



GIS Mapping and Inspection of Drainage Outfalls for Stormwater Regulations Compliance

New Jersey

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PROJECT NAME

GIS Mapping and Inspection of 3000 Drainage Outfalls along NJ Turnpike Milepost 83.50 to Milepost 105, Including the Hudson County Extension and Garden State Parkway from Milepost 81 to Milepost 125 (OPS No. A3059A)

PROJECT OWNER/OWNER

NJ Turnpike Authority

DATE OF SERVICE

2005 - 2006

PROJECT DESCRIPTION

KS Engineers (KSE) completed the enormous task of collecting GIS data, including location and physical attributes, and visually inspected approximately 3,000 storm water outfalls along 250 miles of roadways on the New Jersey Turnpike and Garden State Parkway. The New Jersey Department of Environmental Protection, in 2004, released new regulations for controlling the discharge of pollutants into the state's waterways from storm water drainage systems. As part of this regulatory process, all public authorities including highway authorities, in New Jersey are being required to map the location and condition of all storm water outfalls on their property.

The field teams used Leica Geosystems' GS20 Professional Data Mapper (PDM) handheld GPS/GIS Collector with external antenna and Wireless Real-Time Corrections System which provided wireless beacon correction data for the GPS observations. In the office the project team used Leica GIS DataPro software to process GIS and attribute data. Tools within ArcGIS were being used to link digital images of each outfall to the shape files. Based on the outcome of this project, KSE suggested a few changes to Leica to improve the hardware components of the system. Currently the changes suggested by KSE are being considered by the manufacturer. The magnitude and type of roadways the drainage outfalls are located made this project extremely complex and challenging in terms of safety and scheduling. A total of four teams were deployed in the field simultaneously. Due to greatly varied distance of the field work from the main office in Newark, New Jersey, the field team stayed in Motels closer to segments of the roadways where work was being done in any give week. Using secure FTP site, each evening the field teams transferred data to the main office Servers. Close coordination with the Office Technicians were maintained by the field teams to ensure that the data remained uncorrupted.

The outcome of this project will in the long run save the client time and money by avoiding fines imposed by NJDEP. Additional as-built maps with aerial images overlay prepared under this project has made the roadway maintenance personnel's job a lot easier by being able to quickly locate any outfall on the busy and high-speed roadway system, and by knowing before hand all physical attributes about any particular drainage outfall along the heavily traveled high-speed highway system. KS Engineers completed all project work within schedule and under budget.

