

# **ACCELERATED IMPLEMENTATION OF INTELLIGENT COMPACTION TECHNOLOGY FOR EMBANKMENT SUBGRADE SOILS, AGGREGATE BASE, AND ASPHALT PAVEMENT MATERIALS**

3<sup>rd</sup> Quarterly Progress Report – April 2007 to June 2008  
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## **A. ACCOMPLISHMENTS/SIGNIFICANT FINDINGS BY TASK THIS QUARTER:**

### TASK 1 - Technical Working Group (TWG)

- This task is complete.

### TASK 2 - Literature Review and Evaluation of Intelligent Compaction Equipment

- This task is ongoing. The first step of summary of literature is complete. A 100+ technical paper, specifications and reports were added. More updates are included as the project progresses. A very comprehensive bibliography on intelligent compaction – over 100+ technical papers, specifications, and reports was produced. This list was included in Section 3.6.4 of the interim report. A write up is being revised to summarize the literature collected.
- Updated contents (e.g., IC library) are also posted on the IC website ([www.IntelligentCompaction.com](http://www.IntelligentCompaction.com)) to facilitate knowledge transfer and information sharing. Further detailed, technical review is under way. The site was re-organized and all images were optimized to facilitate navigation and viewing. An electronic postcard has been broadcasted to 1000+ pavement engineering professionals around the country to promote this IC project and the IC website.

### TASK 3 – Preparation of Interim Report and Work Plan Package

- The interim report (including an extensive list of IC literature mentioned under Task 2) and a work plan package are finalized and posted on the IC website. The work plan package has derived a draft experiment plan that provides detailed guidelines for conducting field demonstration projects. The experiment plan (a general plan that includes both soil/aggregate IC and HMA IC) is finalized and posted on the IC website.

### TASK 4 – Technical Working Group Initial Meeting

- This task is complete. The Technical Working Group (TWG) initial meeting was held on January 23 and 24, 2008 at the DFW airport area, Dallas, Texas. It was well attended by all TWG state representatives, FHWA COTR, IC facilitators, the IC project team, and IC roller vendors. Detailed meeting minutes were recorded and posted on the IC website along with all presentation slides.

- A web meeting was conducted on May 5 for the TPF states and the FHWA to discuss budget and funding issues. Meeting minutes were posted on the pooled fund page of the IC website

#### TASK 5 - Coordinated IC Field Demonstrations

- The first four candidate sites and the material of interest are: Minnesota (HMA), Texas (soil), Kansas (soil), and Indiana (HMA). The demo at Minnesota was conducted between June 2<sup>nd</sup> and June 23<sup>rd</sup>. The planning for the Texas, Kansas, and Indiana sites are under way. The test dates for the TXDOT and KSDOT were determined as July 20 to 27, and August 17 to 24, respectively. Roller selection and coordination are in progress.
- Mn/DOT demo: The project team conducted a web meeting with the Mn/DOT team to prepare for the upcoming HMA IC demonstration on May 14, 2008. The meeting minutes were posted on IC website. The Sakai SW880 tandem IC roller was selected for the Mn/DOT demonstration. This roller was previously demonstrated at Georgia DOT on May 13/14 and then shipped to the Mn/DOT Willmar. Summary sheet for the Mn/DOT HMA IC was updated and posted on the IC website. The Mn/DOT HMA IC demo was then successfully conducted between June 2<sup>nd</sup> and June 30<sup>th</sup> in Willmar, MN. Many parties have contributed to this demonstration including Mn/DOT head quarter, Willmar District Offices, Kandiyohi Country office, paving contractors, FHWA, all research members, and most importantly the roller vendor, Sakai America. A web page was created for this demonstration and has been updated on a daily basis – served a central point for communication. Detailed HMA IC experiment plan, a presentation file for the project briefing and A memo was developed by the research team on the preliminary results on the CR 4 subbase mapping and non-wearing course compaction were also posted on the IC website. The success of this demo had attracted news media from the local news agencies including the West Central Tribune and a news article was posted on the IC website.
- TXDOT demo: A special provision document was developed for the cohesive fine grained soil that will be used for the TXDOT and KSDOT IC demo projects. TXDOT had assisted to reformat it to comply with TXDOT standard. Similar documents will be prepared for treated base and subbase materials in anticipation of different material types for the IC demonstration in Fort Worth, Texas. The project team conducted a web meeting with the TXDOT team (including contractor) to prepare for the upcoming soil/stabilized base IC demonstration on June 26, 2008. A web page was created for this demo to provide the most updated information. The first meeting minutes and a presentation file for the project briefing were posted on this webpage.

#### TASK 6 – Database Management Plan

- A draft plan is being reviewed by the project team. A priority was identified during the Mn/DOT demonstration to develop a tool to view and analyze IC data.

#### TASK 7 – Development of a Feasibility Report for an European Scan

- No work is conducted during this period.

#### TASK 8 – Quality Control/Assurance Training and Assistance

- Quality control/assurance training and assistance has been conducted along with the IC field demonstration project at Mn/DOT.

#### TASK 9 – Presentations

- The project team attended the Iowa Intelligent Compaction Conference in Des Moines, IA from April 2 to 4, 2008. Representatives from the project team include the COTR (Lee Gallivan), facilitator (Bob Horan), PI (George Chang), and Co-PI (David White). The conference was well-attended where the ICPF project team had fruitful interactions with all attendees. The project team had tailgated a project progress meeting with some ICPF State representatives on April 2.

#### TASK 10 – Annual and Final Reports

- No work is conducted during this period.

### **B. WORK PLANNED FOR NEXT QUARTER (JULY 2008 TO SEPTEMBER 2008):**

#### TASK 1 - Technical Working Group (TWG)

- This task is complete.

#### TASK 2 - Literature Review and Evaluation of Intelligent Compaction Equipment

- The first step of this task is complete. On-going update (e.g. in-depth IC technical information) is expected in the next quarter.

#### TASK 3 – Preparation of Interim Report and Work Plan Package

- This task is complete. However, the literature review will be updated continuously.

#### TASK 4 – Technical Working Group Initial Meeting

- This task is complete.

#### TASK 5 - Coordinated IC Field Demonstrations

- The test dates for the TXDOT and KSDOT were determined as July 20 to 27, and August 17 to 24, respectively. Planning will be underway for the Indiana site.
- Specific experiment plans will be developed for each of the IC demonstration site based on the guidelines in the general experiment plan.

#### TASK 6 – Database Management Plan

- A database plan will be finalized to manage data to be collected during the project period. A prototype of an IC data viewing and analysis tool will be developed.

#### TASK 7 – Development of a Feasibility Report for an European Scan

- No work will be conducted during this period unless instructed by the COTR.

TASK 8 – Quality Control/Assurance Training and Assistance

- Quality control/assurance training and assistance will be conducted along with the IC field demonstration project.

TASK 9 – Presentations

- Presentation may be if opportunity (such as: paving conferences and etc.) comes up.

TASK 10 – Annual and Final Reports

- An annual report will be produce during this period.

**C. IDENTIFICATION OF PROBLEMS/RECOMMENDED SOLUTIONS:**

- No problems are identified in this quarter.