

PennDOT HMA IC Demonstration

Interchange of SR 53 and SR 219, Summerhill, PA,

Sept. 20 to 23, 2010

On-Site Contact List

Last name	First name	Affiliation	Telephone	Email
ICPF Project Team				
Chang	George	Transtec Group	C 512-516-4404	gkchang@thetranstecgroup.com
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State DOT and etc.				
Bridenbaugh	Garth	PennDOT	814- 696-7194	GBridenbau@state.pa.us
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Roller/Components Vendors				
Mansell	Todd	Sakai America	C 770-324-6455	t-mansell@sakaiamerica.com
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Saim	Mohammad	Volvo	717-254-3981	mohammad.saim@volvo.com
Kaz	Pete	Trimble	C 937-609-1946	pete_kaz@trimble.com
Tyler	Mike	Precision Laser & Instrument	412-292-7309	mjt@laserinst.com
Moore	Abel	Precision Laser & Instrument	412-287-4920	aam@laserinst.com
Aicken	Larry	Kessler Soils Engineering – LWD tests	703-589-5586	virginia@kesslerdcp.com
Hoffman	Gary	PA Asphalt Pavement Association	717-657-1881	ghoffman@pahotmix.org
Paving Contractors				
Miller	Jim	New Enterprise	814-224-6856 C 814-329-4684	jrmiller@nesl.com
Curt	Scott	New Enterprise - Superintendent		

On-site Briefing

All on-site personnel will meet at the **NE project office (109 Nelson Road, South Fork, PA 15956)** at **7:30AM, Monday, Sept. 20** for a project briefing.

On-Site Safety

Hard hat and safety vests are required. Flashing lights on vehicles are optional.

IC Roller Shipment

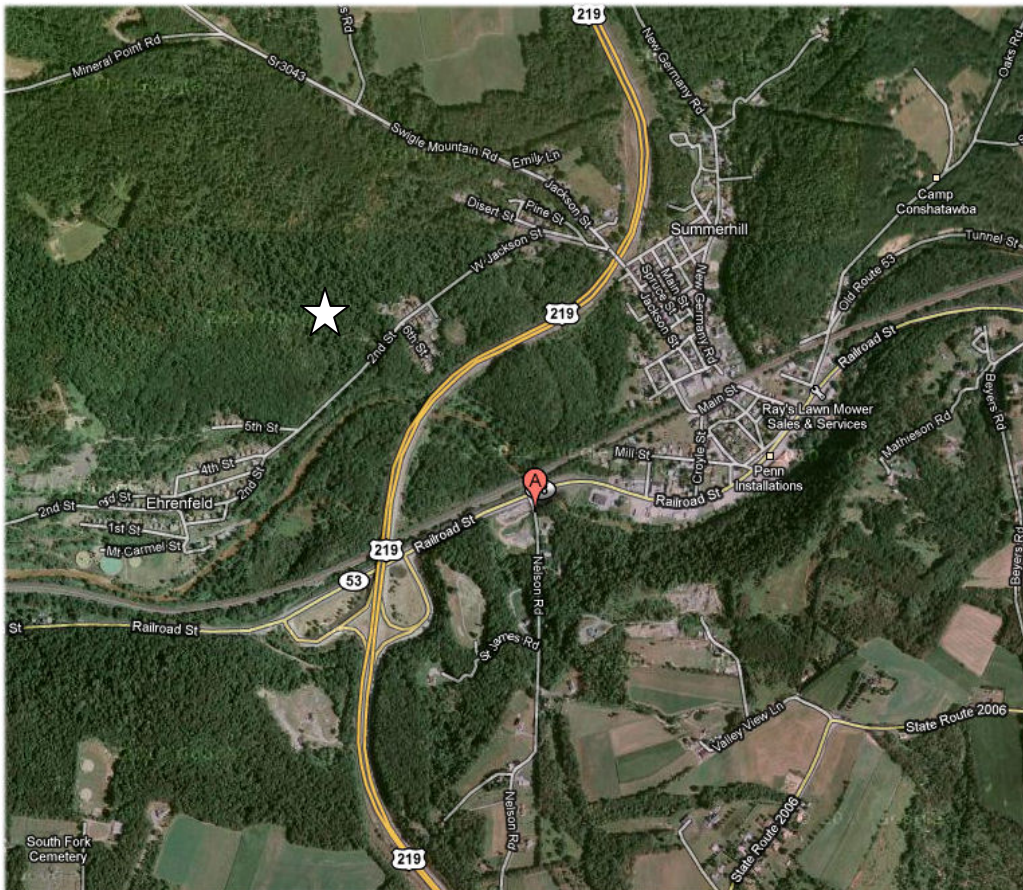
The shipping address is: **NE project Office (109 Nelson Road, South Fork, PA 15956)**

Contacts: **Jim Miller, 814-329-4684, Dave 814-937-5326**

ETA: **by Friday (Sept. 17).**

Site Map

It is an HMA overlay project that the location is centered at the interchange of SR 53 and SR 219 in Summerhill, PA, 15958.



Sakai Double Drum IC Roller



Table 1. Features of the Sakai SW880 Double Drum IC Roller.

Manufacturer/ Vendor	Sakai America
Model Name	Exact Compact System (ECS)
Model Number	SW880
Drum Width	79"
Machine Weight	29,560 lbs (~ 14 tons)
Amplitude Settings	0.013", 0.025" (0.33 to 0.64 mm)
Frequency Settings	High amp. 2500 or 3000 vpm Low amp. 2500, 3000, or 4000 vpm
Auto-Feedback	No
Measurement System	CCV with temperature and passes mapping
Measurement Value	Compaction control value (Sakai CCV)
Measurement Unit	Unitless
GPS Capability	Yes (RTK)
Temperature Measurement	Infra-red sensor at front
Documentation System	Compaction Information System (CIS)

Volvo IACA Roller

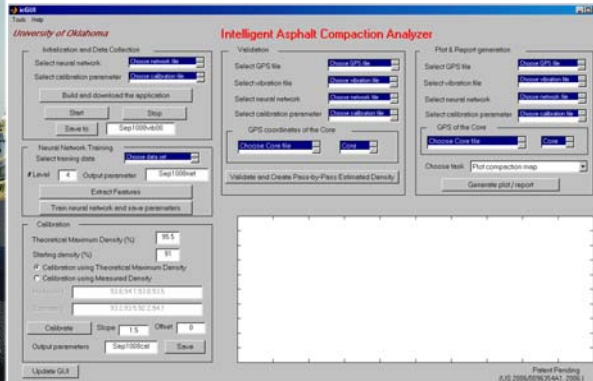


Table 2. Features of the Volvo IACA Roller.

Global Position System

Grid Reference

UTM 17-N is the preferred grid reference. State plane coordinate is the second choice.

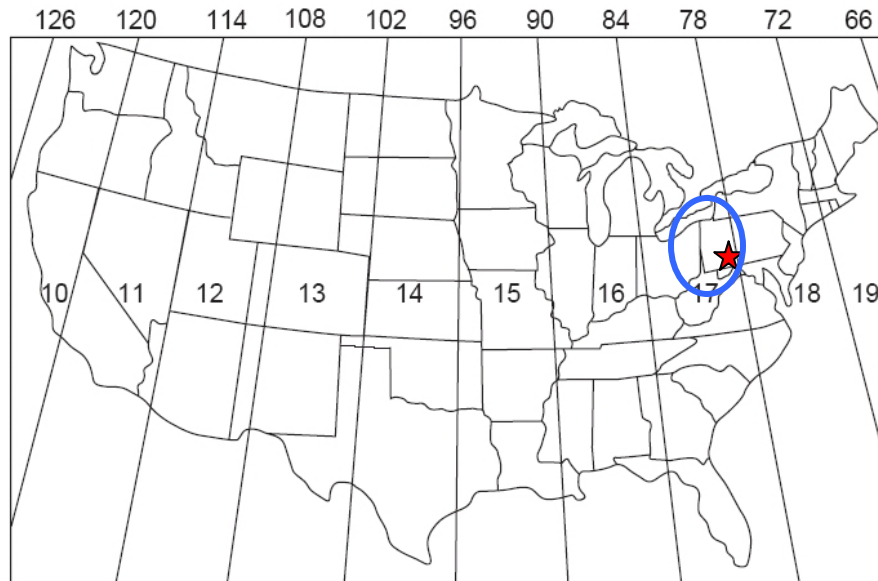


Figure 1. UTM Zones in the US.

Sakai

- A Trimble GPS receiver and a radio will be mounted on the Sakai SW880 machine.
- A Trimble GPS base station will be setup to provide RTK correction signals.

Volvo

- A Trimble GPS receiver and a radio will be mounted on the Volvo IACA machine.

Precision Laser & Instrument

- A hand-held Trimble GPS rover will be used for in-situ point measurements. May use the correction signals from Trimble base station.
- A 12 V battery to power the GPS base station.
- (As a backup) A Trimble GPS base station will be setup to provide RTK correction signals.
- Provide the research team with the GPS data in text format (including long/lat and grids in UTM meter).

In-Situ Point Testing and Other Support

PennDOT

- Conduct coring of finished pavement within the test strips at locations designated by the research team.
- Assist the Open House by inviting DOT district engineers, cities/counties, Universities, local asphalt paving associations, and others.

New Enterprise Lime & Stone

- Provide fuel for the IC rollers.
- Provide 2 personnel to operate the IC rollers, and one QC personnel to perform nuclear density gauge measurements. Note that either roller will be served as the break-down roller.
- Mobilize IC rollers on site and from the job site to the Open House location.
- Assist the Open House by providing a facility, a LCD projector, and a screen for the indoor presentation.

Kessler Soils and Engineering

- Conduct LWD measurements (1) on existing surface after IC mapping runs, and (2) on finished HMA overlay surface after the compaction at locations instructed by the IC research team.

Precision Laser & Instrument (PL&I)

- Assist on local calibration of GPS and validation of IC roller GPS measurements.
- Conduct GPS rover measurements along side with in-situ point tests (e.g. LWD tests and nuclear density gauge measurements) and coring locations.

On-site Activities

Schedule	Activities
Day 1 (9/20)	<ul style="list-style-type: none"> • Conduct project briefing (all parties) at the local project office/trailor. • Discussion, training of DOT and contractor personnel in machine operations, data collection, data management, and in-situ testing strategies. • At project site, set up the GPS base station and IC roller/GPS system. • Conduct trial runs to verify the machine is operating and communicating with the GPS. Verify that GPS rover location corresponds to GPS roller location. • Training of roller operators • Compaction of the HMA overlay layer.
Day 2 (9/21)	<ul style="list-style-type: none"> • Mapping of existing surface using roller measurement system of the IC rollers within a 500-ft test strip. • LWD testing and GPS measurements at designated locations within the test strip. • Compaction of the HMA overlay layer. • Conduct in-situ tests (nuclear density gauge, LWD, and coring) on the test strip. At least 20 locations on the pavement will be marked and both density and GPS measurements will be obtained at each location. • The IC roller will be used in the breakdown roller position and all measurement values will be taken when the surface temperature measurements are in excess of 230 °F and the internal measured temperature is in excess of 240 °F.
Day 3 (9/22)	<ul style="list-style-type: none"> • Repeat the Day 2 operation.
Days 4 (9/23)	<ul style="list-style-type: none"> • Analyze and report the IC and in situ results, generating a preliminary report and presentation of results for the Open House.

Notes:

- The demonstration will be on the HMA wearing course (9.5-mm mix).
- NE will start conventional paving and compaction at 7AM on Monday. One of the IC rollers will be used later once the setup and trial runs are complete.
- Paving areas are flexible for the demonstration and can be on any support types.
- The training of roller operators will be done “on-the-fly” by the vendors’ technical support.
- **The IC mapping on the support (baseline) materials may be conducted at the end of a paving day. LWD tests will then be performed after the mapping.**
- The onsite lane closure will be maintained during the demonstration period.

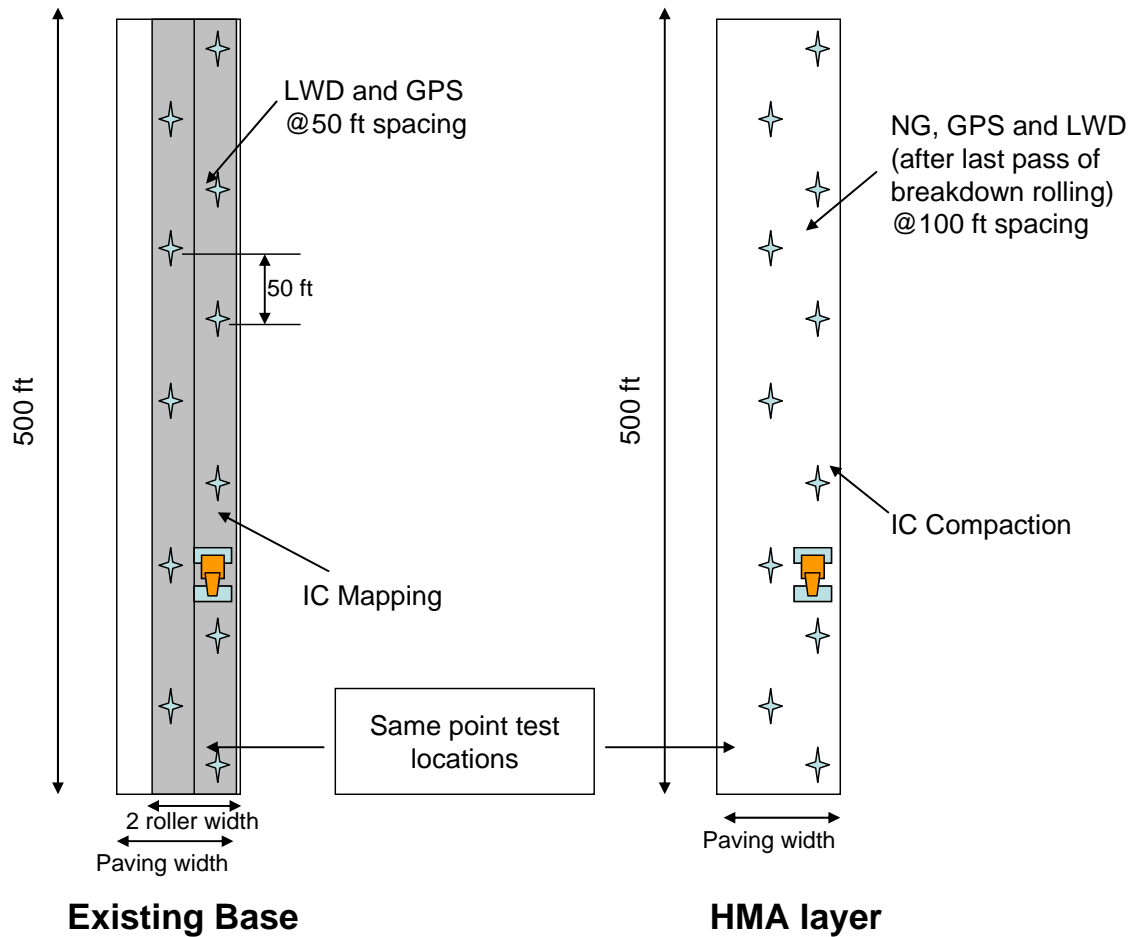
Test Settings

Date	TB	Machine	Amp (mm)	Spot Tests	Notes/Comments
9/19	Arrive on site.				
9/20	1	Sakai Volvo	0.3 (low) at 4000 vpm	NG LWD	Machine and GPS setup and trial runs. Production rolling for HMA overlay. 1. Verify the roller temperature measurements 2. Compact HMA overlay with normal roller passes. 3. Spot test with nuclear density gauge.
9/21	2	Sakai Volvo	0.3 (low) at 3000 vpm 0.3 (low) at 4000 vpm	LWD NG LWD	Mapping of Existing Base. 1. Map the existing base for 500 ft. 2. Spot test with LWD and GPS within the test strip. Production rolling for HMA overlay. 1. Verify the roller temperature measurements 2. Compact HMA overlay with normal roller passes. 3. Spot tests with nuclear density gauge and other devices within the test strip.
9/22	3	Sakai Volvo	0.3 (low) at 3000 vpm 0.3 (low) at 4000 vpm	LWD NG LWD	Mapping of Existing Base. 1. Map the existing base for 500 ft. 2. Spot test with LWD and GPS within the test strip. Production rolling for HMA overlay. 1. Verify the roller temperature measurements 2. Compact HMA overlay with normal roller passes. 3. Spot tests with nuclear density gauge and other devices.
9/23	Open House –presentation of preliminary results and roller demonstrations.				

Notes

- Sakai SW880 or Volvo IACA will be used as the break-down roller.
- LWD: Light weight deflectometer
- GPS: hand-held Global Position System rovers
- NG: Nuclear density gauge

Test Strip – Days 2 and 3



- Test lines are corresponding to the center of the IC drum for the base mapping.
- All point tests will be conducted on the same locations with the same location IDs after the mapping and HMA compaction.
- Mapping: Test point location IDs can be number as: XM01, XM02, to XM11 for test bed No. X (X = 2 or 3).
- HMA layer: Test point location IDs can be number as: XA01, XA02, to XA11 for test bed No. X (X = 2 or 3).

Open House

Where:

New Enterprise Stone & Lime Office, 3912 Brumbaugh road, New Enterprise, PA 16664

(814) 224-6856

When:

9:00 AM to noon, Thursday, Sept 23, 2010

Agenda:

- *Session 1 - 9:00AM to 11:00AM - Indoor Presentation*
- *Session 2 - 11:00AM to noon – IC Roller and GPS Equipment Demonstration*

Contact:

Contact Ruth Calish, Transtec Group, Ruth@TheTranstecGroup.com, (512) 451-6233 for RSVP by Sept. 17.



Safety



Safety vests are recommended.