PAVEMENT MONITORING

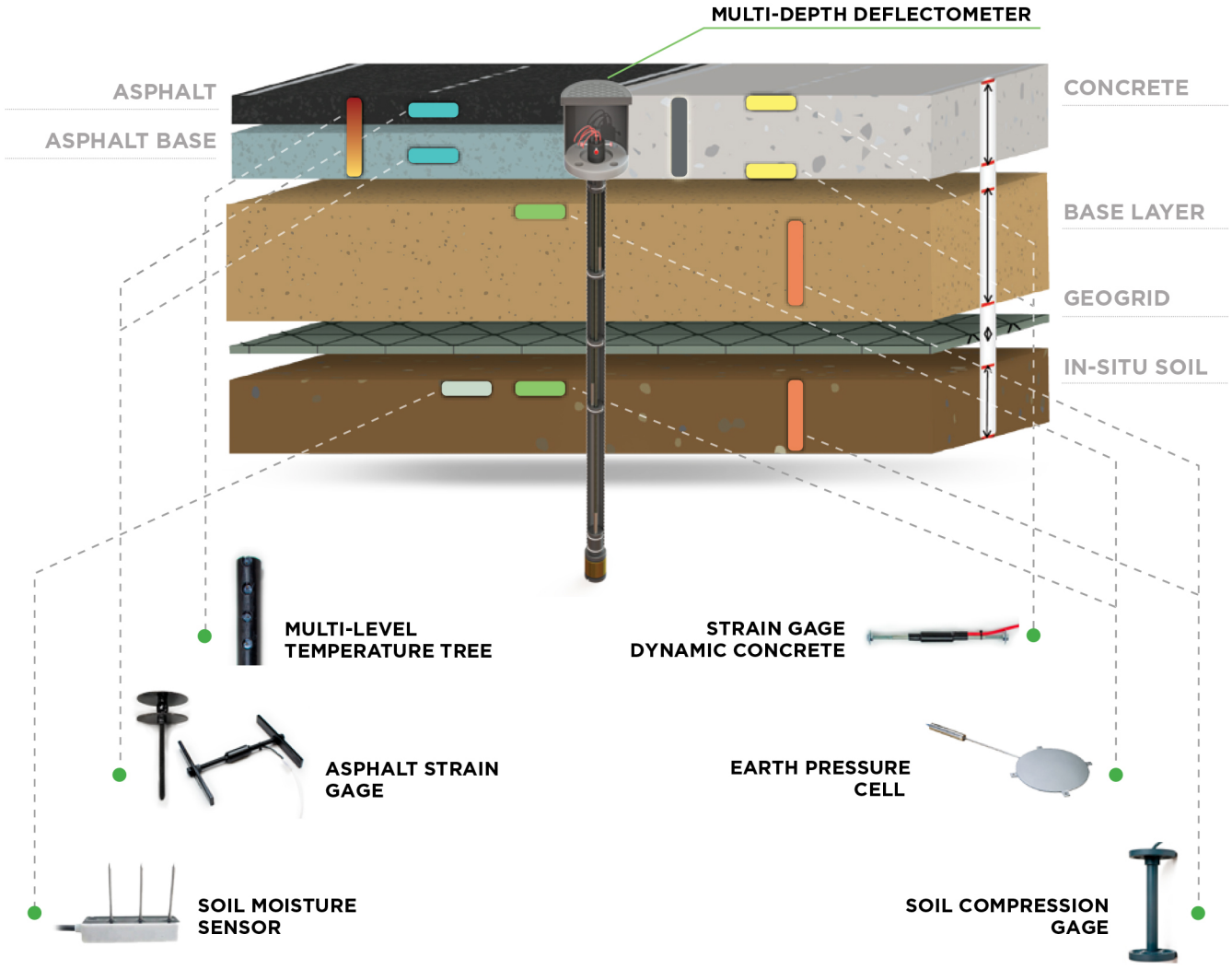
BDI

RAW DATA. REFINED RESULTS.

MONITORING CRITICAL INFRASTRUCTURE SINCE 1989

BDI'S PAVEMENT SENSOR DESIGN ENGINEER PROVIDED THIS LINE OF PAVEMENT INSTRUMENTATION TO RESEARCH INSTITUTIONS FOR MORE THAN 20 YEARS. THESE INSTITUTIONS INCLUDE THE ACCELERATED PAVEMENT TEST FACILITIES FOR THE FAA, FHWA, NCAT, MNROAD, USACE, KOREAN HIGHWAY DEPARTMENT, AND UNIVERSITIES ACROSS THE GLOBE. COUPLED WITH BDI'S DATA ACQUISITION HARDWARE AND SOFTWARE CAPABILITIES, COMPLETE PAVEMENT INSTRUMENTATION SOLUTIONS CAN BE PROVIDED. ONLY BDI PROVIDES THE IN-HOUSE EXPERTISE FOR THE DESIGN, INSTALLATION, AND INTEGRATION OF COMPLETE TURN-KEY SYSTEM SOLUTIONS BASED ON USER EXPERIENCE AND FEEDBACK FROM THESE LEADING INSTITUTIONS.

WHAT
WE MEASURE

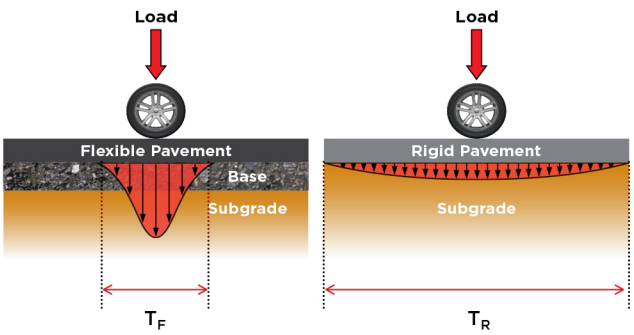


Sample Speed Rate

To define the influence zone curve under T_F and T_R, we recommend a minimum of 50 data points with a much more accurate curve developed with 100 data points.

50 kph = 14 m/s	Data Points at 250 Hz	Data Points at 1000 Hz
$T_{flexible}$: 3 m in 0.21 s	53	210
T_{rigid}: 8 m in 0.57 s	143	570
100 kph = 28 m/s		
$T_{flexible}$: 3 m in 0.11 s	28	110
T_{rigid}: 8 m in 0.29 s	73	290

LOAD DISTRIBUTION



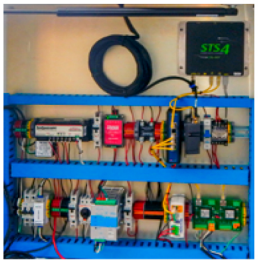
Wheel diameter (Wd) = 1 meter
Flexible influence zone (3Wd) = 3 meters
Rigid influence zone (8Wd)= 8 meters

HOW
WE MEASURE IT

Based on our successful STS4 architecture, we have developed a modular Structural Monitoring System that can be applied in laboratory research projects or large scale, high-speed, permanent monitoring systems. We've once again taken the lessons learned over hundreds of monitoring projects and put them into the design of our hardware. With simple power and communication options, our systems sample up to 1,000 S/s and coupled with easy-to-configure software, they can be designed and installed more efficiently than anything else on the market.

4- OR 16-CHANNEL TERMINAL NODES

CORE DATA LOGGER



MONITORING ACCESSORIES

HOW
WE MANAGE DATA

PLATFORM INTERACTIVE DATA HOSTING

Data hosting through Microsoft® Azure that allows:

+ Simple and secure data measurement
+ 24/7 staffed service center
+ Custom alerts and notifications
+ Advanced graphing options

DATA TRANSFER

+ **STS-SYNC:** Microsoft® Windows® application to collect data on a defined schedule.
+ **Client Servers:** The Core Data Logger can be configured to push data to a client designated server.

SETUP/CONFIGURATION

+ **STS-MONITOR** is used for configuring the system, either remotely or through direct on-site connection.
+ Systems can be preconfigured by BDI or by the client.

PUTTING IT ALL TOGETHER
DATA COLLECTION

With pavement instrumentation placed during construction and utilizing BDI's high-speed data acquisition units, trackside/roadside data collection is simplified. These units collect data at up to 1000Hz and are interconnected with PoE to provide power to all units from one centralized location.

Data is posted to BDI's web-based data management system for data storage and visualization. Sensor-based triggers can be setup for data collection and/or camera image capture of vehicle passage.

PAVEMENT
SENSORS

DYNAMIC ASPHALT STRAIN GAGES

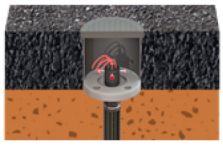
DYNAMIC CONCRETE STRAIN GAGES

SOIL COMPRESSION GAGES

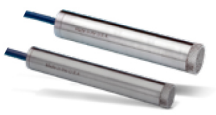
TEMPERATURE TREE

EARTH PRESSURE CELL

SOIL MOISTURE SENSOR



MULTI-DEPTH DEFLECTOMETER (MDD)



PRESSURE TRANSDUCER

FOIL GAGE + COMPLETION MODULE

THERMISTOR

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