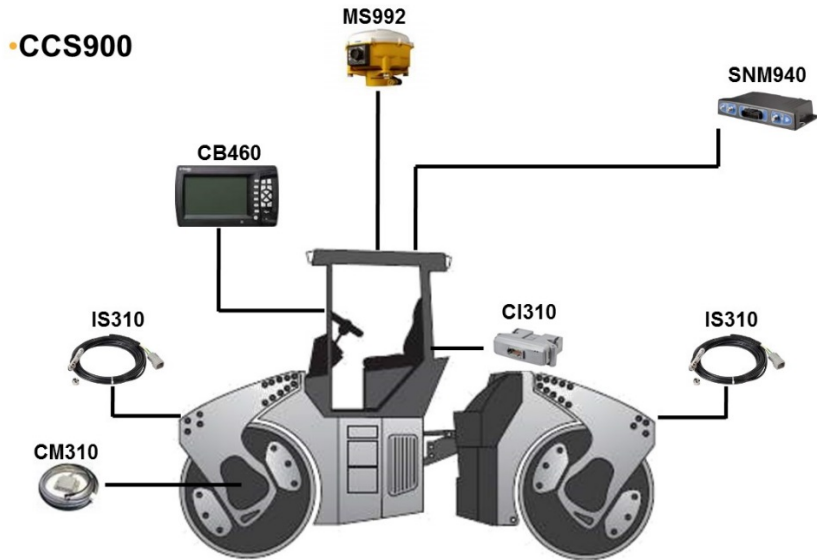


The field IC equipment training will be conducted at a field demo site designated by the trainers. The field demo site will be approximately 100 m X 10 m construction area, secured and isolated from other construction activity. A well-graded granular base materials will be spread at the demonstration site with three moisture conditioning (approximately 3 sections with optimum + 2%, optimum, and optimum – 2%). All participants will be wearing personal protection equipment (including hard hats, safety vest, and hard-toe shoes). A contractor will be arranged to provide the above field demo site.



An IC equipment vendor will be arranged to provide the IC equipment for hands-on training and trial run data analysis. The IC equipment will include:

- (1) a single-drum vibratory equipped with IC components: GNSS receiver, accelerometer (for Intelligent Compaction Measurement Values - ICMV), and onboard computer display (for real time monitoring of IC data),
- (2) a GNSS base station (or alternatively, Virtual Reference Station network) to achieve Realtime Kinematic (RTK) precision, and
- (3) a hand-held GNNA rover.

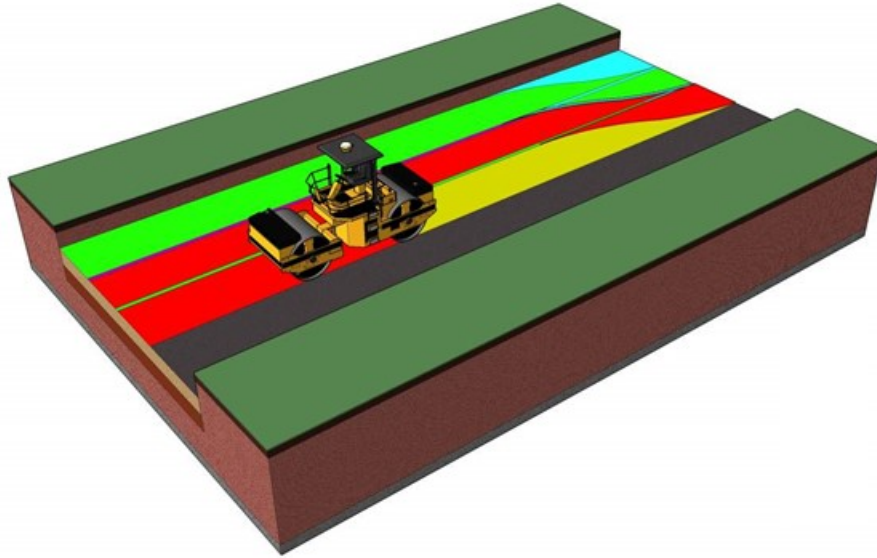


■ Rover and Data Collector

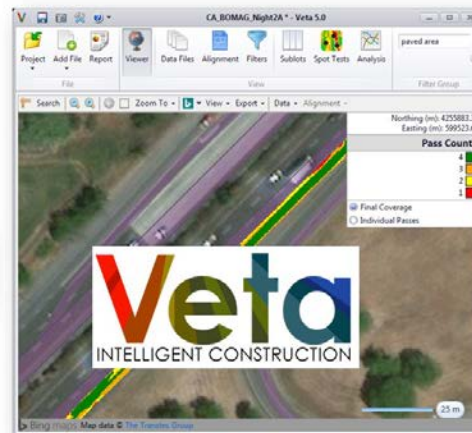


Other spot tests may be arranged depending on the resources and time available. Candidate spot tests are: nuclear density-moisture gauge, lightweight deflectometer (LWD), and/or Fallingweight Deflectometer (FWD).

A trial run will be conducted to collected for the subsequent training of IC data analysis. Various combination of roller vibration frequencies and amplitudes will be used. The IC data can either be collected onboard or transmitted to the Cloud. Either way, the IC data will be downloaded 1-2 hours after the trials runs. The trainers will instruct the participants to process and analyze the IC and spot test data.



Many Systems ONE SOFTWARE



Intelligent Compaction website: <http://www.IntelligentCompaction.com/>