Michael Baker INTERNATIONAL

We Make a Difference

Additional services offered:

Pavement Design / Plans / Specifications

- Project Level Pavement Condition Survey, Rehabilitation Recommendation, Final Design, Plans, Instruction, LCCA, Estimates, & Specification

Ground Penetrating Radar (GPR)

- Pavement Thickness
- Bridge Deck Deterioration
- Void Detection
- Utility Detection

Falling Weight Deflectometer (FWD)

- Pavement & Subgrade Strength
- Remaining Service Life Analysis

Pavement Smoothness (IRI Measurement)

- Ride Quality and Acceptance

Digital Video Pavement Condition Survey

- Distress Identification
- Pavement Condition Index (PCI)
- Repair Locations

Pavement / Asset Management Systems

- Network Level Pavement Condition Survey, Budget Estimating, & Optimization
- Asset Inventory (Signs, Utilities, Pavement Markings, etc.)
- HPMS Data Collection and Reporting

Pavement Failure Forensic Analysis

- Material & Non-Destructive Testing

Pavement Design, Management, and Technology

Michael Baker International presents a full range of pavement engineering and management services for state, regional, county, and local transportation agencies throughout the US. Understanding that pavement is the largest asset of such agencies, Michael Baker maintains a team of qualified pavement engineers to assist these authorities in selecting the most economical and practical approaches to pavement preservation, rehabilitation, and management. Baker's team of professionals maintains a broad array of technical capabilities:

Pavement Management Systems (PMS)

- Michael Baker utilizes state-of-the-art digital video imaging, automated pavement distress identification, and high speed profiling for pavement inventory data collection, as well as advanced PMS software for project prioritization and budget analysis.
- PMS network level evaluation includes a condition assessment, budget analysis, preventative maintenance, and rehabiliations
- Pavement data are geo-referenced and GIS compatible

High Speed Profiling

- Provides high-speed roadway profiling services to measure the roadway smoothness in terms of International Roughness Index (IRI), longitudinal slope, cross slope, and rutting (NCAT Certified).
- All data are geo-referenced and GIS compatible
- Michael Baker developed a pavement smoothness pay adjustment method for NJDOT to award contractors for smooth final pavement surface or to enforce penaties for poor workmanship.

Ground Penetrating Radar (GPR)

- GPR is an efficient technology for continuous measurement of the pavement thickness at highway speed without interrupting normal traffic patterns
- Capable of detecting voids below pavement
- Use to effectively determine the extent of bridge decks deteriorations for bridge decks with or without an asphalt overlay

Falling Weight Deflectometer (FWD)

- FWD testing for pavement evaluation and determining the structural strength of the pavement and subgrade, pavement layers moduli, concrete joint performance, voids underneath joints, and remaining service life. FWD testing is highly recommended by AASHTO for pavement evaluation and design recommendation.

Life Cycle Cost Analysis (LCCA)

- LCCA including user delay costs to identify the most economical pavement rehabilitation alternative for each project and supports long term budgeting and planning

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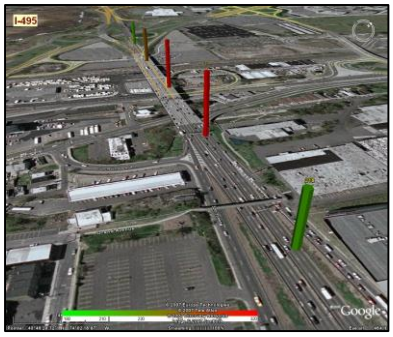
Laser Crack Measurement System (LCMS) and Video Imaging

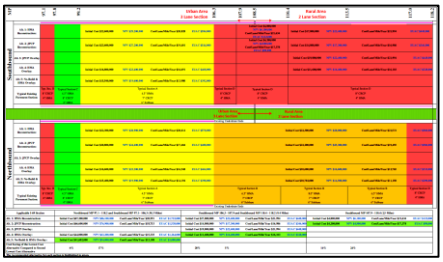
- Automated crack detection (≤1mm) including "Type and Severity" classification
- Pavement condition index (PCI) per ASTM D6433
- Longitudinal profiling (IRI)
- Transverse Profiling (Rutting)
- Macrotexture and Raveling index
- Grade and cross-slope
- Captures 2D and 3D images as well as video images of the roadways



Statewide International Roughness Index (IRI) Measurement

Client: New Jersey Department of Transportation

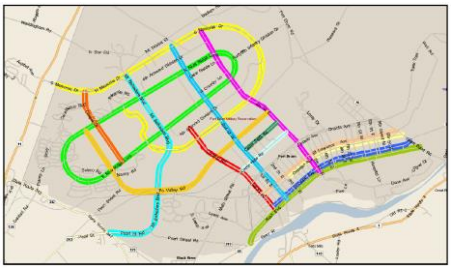
Michael Baker collected IRI data, rutting data, forward looking digital video images, and high resolution downward digital distress survey for 3600 lane miles of NJDOT highway system. All data were geo-coded to facilitate feeding NJDOT Pavement Management System (PMS) GIS databases. The image to the left indicated the IRI values for every 0.1 mile section of I-495 on Google Earth. The red color indicated rough pavement, while green colors indicate smoother pavement sections.



Route I-69 Pavement Testing and Evaluation (Milepost 97 to 118)

Client: Indiana Department of Transportation

Conducted a detailed pavement evaluation of existing SR 37 concrete and composite pavement to be utilized as part of the future I-69 corridor. The pavement evaluation and testing included FWD, GPR, IRI, DCP, coring, and visual pavement condition survey. Due to considerable length of project and variation in pavement construction and condition, pavement sectionalization was performed and LCCA was carried out for each section. All pavement design was performed based on mechanistic-empirical methodology using DARWin ME. Also performed a detailed cost estimate for pavement rehabilitation of the project.



Fort Drum Pavement Study and Pavement Management System

Client: US Army Corp of Engineers

Michael Baker provided detailed pavement evaluation of Fort Drum pavement network and development of a Pavement Management System (PMS) using MicroPAVER. The pavement evaluation included GPR, FWD, high-speed IRI and rutting measurements, as-built review, digital pavement distress survey and calculating pavement condition index (PCI) based on USACE methodology. Performed budget analysis to maintain the pavement network condition at specified PCI values. Incorporated pavement condition data into GIS.

James River Bridge Deck Testing by GPR and LCMS

Client: Virginia Department of Transportation

This 4.5-mile long bridge was tested simulatenously by GPR and LCMS. GPR was used to provide continuous rebar cover measurments and deck deteriorations. LCMS was used to identify deck distresses and patches. Baker also performed pacometer testing, half-cell testing, chain dragging, coring, chloride content measurements, and visual distress survey on 32 selected spans of the bridge for verification of GPR and LCMS results. The extent and type of repairs required were estimated.