INTELLIGENT COMPACTION PROJECT ON-SITE PROJECT TRAINING FOR ASPHALT APPLICATIONS

In accordance with contract requirements the Agency or the Contractor will coordinate and provide for On-Site Intelligent Compaction (IC) training for Agency and Contractor personnel related to operation of the IC technology on the project. Arrangements shall be provided for that includes an enclosed facility with electrical availability, projector and screen, areas for equipment demonstrations, and available for eight (8) hours in duration.

Contractor personnel (depending on the scope of the project) shall include the Project Manager, Paving Superintendent, IC Technical Representative, Quality Control Technician(s), and roller operator who will be using the IC technology. Agency personnel should include the Project Engineer, Project Manager, and field inspector. Agency Project Managers and the Contractors Quality Control Technicians need to bring 64-bit Windows Laptops to the training with the Veta software (version 4.0 or later) pre-installed. Veta can be downloaded from the Intelligent Compaction website: www.IntelligentCompaction.com

1. Overview of Intelligent Compaction On-Site Project Training (1 hr.)

   Minimum IC training topics will include:

   a) Background information for the specific IC system(s) to be used
   b) Setup and checks for IC system(s), GPS receiver, base-station (if not using virtual reference station) and hand held rovers
   c) Operation of the IC system(s) on the roller; i.e., setup data collection, start/stop of data recording, and select on-board display options
   d) Transferring IC data from the rollers(s) using USB connections or wireless to the cloud
   e) Operation of vendor's software to open and view raw IC data files and exporting all-passes data files in Veta compatible format
   f) Operation of Veta software to import the above exported all-passes data files, inspection of IC maps, filter IC data, input point test data, perform statistics analysis, and produce reports for project requirements
   g) Coverage and uniformity requirements

The goals of the On-Site IC Training is to provide information for field operations for the:

- Roller operators and QC technicians on the use of the IC Technology and the use the on-board displays to monitor the location of the roller, the temperature of the mat, the uniform application of passes across the mat, number of passes completed, and the validation of the stiffness of each lift in real time.
- Agency and Contractor personnel on the retrieval of the data from the roller, the processing of the data using Veta software and the use of the IC technology as a Quality Control Tool.

Outcomes of the Training include the familiarity with the operation of the specific roller(s) manufacture of IC equipment, use of the on-board display screen for day time and night time paving operations, IC data retrieval, and the processing of the IC data into daily quality control reports.

2. Project Information (1 hr.)

Intelligent Compaction On-Site Project Details		
Project/Contract No.:	County:	Award Date:
Project Location:		
Prime & Paving Contractor:		Paving Start Date:
Asphalt Mixture Type, Asphalt Binder Grade, Lift Thickness		
☐ Surface: ☐ Intermediate: ☐ Base:		
Agency Representative:		

IC On-Site Project Training	
IC - Training Date:	IC Training Location:
IC Trainee & Contact Information:	☐ Prime Contractor ☐ Roller Technician ☐ Consultant
Contractor IC Technical Representative:	Contact Info:
Contractor IC QC Technicians:	Contact Info:
IC Roller Representatives:	Contact Info:
GNNS (GPS) (RTK/VRS) Provider:	Contact Info:
Coordinate Datum/System: ☐ UTM Zone: ____ ☐ State Plan System Zone: _____	

3. IC Geospatial Data and Analysis (3 hrs.)

Roller Data Retrieval and Analysis		
☐ Transferring raw compaction data from the rollers using USB connections or wireless to the cloud	☐ Operation of vendor's software to open and view raw compaction data files	
☐ Processing raw compaction data to readable Veta format	☐ Export all-passes data files from the roller in Veta compatible format	
☐ Demonstrate the procedures to convert raw vendor roller data to Veta compatible data format (if applicable)	☐ Saving IC Data	
Demonstration of the Use of Veta Software		
☐ Importing Project Layout files, if available	☐ Importing roller all-passes data	☐ Importing compaction point test locations and data
☐ Demonstrate the procedures for creating boundaries for analysis by Veta in areas and/or lengths of production		
☐ Review Compaction Maps (Passes, Temperatures, etc.)	☐ Demonstrate creating basic statistical analysis results	☐ Generate specific QC reports for analysis and documentation
Establishing Target Values for Compaction (via test strip) for QC		
☐ Number of Passes	☐ IC Measurement Values	☐ Temperatures
Coverage and Uniformity Requirements		
☐ Coverage	☐ Uniformity	☐ Temperatures

4. Roller Operators Training (1hr.)

IC Breakdown Roller No. 1	
☐ Caterpillar Model No._____ ☐ Hamm Model No. _____	☐ Bomag Model No. _____ ☐ Sakai Model No. _____
IC Intermediate Roller No. 2	
☐ Caterpillar Model No._____ ☐ Hamm Model No. _____	☐ Bomag Model No. _____ ☐ Sakai Model No. _____
IC Finish Roller No. 3	
☐ Caterpillar Model No._____ ☐ Hamm Model No. _____	☐ Bomag Model No. _____ ☐ Sakai Model No. _____
Global Positioning System	
IC System Provider: ☐ Original Roller (Equipment) Manufacture ☐ Topcon Retrofit ☐ Trimble Retrofit	GPS Correction Signals: ☐ On-Ground RTK Base Station ☐ Network RTK ☐ Other (_____)
IC Rovers: ☐ Topcon ☐ Trimble ☐ Other (_____)	Power (Base Station) (if applicable) ☐ Constant AC ☐ Battery

5. IC Roller Verification (2 hrs.)

Instrumented Roller Verification			**IC Roller Information**				
Original Roller Manufactures Name -			Roller Model, Serial No. -				
After Market Retro Fit System	☐ Yes	☐ No	Roller ID (As recorded in IC Files) -				
Automatic Feedback Control	☐ Yes	☐ No	Roller Type (Steel or Rubber Tire) -				
Manufacture Measurement Unit -			Drum Width (in.) -				
Measurement Sensor Range (e.g., 0-150) -			Drum Diameter (in.) -				
On-Board Display			Roller Weight (Tons/lbs.) -				
Displays IC-MV Output	☐ Yes	☐ No	Accelerometers Mounted Vertical? ☐ Yes ☐ No ☐ N/A				
Displays IC Roller Pass Count	☐ Yes	☐ No					
Displays Mat Surface Temperatures	☐ Yes	☐ No					

Verification of Roller GPS Accuracy									
Spot Drum Location		IC Roller		Other Devices (Rover)		Accuracy			Acceptance
Left, Right, Center		Northing	Easting	Northing	Easting	Δ Northing	Δ Easting	Pass/Fail	
Trial	Position	(A)	(B)	(C)	(D)	abs | A-C |	abs | B-D |	P ≤ 12 in.	
1	☐ L ☐ R ☐ C								☐ Yes ☐ No
2	☐ L ☐ R ☐ C								☐ Yes ☐ No
3	☐ L ☐ R ☐ C								☐ Yes ☐ No
Is GPS offset presented between GPS Antenna & Center or Left/Right Edge of Drum? ☐ Yes ☐ No									
If yes, as offset been inputted and validated? ☐ Yes ☐ No									

Verification of Temperature Accuracy								
Sensor Location		IC Roller Sensor ºF		Other Devices (IR Gun)		Temp Differential ºF		Pass/Fail	Acceptance
Trial	Position	(A)		(B)		abs | A-B |		P ≤ 5º F	
1	☐ Front ☐ Rear								☐ Yes ☐ No
2	☐ Front ☐ Rear								☐ Yes ☐ No
3	☐ Front ☐ Rear								☐ Yes ☐ No