Pavement Evaluation 2010

Simultaneous Collection of Automated Pavement Distress and GPR

Fugro Roadware Inc.

October 26, 2010

Simultaneous Collection of GPR and Pavement Distress

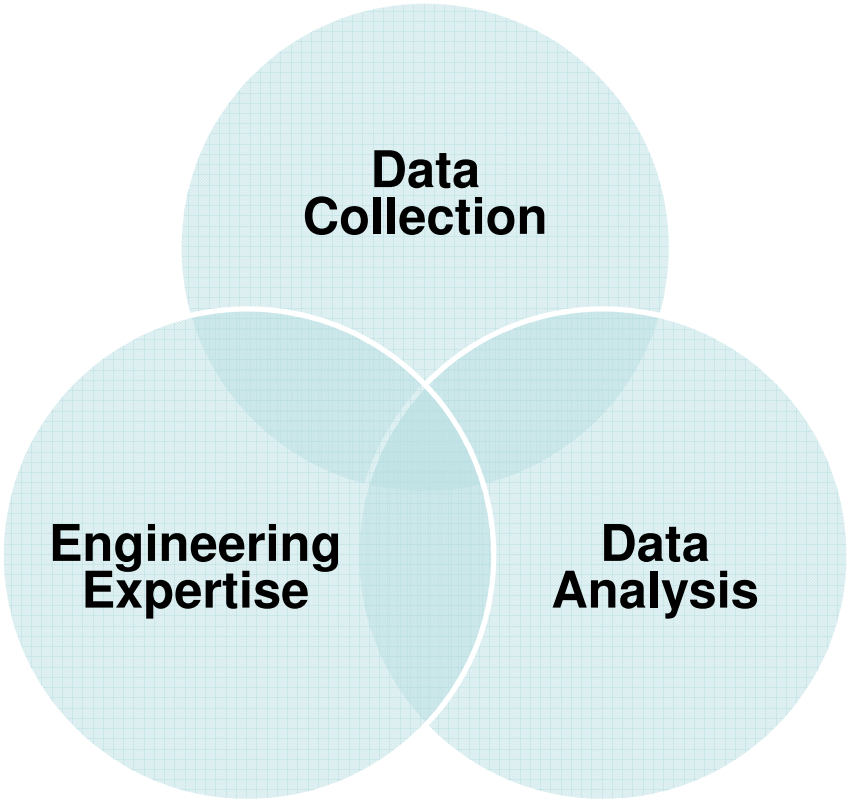
- Why?
- How?
- What are the advantages of simultaneous approach?
- What benefits does it provide?
- Questions?

Fugro does…..

- As an organization, Fugro collects and interprets data related to the earth's surface, the soil and rocks beneath, and the structures built on it.
- Fugro Transportation Infrastructure leverages the company's collective expertise in the area of roads and ports to provide complete data collection, analysis, and interpretation for pavement and asset management.

Why?

- Pavement Management requires information, analysis, and expertise
- Data accuracy and quality demands continue to grow
- Budget dollars are tight



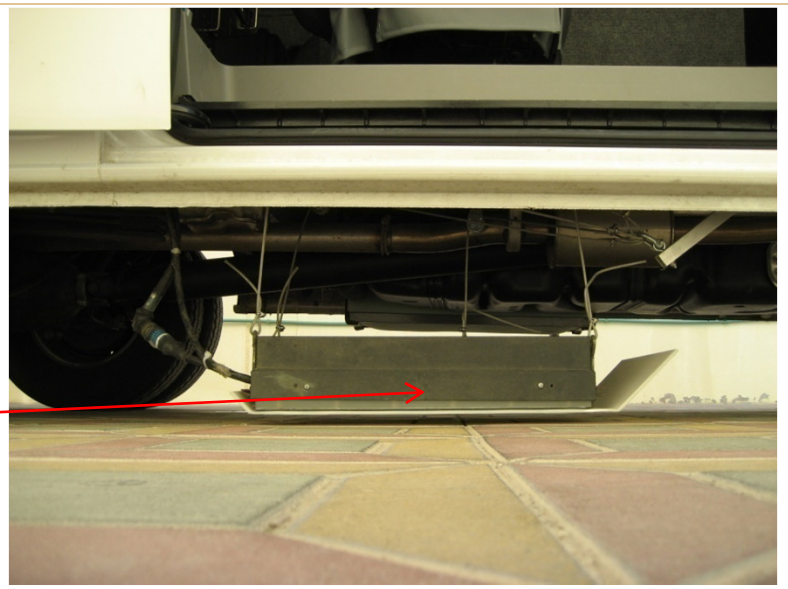
Traditional Pavement Distress Collection

Multiple data streams and images, synchronized with GPS

Ground Penetrating Radar (GPR)

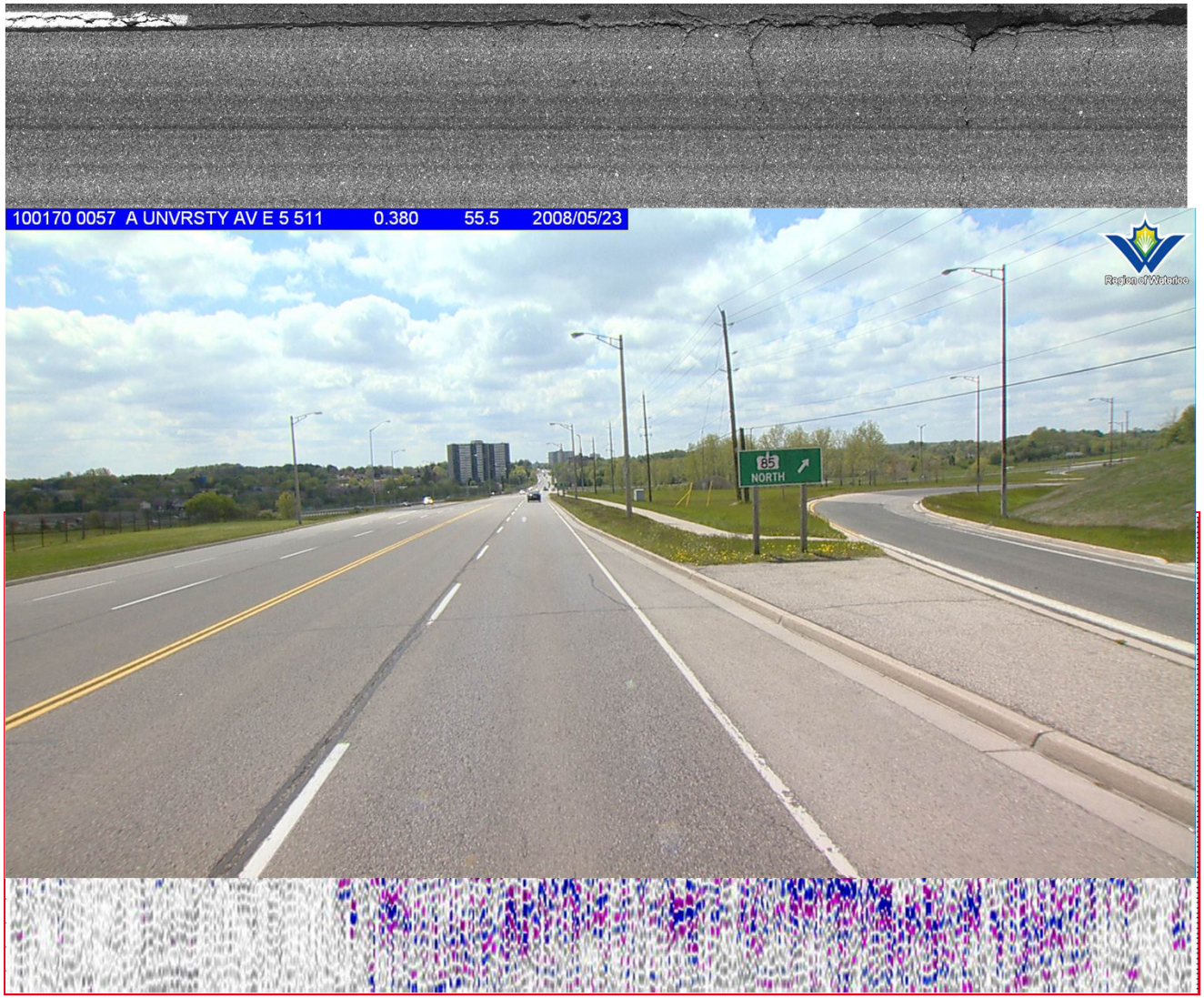
- GPR is a non-destructive, geophysical technique which produces an almost continuous cross section of the sub-surface
- Network level highway data can be collected at traffic speed
- Typical deliverables include: Segmentation of the network based on changes in construction, material type and material thickness.

How?



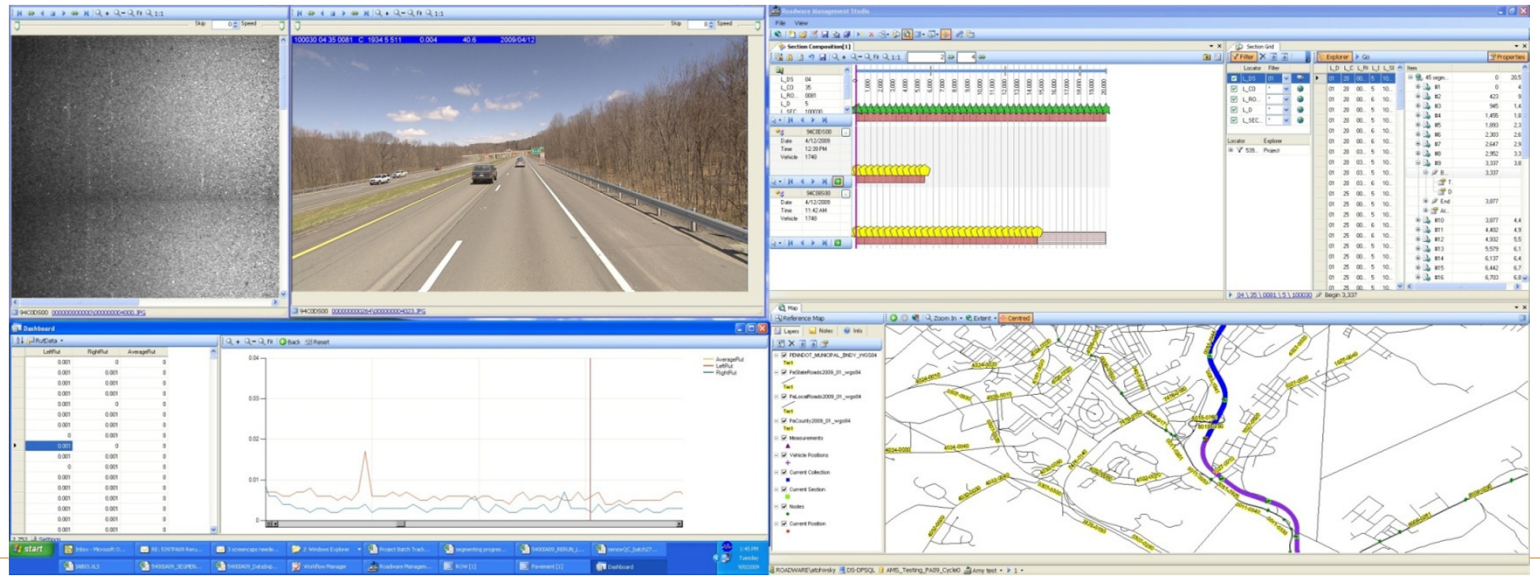
- Integrate a multi-channel dipole radar system
- Dipole Antennae operating at centre frequencies of 900 MHz and 1.5 GHz
- Fully synchronized with all other data streams

Integrated Surface and Subsurface Data



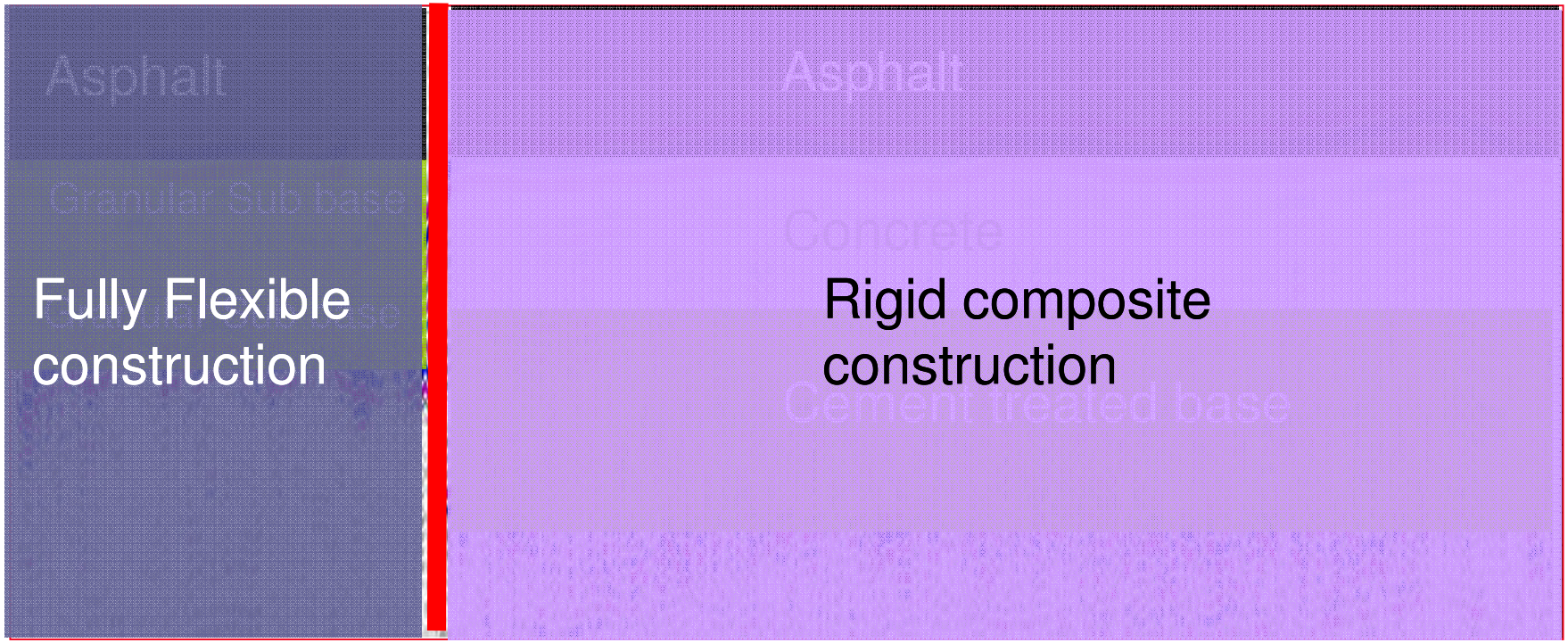
Benefits - Data Reduction

- Access to high quality HD images while providing analysis
- Validation of pavement types for homogeneous sectioning
- Updated information on layer/base/sub-base thickness



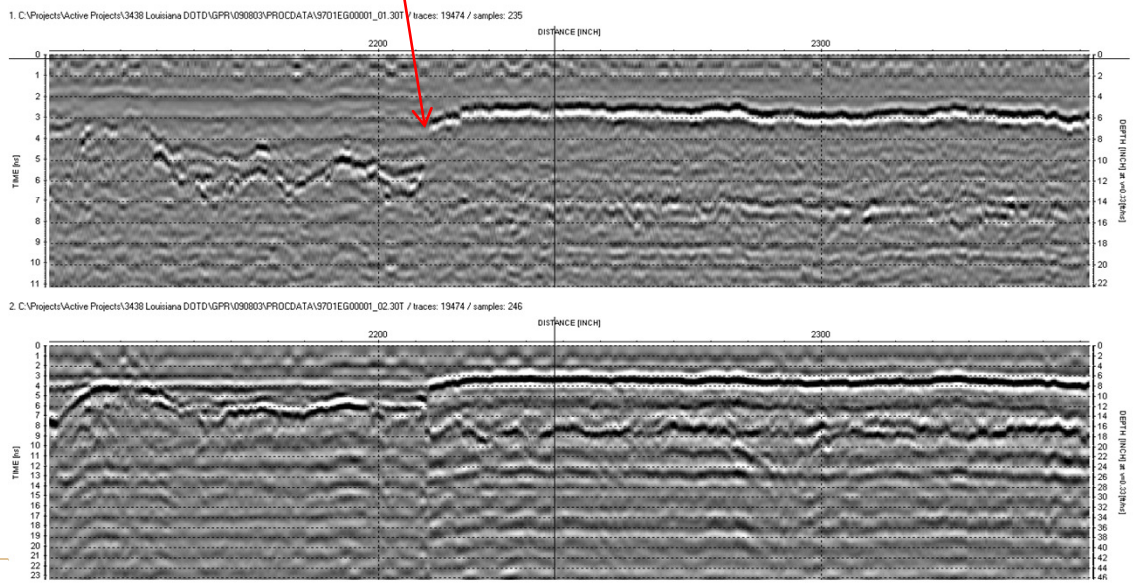
Network Segmentation

profile Construction change



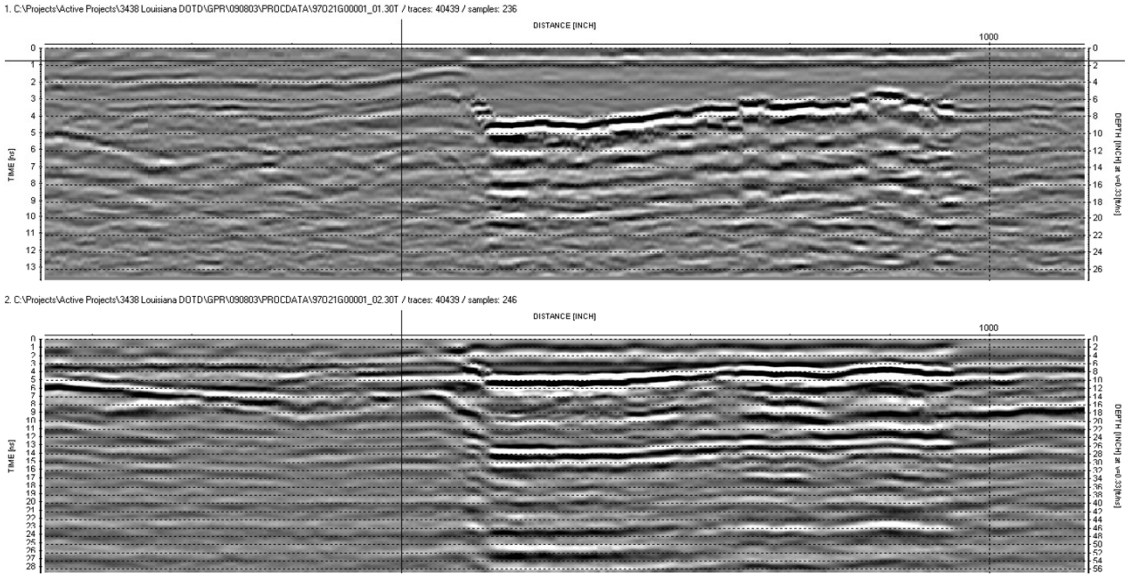
Network Segmentation

GPR indicates a clear construction change

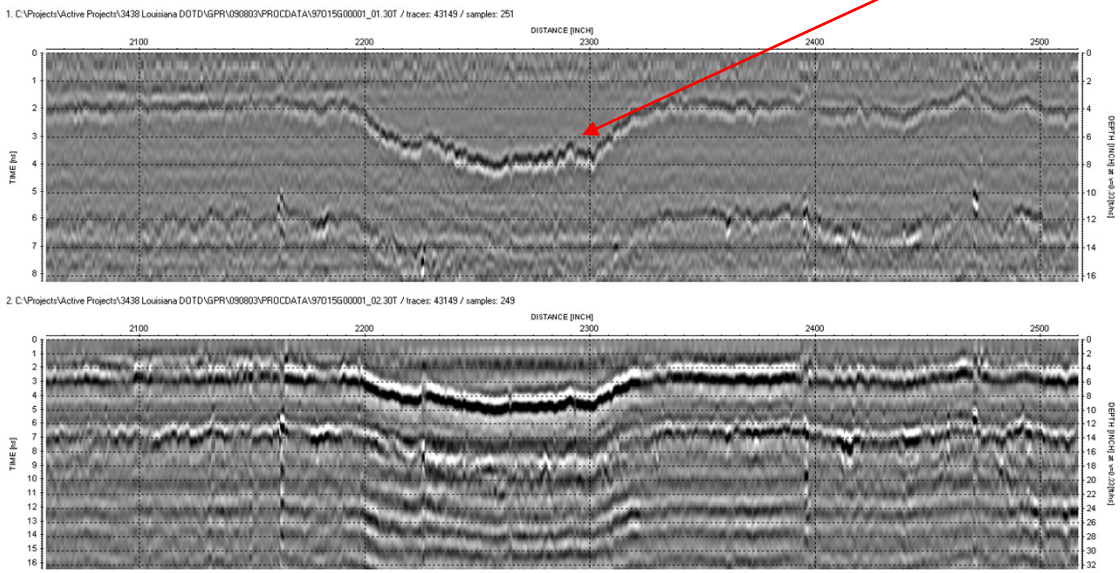


GPR interpretation benefits from the geography provided by the image

Network Segmentation



Better Context – Better Information

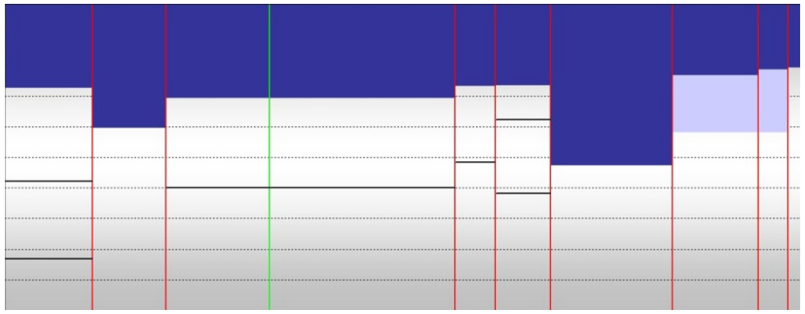


Benefits – Cost and Risk

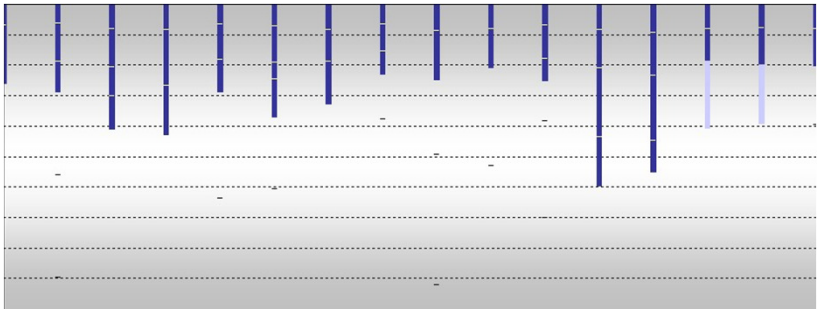
Approximately 65% of our costs are in the field.

Collected GPR can be reanalyzed

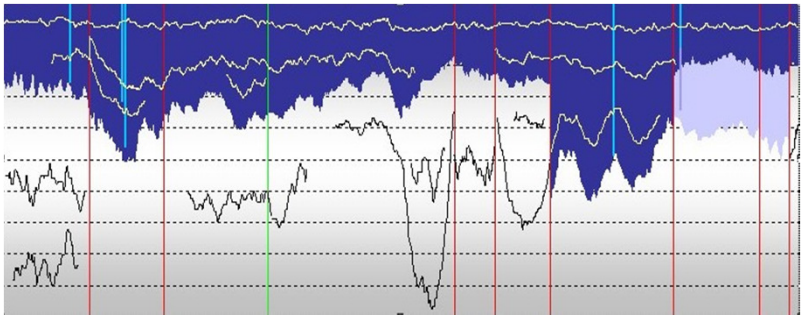
Construction Database



Summary Construction



Point Construction



Detailed Construction

In Conclusion….

- Adding a valuable data set at a fraction of the cost
- Validating or updating information about your network – sections and/or layer and base information
- GPR interpretation benefits from the images and GPS information traditionally used for automated distress
- The GPR data can be used for project level planning
- Allows for better planning!

Thank You

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