

## **What is ITS?**

ITS, or Intelligent Transportation Systems, are the application of a combination of technologies to the existing transportation system to save time, lives and money. The goal is two fold: safer, quicker travel with enhanced mobility and optimizing existing transportation infrastructure.

There are several elements included in ITS:

### **Advanced Transportation Management Systems (ATMS)**

This area focuses on traffic control devices such as conventional traffic signals and newer technologies such as changeable message signs as well as vehicle detection and monitoring.

### **Advanced Traveler Information Systems (ATIS)**

ATIS provides drivers or transit users with travel information such as transit routes and schedules, navigation directions and projected delays due to congestion or other factors.

### **Advanced Public Transportation Systems (APTS)**

This is the application of ITS technologies such as automatic vehicle location (AVL) detectors to transit vehicles and electronic fare payments - smart card technology.

### **Commercial Vehicle Operations (CVO)**

Manage commercial fleets by enhanced vehicle identification and tracking.

### **Advanced Vehicle Control Systems (AVCS)**

These systems focus on automating driving and can range from automated replacement of driver control to enhancement of driver control with additional information (for example, radar detection of obstacles).

### **Automatic Vehicle Identification (AVI)**

Vehicles are outfitted with a small identification device that allows roadside mechanisms to identify each vehicle uniquely. This system has many transportation applications such as electronic toll payment and vehicle monitoring.

## **What are the benefits of ITS?**

### **Better travel information**

Information centers provide up-to-date, real-time details on bus, transit and train arrivals and other travel information through cable television in the home, kiosks in the workplace, on the Internet, and electronic messages at the bus stop.

### **Quicker emergency response**

Electronic accident detection allows trained operators to locate, then judge the nature of an accident, so they can quickly dispatch and guide the right emergency personnel and equipment to the site.

### **Easier travel**

Navigation systems in the car or truck tell drivers exactly how to get to their destination.

### **Improved traffic flow**

A driver with a toll tag card attached to his vehicle can travel through toll plazas without stopping and have the cost charged automatically to a prepaid account. Other travel fare collection systems, like Smart Cards, allow transit fares and parking fees, transfers and other fees to be charged to one card.

### **Fewer traffic jams**

Traffic management centers reduce traffic jams and travel speed travel by continuously monitoring current conditions and adjusting speed limits, traffic signals and roadway ramp access. Experts predict that traffic jams can be reduced as much as 20 percent by 2011 in areas that use ITS.

### **Improved trucking management**

Bus, freight and emergency vehicle tracking systems allow supervisors to track vehicles and to communicate directly with drivers.

### **Faster goods delivery**

ITS provides for electronic weighing and inspection of commercial vehicles while in motion, electronic issuing and monitoring of transportation permits and automatic tracking of containers, shipments and vehicles.

### **Safer travel**

ITS technologies warn drivers that there is an accident ahead, they are too close to a car in the next lane, or that they are in danger of running off the edge of the road. New traffic control systems can reduce the number of vehicle stops, minimize changes in vehicle speeds and improve traffic flow -- all of which reduce accidents. Experts estimate that in 15 years, ITS will save an estimated 3,300 lives and prevent an estimated 400,000 injuries each year.

### **ITS Creates Jobs and Lowers the Costs of Goods**

Efficient transportation is important to the nation's economic health. Total transportation spending makes up nearly 20 percent of the nation's economy each year. Each year, more than \$330 billion is spent on freight movement and almost \$600 billion is spent on passenger travel. Improving the efficiency of our transportation system boosts economic productivity.

### **ITS Saves Money**

Cost/benefit analyses show that over time ITS investments yield tremendous savings to taxpayers.

### **ITS Helps to Clean the Air and Save Energy**

Decreased traffic and gridlock through ITS technology reduces energy use. Pollution can be decreased by smoother, more evenly distributed traffic flow, as well as by increases in the use of public transit and carpooling and vanpooling.

## **Why does the Atlanta Region need ITS?**

As America's urban areas continue to grow, congestion on the roadways and transit systems has become challenging; often overburdening the transportation infrastructure. Recognizing the problem, Congress included funding for a new and experimental system in the landmark Intermodal Surface Transportation Efficiency Act of 1991, commonly known as ISTEA. For the first time, federal transportation funding was made available to strengthen the operations side of the roadway and transit systems without adding additional capacity.

Because of its tremendous growth, metropolitan Atlanta has for many years faced a daunting transportation infrastructure challenge of not enough capacity and insufficient funds to expand. To meet the challenge of moving people and freight through congested urban interstates required less expensive but potentially more effective operational improvements -- in particular ITS. The Atlanta Regional Commission (ARC), along with the Georgia Department of Transportation (GDOT), the City of Atlanta, MARTA and the local governments of Clayton, Cobb, DeKalb, Fulton and Gwinnett worked diligently to bring cutting edge transportation technology to Georgia motivated in part by the 1996 Summer Olympic Games. Years later, NaviGator, has evolved into

a national leader and innovator in Intelligent Transportation Systems (ITS). As the central hub for NaviGator, the Atlanta metro area plays a critical role in the long-term success of a statewide ITS system. NaviGator enhances the effectiveness of the regional transportation system and counteracts some of the impacts of the ever-widening gap between increasing demand and shrinking funds.

## **NaviGator: A Brief History**

Intelligent Transportation System planning in Georgia first began statewide shortly after adoption of ISTEA. The first phase of implementation consisted of technology deployment in the Atlanta metropolitan region. It was completed in early 1996 in time for the Summer Olympic Games later that year. Initial deployment included emergency response vehicles (known locally as Highway Emergency Response Operators or HEROs), camera surveillance, information kiosks, hand-held navigation devices, on-board vehicle navigation, and automated vehicle locators on MARTA transit buses.

After the success shown for the Olympics, GDOT began development of an ITS Implementation Plan for the state. Georgia DOT and its planning partners completed the plan entitled *A Twenty Year Strategic Plan For Intelligent Transportation System Deployment in Georgia, 1999-2019*. This plan was subdivided into four major categories: surveillance and detection, incident management, traveler information, and traffic control strategies. The plan detailed the proposed ITS strategies to be implemented over the next 20 years across the state. While the plan did not recommend a specific funding source or commitment, it allowed local governments to work cooperatively with the state to develop and expand ITS technologies in the state's urban areas.

The state's ITS program is organized around the NaviGator system which is designed to gather information from a variety of sources including video monitoring and detection system, HEROs and the public at large. NaviGator supplies information that enables the public to make informed choices about their transportation options. NaviGator links the GDOT Transportation Management Center (TMC) to the Transportation Control Centers (TCCs) of Cobb, Gwinnett, Clayton, Fulton and DeKalb Counties and the City of Atlanta, as well as the Transportation Information Center (TIC) at the Lindbergh Center offices of the Metropolitan Atlanta Rapid Transit Authority (MARTA). The video monitoring and detection system provides real-time images of road conditions and serves as an incident verification tool. Over 100 pan, tilt and zoom full-color cameras have been installed. More than 300 fixed black-and-white cameras are used to gather information on average speed, traffic volume and vehicle classification. Located along I-20 West, I-20 East, I-75 North and South, I-85 North and South, SR 400 and along the top end of I-285, there are more than 30 changeable message signs that display messages generated by the NaviGator system. These messages can range from simple travel time and distance messages to announcements such as road or lane closures due to incidents or roadway construction and amber alert. The signs were highly effective on September 11, 2001, alerting the motoring public that Hartsfield Atlanta International and other regional airports had been closed after all aircraft were grounded by the FAA. By providing this information early, traffic along routes to the airport was fairly light.

Another ITS technology used to aid congestion is dynamic ramp meters. These signals at the end of freeway entrance ramps regulate the flow of traffic onto the freeways. Their timing can be changed throughout a peak hour period to better regulate flow of traffic from the local street system to the freeways. Currently in the Atlanta region, there are ramp meters at only five interchanges on northbound I-75 between downtown and Cobb County and four on the downtown connector south bound. As NaviGator has expanded across the region, GDOT has installed infrastructure for ramp metering systems along virtually every freeway and future expansions are underway.

Most of the region's interstates and major freeways including US 78, SR 316 and SR 154/166/Langford Parkway are expected to be covered by the NaviGator system in the coming years. Expansion of HERO routes and monitoring is planned for interstates such as I-20 West and East and I-85 North. Statewide, elements of NaviGator have been implemented in Macon and Savannah and will be moving into Augusta and Columbus soon. The system is expected to expand regionally within the Atlanta metro area and statewide, linking to all major cities in Georgia and eventually incorporating rural Georgia.

For more information on NaviGator, including viewing real-time traffic conditions, go to [www.georgia-navigator.com](http://www.georgia-navigator.com).