



INDOT Research and Development **SPECIALIZED TESTING**

INDOT's Research and Development Division provides specialized testing services in a variety of areas related to pavements and structures for data driven decision making and to minimize risks. These tests assist the department in warranty contract compliance, pavement designs, safety of Indiana roadways, and forensic investigations.

TESTING PAYS **BIG DIVIDENDS**

Research and Development's innovative and specialized testing programs provide savings and benefits to customers through data driven decisionmaking. Each specialized testing program has resulted in improved safety, cost savings, or better and longer lasting pavements and bridges. Benefits our customers can appreciate! Read inside for examples of impact and specific details for each testing program.

\$10 Million

ANNUAL SAVINGS
FOR NEW MEPDG
PAVEMENT DESIGNS

- ✓ Material Savings
- ✓ Labor Savings
- ✓ Improved Pavement Performance
- ✓ Extended Service Life



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FWD Testing Equipment

Falling Weight Deflectometer (FWD)

Falling Weight Deflectometer (FWD) testing is utilized by INDOT in pavement scoping, pavement design, pavement investigation, and budgeting for contracts. FWD testing can provide accurate identification of voids in the pavement substructure that need to be undersealed during rehabilitation treatments.

IMPACT Millions of dollars have been saved by INDOT through the use of deflection testing for new MEPDG pavement designs of \$10M annually and restoring subgrade support through undersealing of pavements \$6M annually.



Friction Testing Equipment

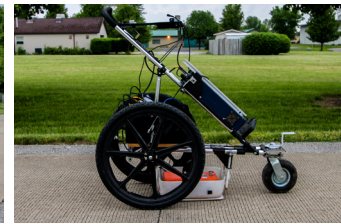
Pavement Skid Resistance (or Friction)

Pavement skid resistance or friction is a critical factor in providing safe conditions for vehicles traveling on roads. Pavement friction is the characteristic that gives drivers the ability to control and maneuver their vehicles safely in both the longitudinal and lateral directions, especially in wet weather. Identifying and correcting potentially slippery pavements and bridges, evaluating new high friction aggregates/mixes, and providing safe roads in wet weather are all goals of INDOT's Skid Accident Reduction Program.

IMPACT Pavement friction testing under the Skid Accident Reduction Program has improved the statewide skid resistance of Indiana pavements. Identifying slippery locations on pavements and bridges through friction testing saves lives and reduces wet weather accidents. Friction testing also is used in INDOT's Pavement Preservation Program to increase pavement life and reduce life-cycle costs.

INDOT Research and Development

TESTING & EQUIPMENT



Ground Penetrating Radar Equipment

Ground Penetrating Radar (GRP)

Ground penetrating radar (GPR), a relatively new technology, utilizes radar energy to map the subsurface. GPR is currently being used to evaluate the extent of corrosion in bridge decks as part of INDOT's non-destructive testing (NDT) of bridges.

International Roughness Index (IRI)

International Roughness Index (IRI) is a measure of the ride quality as perceived by vehicle occupants. Currently, INDOT has developed a prototype smoothness specification that will be used on INDOT construction projects to ensure smooth, longer lasting pavements for our customers.

Specialized Bridge Testing

Specialized bridge testing services include half-cell potential measurement, chloride ion concentration analysis, the impulse-response test, and GPR testing to evaluate structures and identify appropriate repair and rehabilitation treatments. INDOT Bridge and R&D Divisions have undertaken an NDT testing program of state bridge decks which can accurately determine the condition of a deck, prioritize bridge decks for rehabilitation, and identify deck problems early in the design life, allowing for preventative maintenance on the deck and significantly extending the life of the deck.

IMPACT Early NDT testing allows for preventative maintenance on the deck before costly major repairs or deck replacements are needed.



ABOUT INDOT RESEARCH AND DEVELOPMENT

The Division of Research and Development operates specialized testing systems to aid INDOT Districts and Central Office Divisions with their specific data and information needs. Based out of the Division's West Lafayette facility, INDOT employees operate these high tech systems across the state on a yearly basis.

To request specialized testing, please contact the Research and Development Division.

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