

FHWA-HIF-21-026

## TECHNOLOGY DEPLOYED IN MATC

## **DIELECTRIC PROFILING SYSTEM (DPS)**

Monitor your in-place asphalt pavement mat and joint density

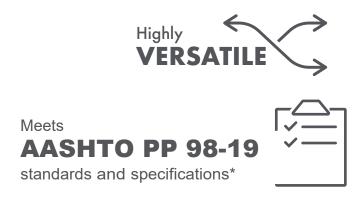
## **HOW IT WORKS**

Collect real-time, continuous asphalt pavement in-place density data using this non-destructive technology, which measures the pavement dielectric constant using air-coupled Ground Penetration Radar (GPR) antennas. Unlike the common practice of extracting cores to determine in-place asphalt density, this technology allows paving professionals to make thickness and compaction adjustments during construction – providing opportunities to save time, effort, and money. Antennas are mounted on a mobile unit and placed above the pavement surface, where they transmit and receive electromagnetic energy signals to determine surface dielectric properties to a depth of 2.5 inches. The dielectric values are then calibrated with field cores and/or project lab gyratory specimens of known air voids and density. Equipment includes three GPR antennas, a battery, and a display monitor. There are multiple vendors that sell the DPS technology.



Image Source: FHWA
Dielectric Profiling System Device

The DPS can provide continuous predictions by correlating dielectric values with in-place air voids.







Pilot projects have been conducted in: Alaska, Florida, Maine, Minnesota, Nebraska, and Ohio\*\* National pooled study underway currently includes: Florida, Idaho, Maine, Maryland, Missouri, Nebraska, New York, Pennsylvania, and Washington\*\*\*

## Learn more at <a href="https://www.fhwa.dot.gov/MATC">https://www.fhwa.dot.gov/MATC</a>

- \* These standards and specifications are not FHWA requirements.
- \*\* For more information, visit <a href="https://www.fhwa.dot.gov/pavement/asphalt/pubs/hif19052.pdf">https://www.fhwa.dot.gov/pavement/asphalt/pubs/hif19052.pdf</a>
- \*\*\* For more information, visit https://www.dot.state.mn.us/materials/dps/index.html