

# Application Note

## Shoulder/Edge-of-Pavement(EOP) Condition Assessment

### #AN-Pavements-001

July 26, 2001

#### **Abstract:**

The primary application of the PPS-2000 Pavement Profile Scanner is to collect transverse profiles from which rutting and ride indices are determined. However, the data produced by the PPS-2000 has the potential to yield significant additional details regarding the condition of pavements.

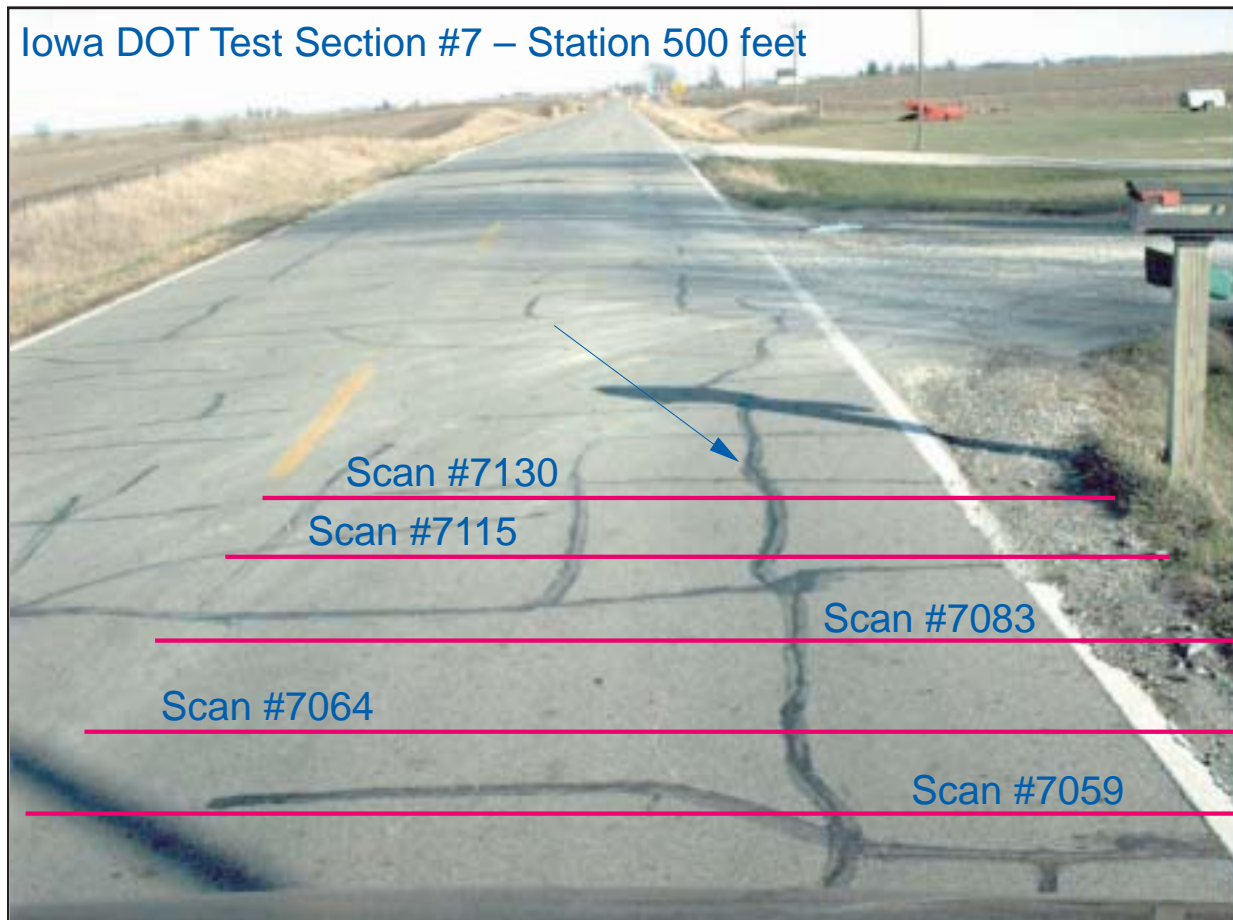
This application note presents a sample of transverse pavement profiles collected with the PPS-2000 Pavement Profile Scanner to illustrate the potential of high resolution full lane width pavement scans to provide data suitable for assessment of the condition of the edge-or-pavement (EOP) or shoulder.

The PPS-2000 is capable of producing 1,000 scans per second (1 per inch at 60 m.p.h.) and 943 points per scan with a 90° field-of view resulting in 14 foot scans with the scanner 7 mounted feet in the air. Visit the web site for more details.

#### **For More Information:**

Phoenix Scientific Inc.  
1790-101 La Costa Meadows Drive  
San Marcos Ca 92069  
760.471.5396  
760.471.5397 - fax  
[www.phnx-sci.com](http://www.phnx-sci.com)

**Background.** A PSI PPS-2000 Pavement Profile scanner (USACE-WES s/n 2) was operated on Iowa DOT test roads in November 2000 on a Mandli Digilog van. The following Digilog image of section 7, station 500 feet shows a cracked and sealed AC pavement with a stretch of about 5 feet where the shoulder was broken away under the fog line. The profile and signal strength for the five scans taken nominally at the positions shown by the transverse red lines has been plotted.



### Discussion of Results

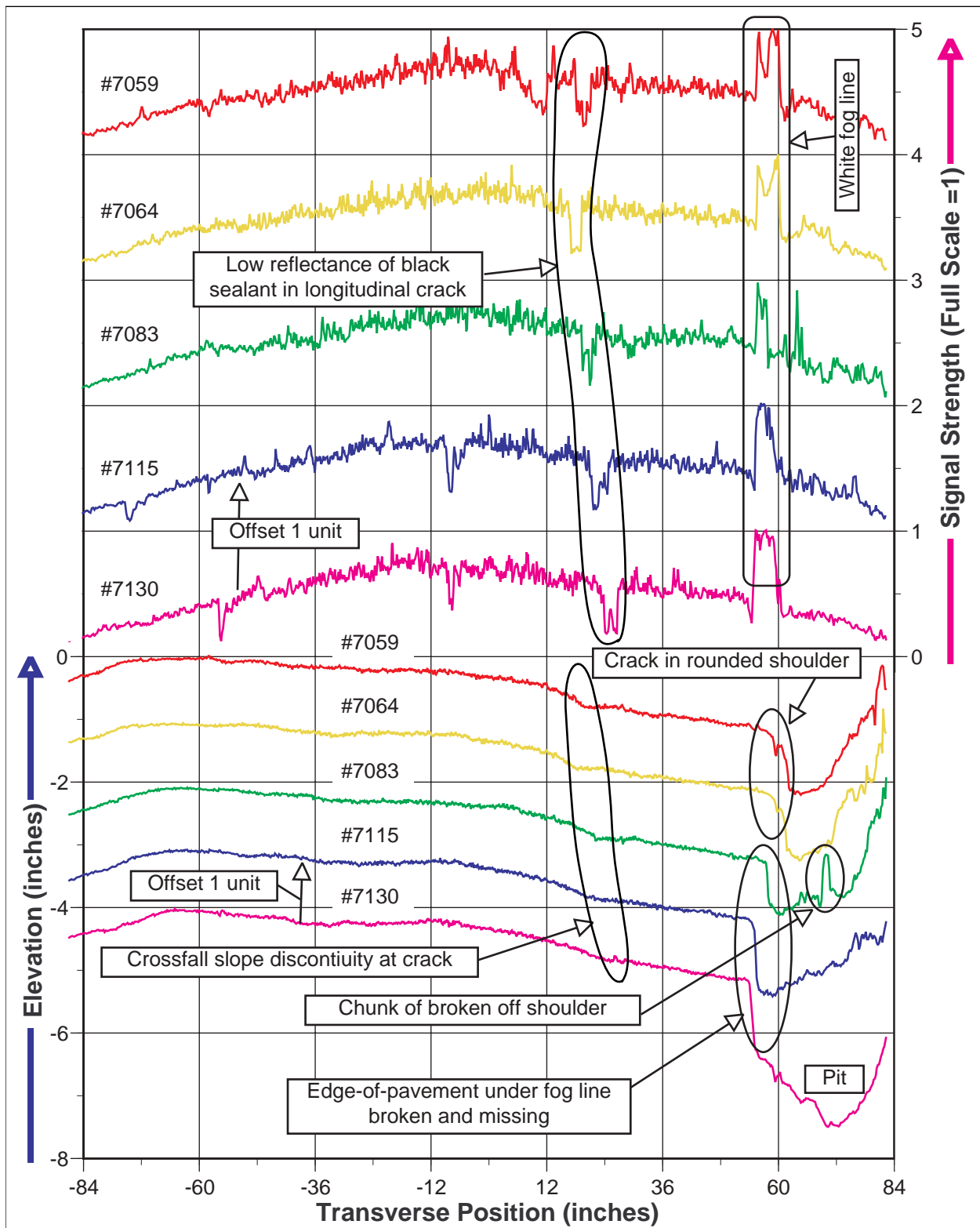
**Scan 7059.** In addition to the long sealed longitudinal crack (blue arrow), a transverse sealed crack is visible in the normalized signal strength curve as a downward spike. Crossfall slope discontinuity present at the longitudinal crack. The fog line results in a clear plateau suitable for locating to profile transversely.

**Scan 7064.** Shoulder/EOP is (7059 also) is gently rounded. Crack at EOP is visible in profile.

**Scan 7083.** Chunk of broken shoulder presents a blip in profile in the gravel.

**Scan 7115.** The abrupt drop off of the broken shoulder is noticeably different (also in 7083 and 7130) from the normal rounded shoulder in 7059 and 7065. The reduced signal from three sealed cracks is apparent.

**Scan 7130.** A pit which would hold a puddle of water from rain is shadowed in the image but clear in the profile. The outcome of repainting the fogline after the shoulder failed is uniform fogline intensity plateaus in all the scans, even where the profile reveals missing shoulder under the fog line.



Signal Strength above and profile below from 5 scans of Run 11 on November 4, 2000 on Iowa DOT section 7 at station 500 feet. Successive scans are offset vertically by 1 for clarity.