



## GPR for Roadway Evaluations



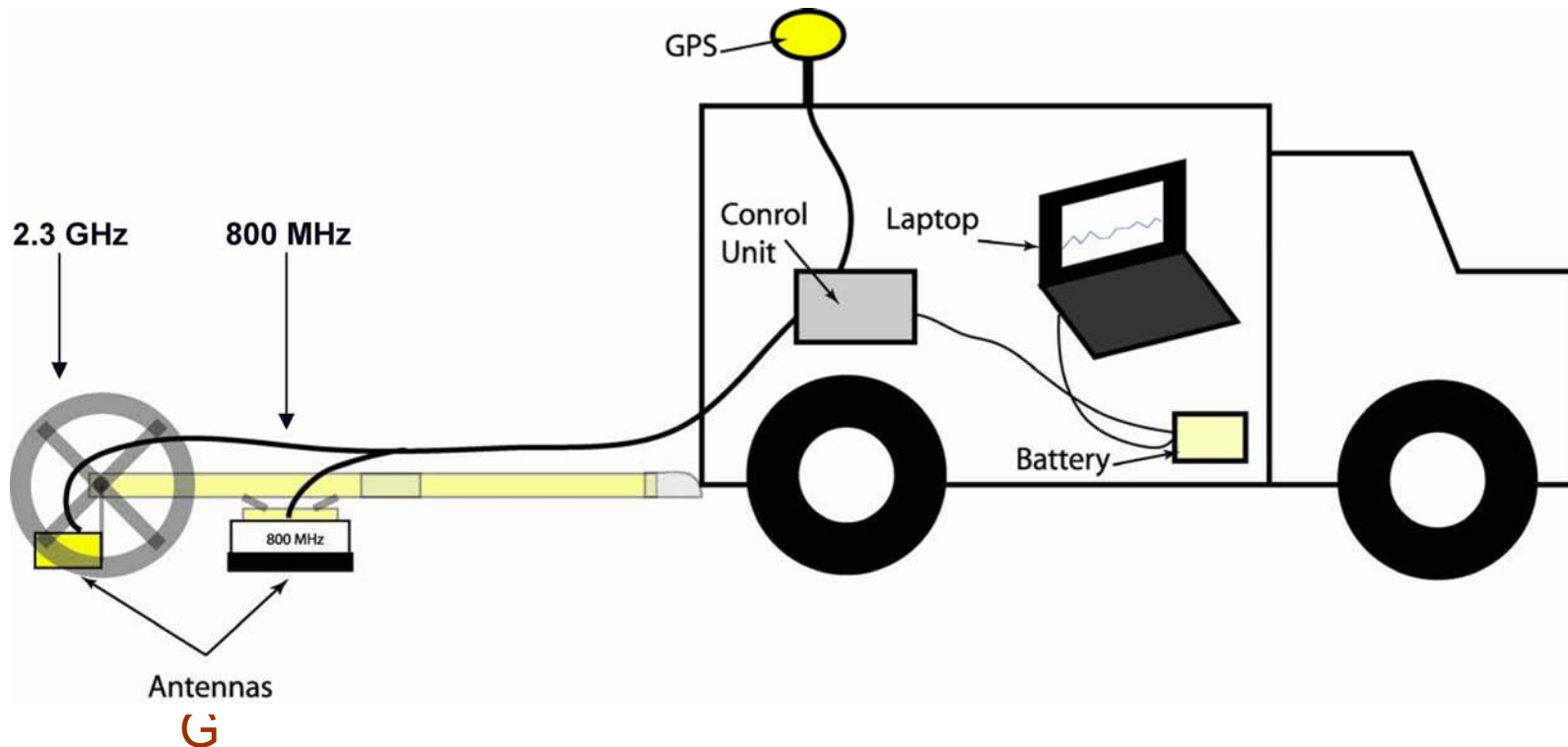


## Example Applications

- ▣ **Pavement and Base Thickness**
- ▣ **Subgrade Evaluations**
  - ▣ **Trench Delineation**
  - ▣ **Void Detection**
  - ▣ **Utility Location**
  - ▣ **Deeper Geologic Conditions**



## Example of Typical Setup



Ground Coupled GPR System



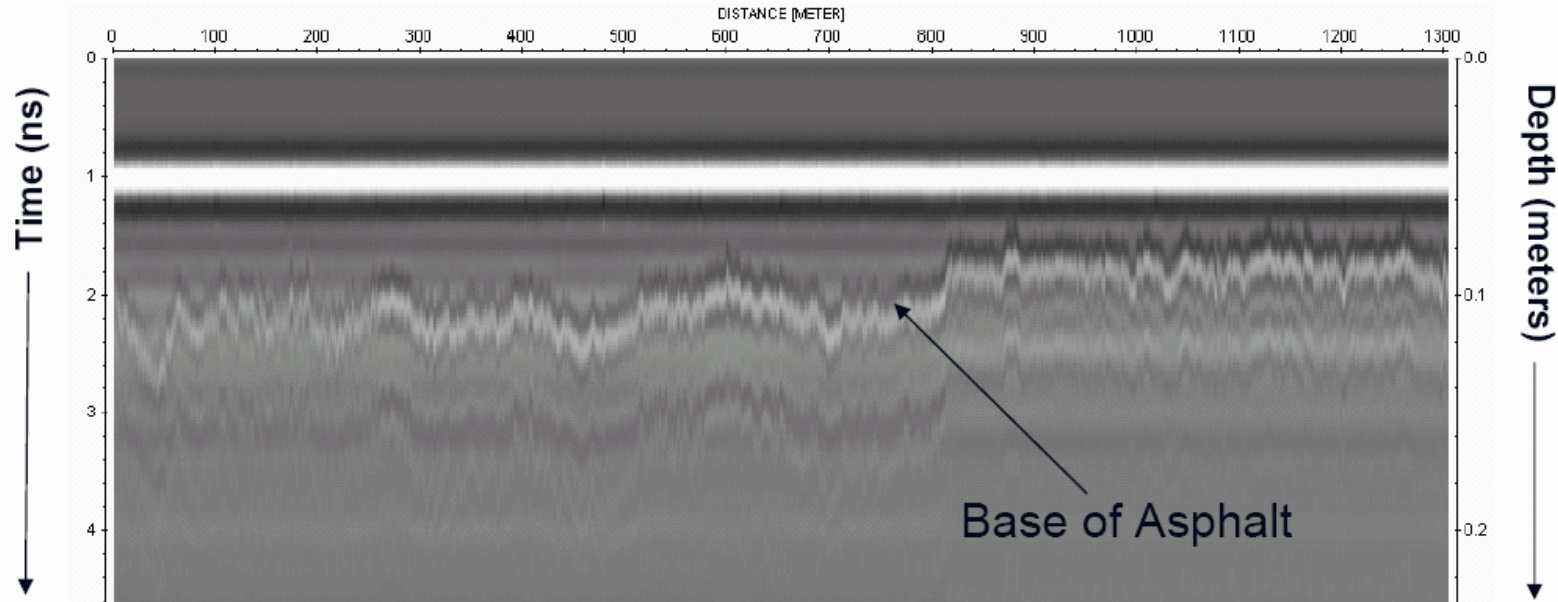
## GPR Test Survey Example



2.3 GHz and 800 MHz  
Antennas



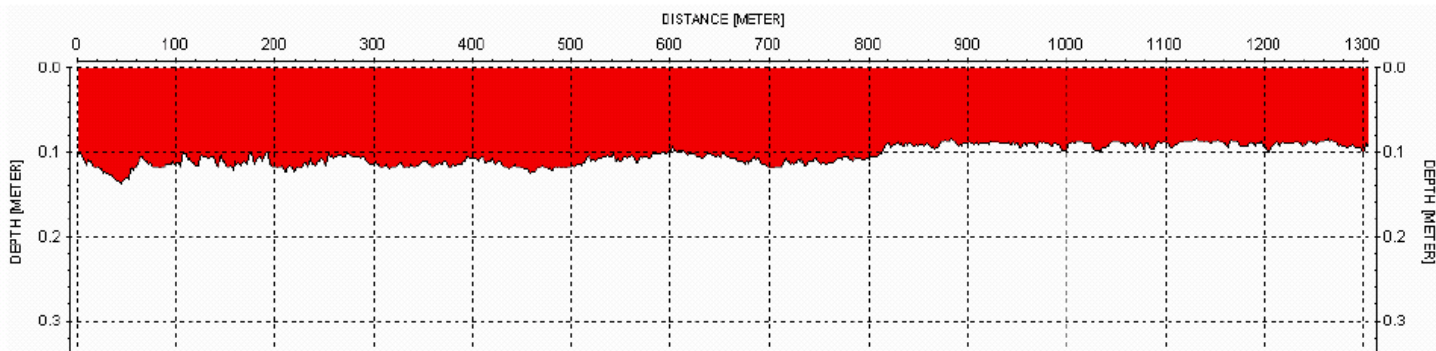
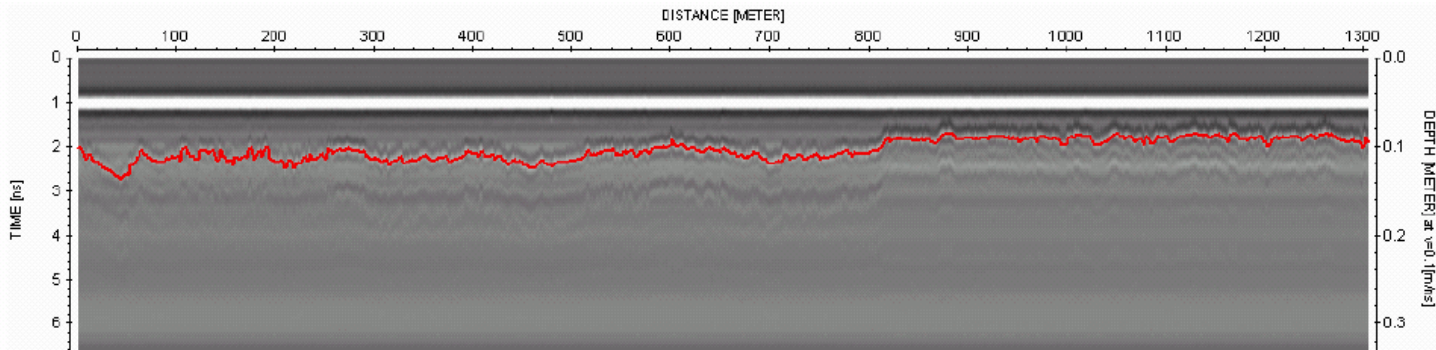
## GPR Data Example



2.3 GHz Antenna



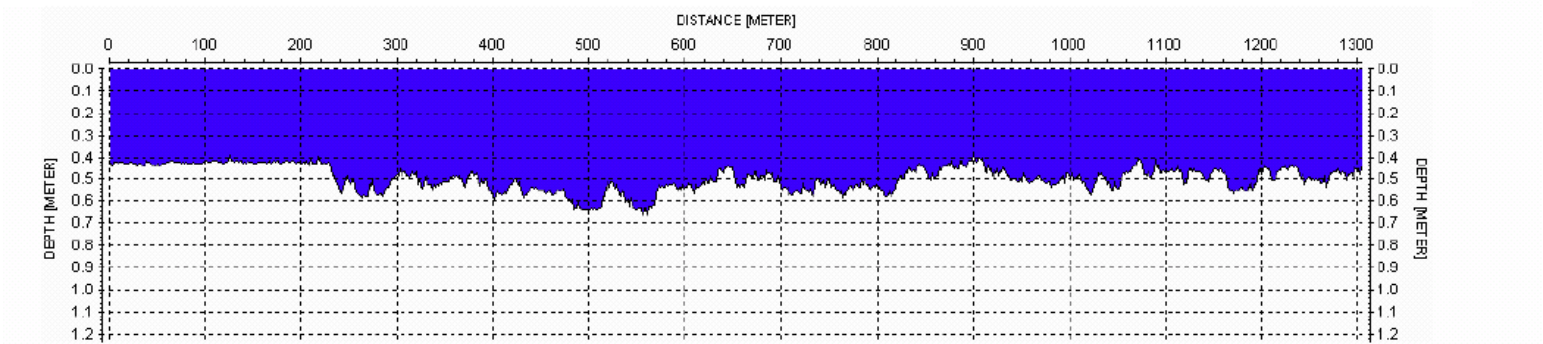
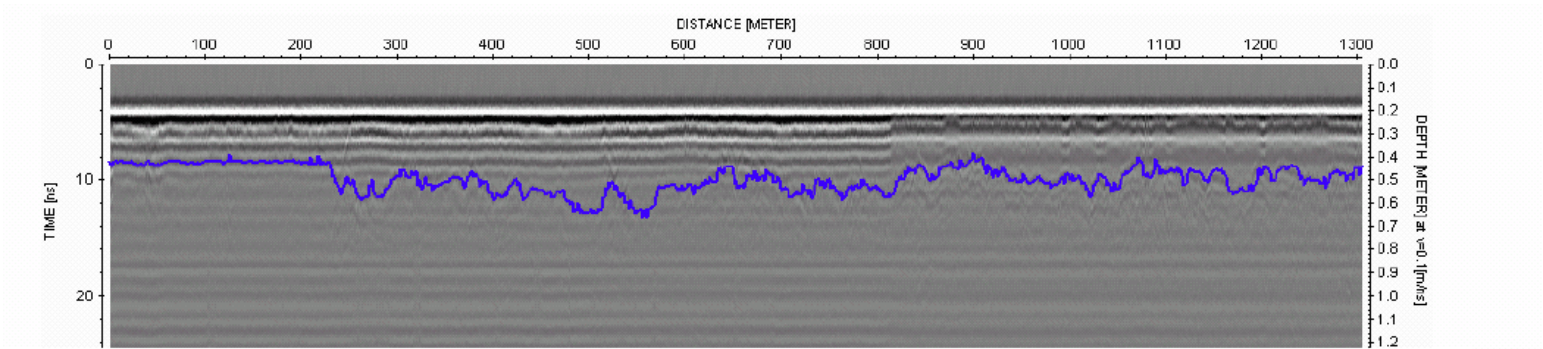
## Layer Picking (2.3 GHz Antenna)



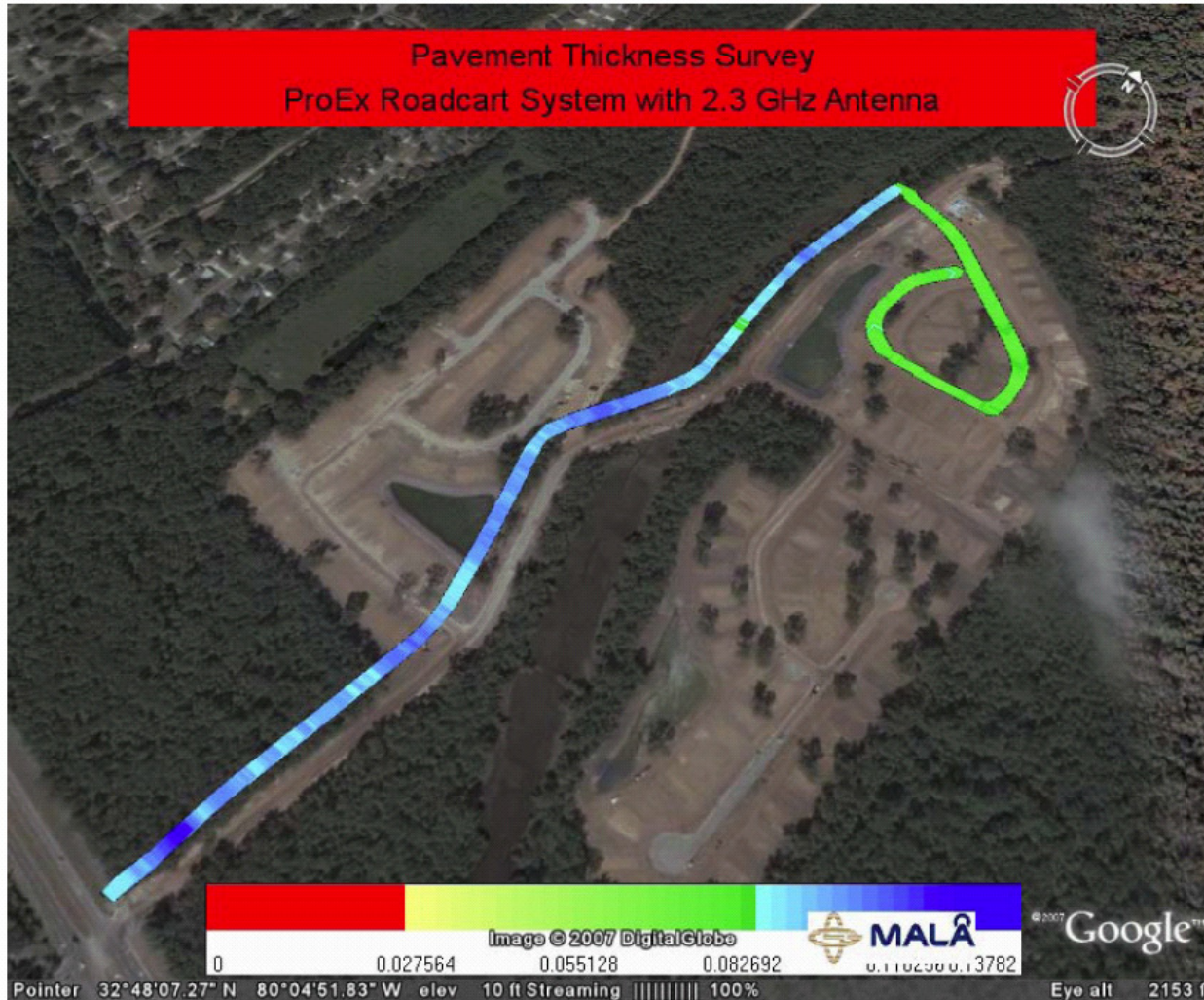
### Pavement Thickness



## Layer Picking (800 MHz Antenna)



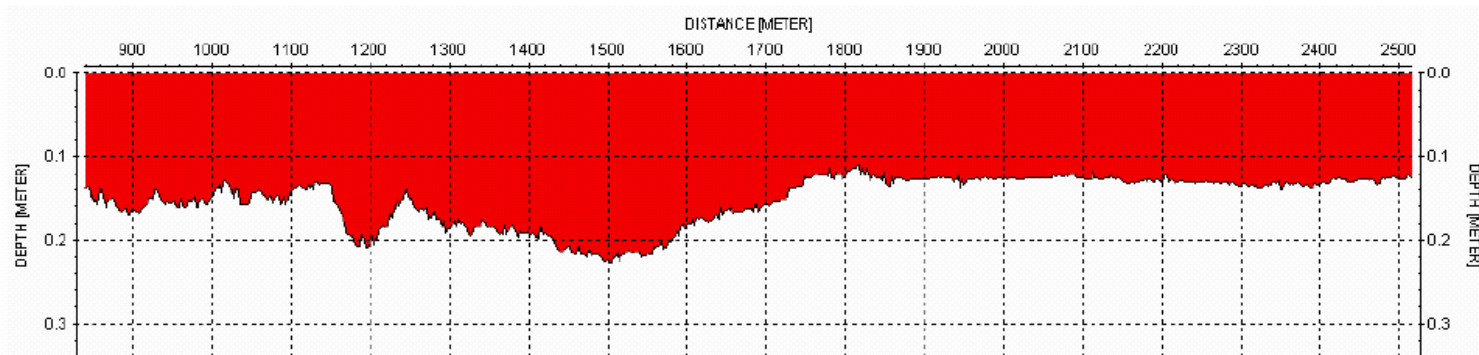
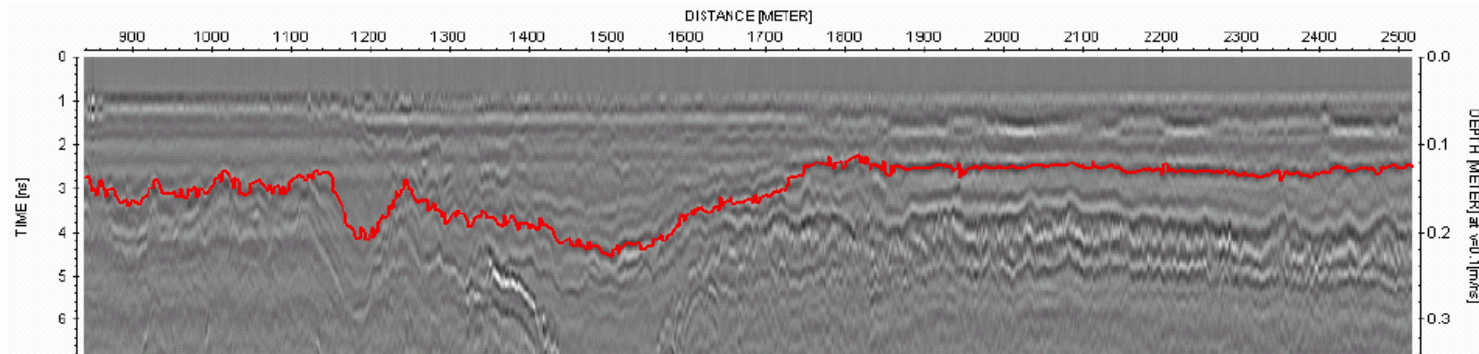
Base Thickness



Example of exported GPS coordinate data and thickness values  
GPS Mapper Software



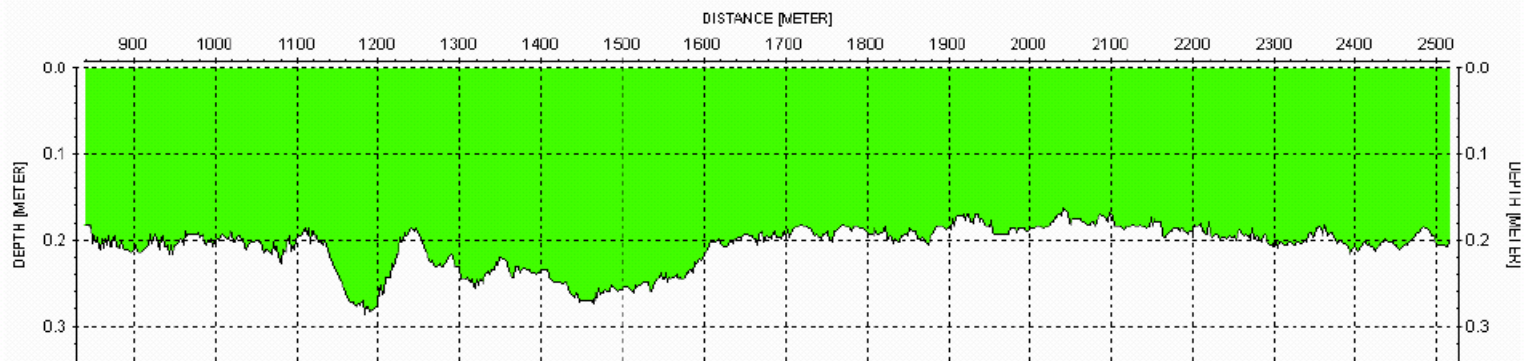
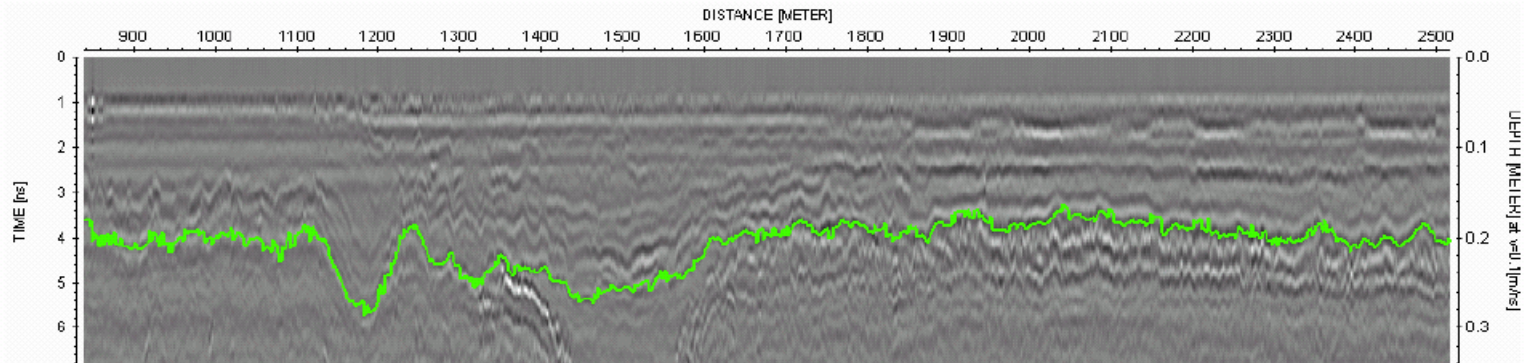
## Multi-Layer Example



2.3 GHz Antenna



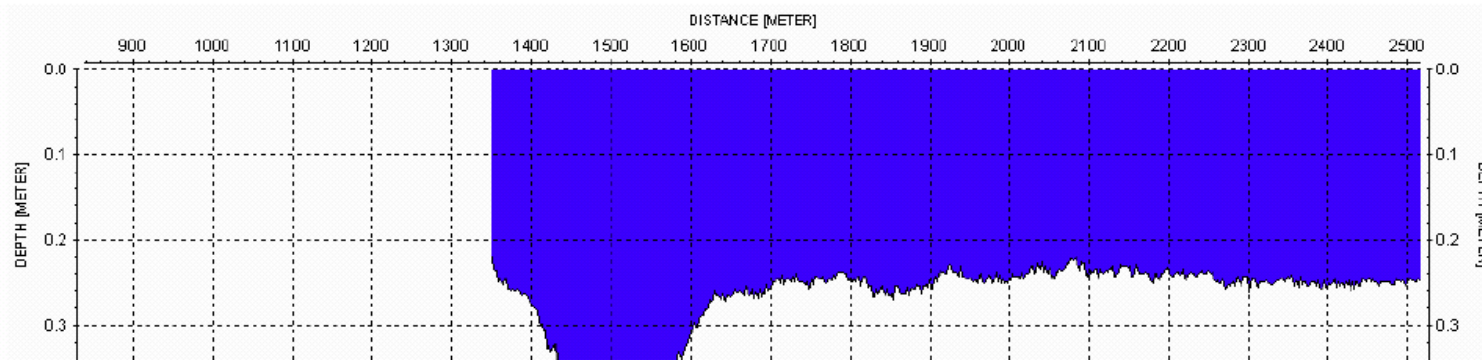
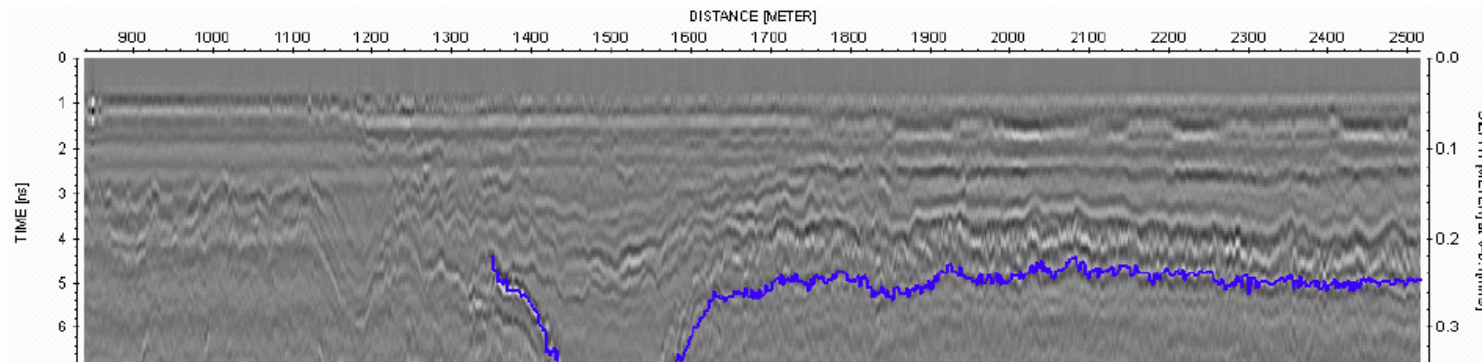
## Multi-Layer Example



### 2.3 GHz Antenna



## Multi-Layer Example

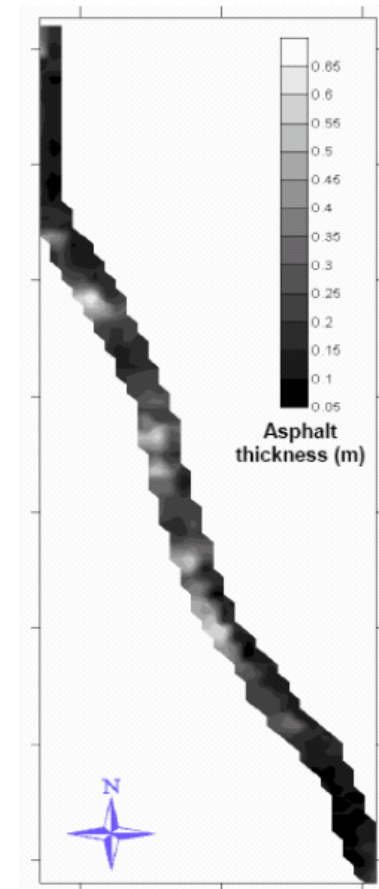


### 2.3 GHz Antenna



## Multi-Antenna/Pass Example

With the addition of several passes along a given stretch of road, a composite layout of the overall thickness can be also achieved. The addition of a multiple antenna array during a single pass would achieve similar and even more detailed results.





## Conclusions

- GPR provides continual data collection at highway speeds (i.e. no lane closures)
- Has the ability to use multiple antennas (more coverage of the road per pass)
- Has the ability to use multiple frequencies (gather information at varying depths)
- Accurate and cost effective