



Case Study: Planet IRM Helping Georgia Department of Transportation's Drive to Reduce Traffic Congestion

Interstate travel conditions can change in the blink of an eye. Imagine having access to traffic patterns, road conditions, construction projects, estimated trip times, and the latest weather updates at your fingertips. Going well beyond traditional traffic reports, the NaviGator Intelligence Transport System (ITS) created by the Georgia Department of Transportation (GDOT) tracks conditions along 146 miles of major roadways, local streets, and intersections. More than 1.75 million people receive NaviGator alerts to their email, pagers and/or cell phones to help navigate around slow and hazardous road conditions.

This novel system has brought an amazing benefit for cutting air pollution. It has already prevented an estimated seven million vehicle hours of incident-related delays, with the environmental benefits of eliminating 186 tons of HC, 2,456 tons of CO, and 261 tons of NOx from the air. Eliminating millions of hours of drive time has saved 5.2 million gallons of gasoline and 1.6 million gallons of diesel. The system has proven immensely helpful for travel safety as well, with 55,000 motorist assists and more than 340 prevented crashes per year. The ITS also reduced travel time along major routes by more than 20 percent.

The ITS also includes weather stations around the state as well as a hurricane evacuation system for coastal areas. Video and traffic data is captured from field equipment feeds positioned along the highway and transported to the GDOT, local jurisdictions, and the ITS website www.georgianavigator.com. Travel speeds are updated approximately every 20 seconds.

Maintaining such a complex system is no easy feat. The system encompasses 1,361 video detection systems posted every 1/3 mile, 350 closed circuit TV cameras, and 105 changeable message signs (which caution drivers about various road conditions), plus radar units, ramp meters, and 20 hub buildings. The ITS requires more than 370 miles of fiber optic cables to transmit

data throughout the state. Supporting equipment is disbursed across Metro Atlanta. And the system is growing exponentially. The department has already added more than 400 percent additional equipment in the field since the original system was commissioned in advance of the 1996 Olympic Games.

Amazingly, this vast network had been tracked manually until recently. For approximately six years, the location of field equipment was tracked via paper drawings while all fiber connections and hubs were maintained on spreadsheets. The use of drawings and spreadsheets became unmanageable as the system grew in size and complexity. Project planning was error-prone and time-consuming. It was difficult to pinpoint the exact location of equipment, find and assign empty racks, and to optimize space. It took months to enter relevant system data manually into spreadsheets. This left considerable room for human error.

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Hugh Colton
GDOT ITS Projects Manager

To record infrastructure data in a more logical manner, the GDOT deployed Planet[®] IRM, from Planet Associates, Inc. Planet IRM provides GDOT with an interactive map of the entire system infrastructure linked to a relational database. Planet IRM is now the repository for a diverse range of geospatially-enabled data and information, crucial for system planning, and also proven extremely useful to maintenance workers in the field.



Previously, technicians had little information before they headed out for a service call. “Technicians may not always see clearly how things are pieced together,” said Hugh Colton, ITS projects manager for the Georgia Department of Transportation. “Now they can log into the network and view relevant information to help them work more efficiently.”

Planet records details such as location of cameras and how they are connected, so technicians can view the physical location and connectivity path back to the hub before being deployed to a site. Maintenance teams are confident that they have accurate documentation and have found this useful for reducing errors during projects and decreasing incident response time.

Users can obtain a holistic graphic representation of the entire system and drill down to individual system components, identifying empty racks and already assigned space so it is not improperly allocated for future projects. Vertical elevation rack data identifies fiber splice trays, fiber distribution cabinets, video detection boxes, and other equipment. Users can easily identify which rack is dedicated to each county or city. “I can just go online and view information graphically or in table form,” Colton said. “If a cable goes out, we can see what other fiber is available in the area. We can highlight any device and click on it for closer examination. All equipment is color coded on the screen so it’s easy to glean the information we need.”

The department is leveraging Planet IRM’s database in a current project to install 120 ramp meters. These traffic signals, which meter traffic onto expressways, are being installed in areas where fibers are already connected. With Planet IRM, planners can determine which of the 24 to 28 fibers in each cable are being

used and which ones are available to provide service for the ramp meters. GDOT is also filling in gaps in its system – installing changeable message signs and CCTV cameras along sections of highway previously not being served. Each of these pieces of equipment must be connected using existing fiber.

“When new connections are added, it’s easy for administrators to record the changes in Planet’s relational database,” Colton said. “Planet also has implemented changes in its system to allow people in the field to log on and view information on a read-only access basis, saving the staff time and frustration.”

With Planet IRM in place, planning has become faster and more accurate. For example, the department used the system information when planning the building of a new hub. More than 140 pages of Planet IRM-generated reports were used to ensure fast and accurate relocation and reconnection of equipment. The department found having this data on hand reduced project costs and prevented configuration and connectivity errors that had plagued the organization previously. “Today, we can more accurately evaluate project requests and make recommendations before investing any new resources,” according to Colton.

As the GDOT migrates from an analog to digital system, Planet IRM has proven especially useful — quickly identifying cable types and specific locations.

In the future, GDOT plans to use Planet IRM to record the location and details of more than 2,000 state-owned traffic signals. Based on GDOT’s success, several cities and counties throughout Georgia have begun to use Planet IRM to record data about their traffic signals.

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