

# Turning TSDD Data into Smarter Pavement Decisions



Applied Research Associates Inc. (ARA) is pioneering the use of TSDD data across analysis, interpretation, and implementation. With a team of nationally recognized experts and a proven track record in practical innovation, ARA helps state DOTs transform raw TSDD data into actionable strategies for extending pavement life, optimizing network performance, enhancing pavement design and analysis, and developing smarter investment strategies for managing state pavement assets.

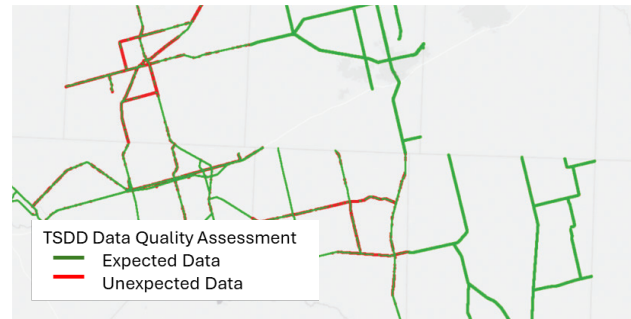
## ARA CORE TSDD SERVICES

- **ROBUST DATA QC/QA**  
Detecting unexpected data and ensuring reasonableness
- **AASHTOWARE™ PAVEMENT ME DESIGN INTEGRATION**  
Incorporate TSDD data into PMED Backcalculation Tool (BcT) to generate rehabilitation design inputs
- **3D-GROUND PENETRATING RADAR (GPR) INTEGRATION**  
Combine TSDD and 3D GPR for an integrated analysis
- **NETWORK-LEVEL ANALYSIS**  
TSDD structural indices, subgrade modulus estimates, remaining life estimation, overlay recommendations
- **PROJECT-LEVEL ANALYSIS**  
Layer moduli backcalculation using DSteele, segmentation, Pavement ME and AASHTO 1993 design inputs, forensic investigations
- **DESIGN INSTRUMENTATION SITE FOR DATA VERIFICATION**  
Establish controlled conditions to validate TSDD measurements using instrumented geophones
- **TSDD FOR RIGID PAVEMENTS**  
Support concrete joint condition evaluation

### Real-World Case Studies



Case Study: Pavement Structural Ranking Using TSDD Structural Condition Index



Case Study: TSDD Data Quality and Network Mapping

### TSDD Data Applications

#### NETWORK LEVEL

- Structural Classification
- Treatment Prioritization
- PMS Incorporation
- Structural Health Monitoring

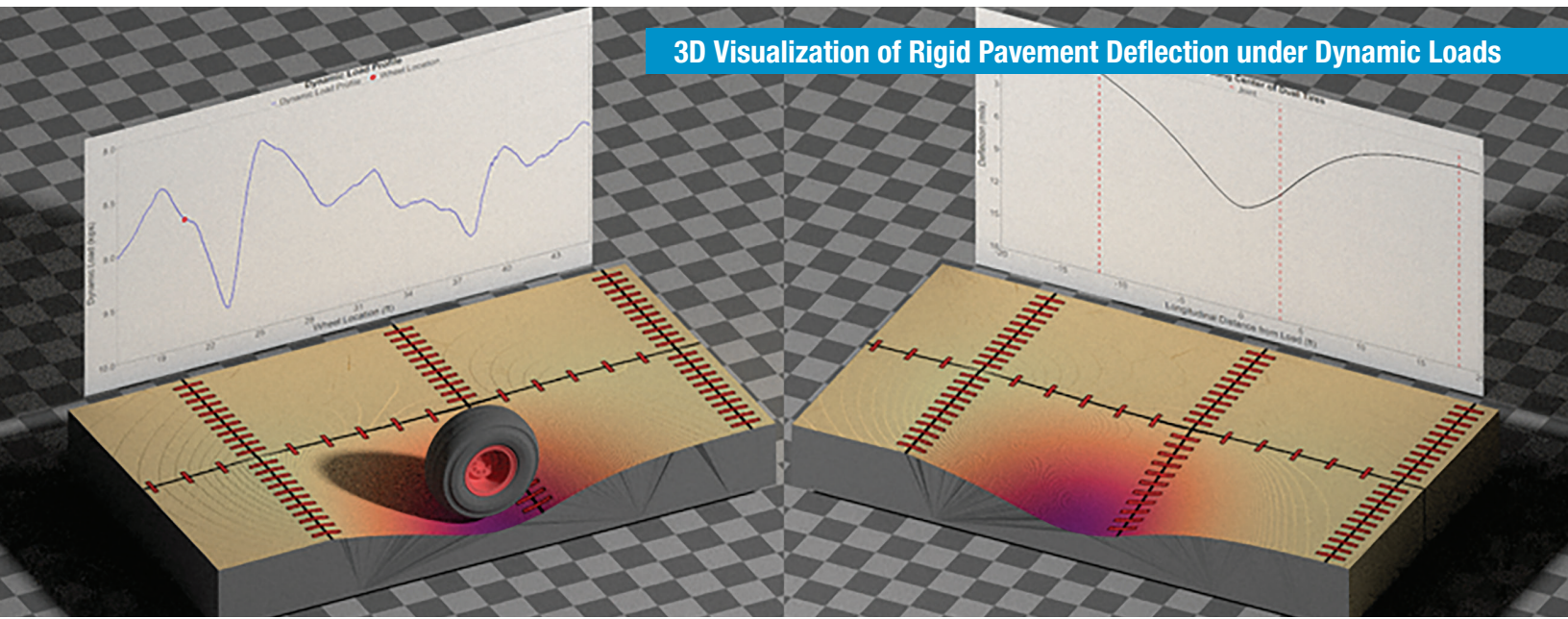
#### PROJECT LEVEL

- Treatment Selection
- Design Thickness
- Project Scoping and Limits
- Layer Moduli Backcalculation



FOR MORE INFORMATION ON ARA'S TRANSPORTATION SERVICES, PLEASE VISIT [WWW.ARA.COM](http://WWW.ARA.COM)

## 3D Visualization of Rigid Pavement Deflection under Dynamic Loads



## ARA'S UNIQUE VALUE

- **PROVEN EXPERTISE**  
National leaders in TSDD research, Quality Control and Quality Assurance (QAC/QCA) protocols, and pavement engineering.
- **ACTIONABLE INSIGHTS**  
Our tools translate raw deflection data into meaningful metrics—structural condition index, structural health indicators, subgrade modulus, overlay needs, and more.
- **INTEGRATION OF TSDD DATA INTO PAVEMENT MANAGEMENT SYSTEM (PMS)**  
Incorporate TSDD outputs into existing Pavement Management Systems.
- **CUSTOMIZED SOLUTIONS**  
From pilot studies to statewide implementation—our solutions are tailored to the agency's goals and pavement network needs.

## LET'S TALK STRATEGY

ARA is your partner in unlocking the full value of TSDD data—supporting better decisions from network planning to project design.

## CONTACT

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## TSDD Data Visualization Dashboard



## Featured Clients & Projects

- **GEORGIA DOT**  
Rigid pavement investigation
- **ILLINOIS DOT**  
Project level scoping using TSDD/3D GPR data
- **MICHIGAN DOT**  
Analyzing multiple years of TSDD data
- **OHIO DOT**  
Statewide rigid pavement joint condition evaluation
- **TEXAS DOT**  
Analyzing over 8,000 miles of TSDD and 3D GPR data

*And more across the U.S.*