Project Title: C-06-40: Weight-in Motion Demonstration and Evaluation
PIN: R020.86.881
Responsible Unit: Operating Division
Project Manager: McDonough, Rick

Project Goal:
This research will evaluate a minimum of three (load cell, piezo electric, piezo quartz) of the best available Weigh in Motion (WIM) devices for high speed mainline electronic screening, observing performance at one test location under the same weather and climate conditions and the same vehicular volumes and weights. In addition to commercial vehicle safety issues, WIM can be an important tool to help the Department with asset management of bridges and highway pavement. The most appropriate of these technologies will be utilized by the Department to deploy a statewide high speed WIM network. A number of other agencies are also involved with this research effort including the New York State Police (NYSP), I-95 Corridor Coalition, the Federal Motor Carrier Safety Administration (FMCSA), the Federal Highway Administration (FHWA) and the New York State Thruway Authority.

Actions Proposed:
NYSDOT will research, procure, deploy and analyze a minimum of three different WIM devices: load cell, piezo electric and piezo quartz. NYSDOT will also investigate the potential of procuring and testing additional emerging WIM technologies such as piezo ceramic and fiber optic. The WIM devices will be installed and calibrated by NYSDOT personnel and/or the WIM vendor. After installation and calibration, the WIM devices will be monitored for a minimum of six months under differing seasonal weather conditions. In addition, at various times throughout the evaluation period, NYSDOT and NYSP personnel will pull vehicles into a commercial vehicle safety inspection location where they will be statically weighed. This will provide a static vehicle weight measurement that can be compared to the mainline high speed WIM dynamic measurements of the same vehicle. At the end of the data collection and field testing, the technologies will be individually and collectively evaluated based on an engineering and statistically based evaluation method developed by NYSDOT’s Transportation Research and Development Bureau.

Anticipated Work Products and Accomplishments:
A research report will be prepared documenting the performance of the selected WIM devices including documentation and assessment of equipment installation, life cycle costs, durability, reliability and accuracy under varying conditions.

WIM technology will be an important component of roadside commercial vehicle electronic screening based weight enforcement. Using WIM technology for based mainline pre-screening as part of a Commercial Vehicle Information System and Networks (CVISN) is a new application for this equipment and, consequently, verified information and real world field results for important factors such as installation and maintenance costs can be difficult to obtain.

Proposed Budget: $300,000