

This project is the extension of a NATSRL FY09 project, titled as “Intelligent Pavement for Traffic Flow Detection”, which aims to explore a new approach in detecting vehicles on a roadway by making a roadway section itself as a traffic flow detector. Sections of a given roadway are paved with carbon-nanotube (CNT) enhanced pavement; the piezoresistive property of carbon nanotubes enables the pavement itself to detect the traffic flow. Meanwhile, CNTs can also work as the reinforcement elements to improve the strength and toughness of the concrete pavement. The proposed sensor is expected to have a long service life with little maintenance, and wide-area detection capability. In FY09 project, lab tests have demonstrated that CNT based cement composite can detect the mechanical stress levels for both static and dynamic loads. For the rest of FY 09 period and FY10 project, road tests will be performed for the evaluation of this new traffic sensor. In FY10 project, we will also design the signal processing and analysis system to retrieve the traffic data information.