

- Intelligent Transportation System

Traffic control has been an issue since humans put the first wheels on the first cart. The modern world demands mobility. Cars represent the main method of mobility, but today's congested highways and city streets don't move fast, and sometimes they don't move at all. Intelligent traffic systems (ITS), sometimes called intelligent transportation systems, apply communications and information technology to provide solutions to this congestion as well as other traffic control issues. Intelligent Transportation Systems (ITS) represent a major transition in transportation on many dimensions. ITS is an international program intended to improve the effectiveness and efficiency of surface transportation systems through advanced technologies in information systems, communications, and sensors. ITS (Intelligent Transport Systems) is a system which is designed to promote advance technology, to ensure that the Electronic Toll Collection System (ETC) is effective and to support safe driving. With this system, people, roads, and vehicles use the latest information communication technology.

The intelligent transport system (ITS) takes the first step towards meeting this challenge by providing effective, reliable and meaningful knowledge to motorists in time. Problems like high traffic congestion, low transportation efficiency, low safety and endangered environment can be solved through innovative and sophisticated ways of handling latest techniques that have emerged in recent years in integrating information technology, electronics and telecommunication with roads and traffic management. Intelligent transportation systems, or ITS, encompass a broad range of wireless and wireline communications-based information, control and electronics technologies.

When integrated into the transportation system infrastructure, and in vehicles themselves, these technologies help monitor and manage traffic flow, reduce congestion, provide alternate routes to travelers, enhance productivity, and save lives, time and money. Intelligent transportation systems provide the tools for skilled transportation professionals to collect, analyze, and archive data about the performance of the system during the hours of peak use. Having this data enhances traffic operators' ability to respond to incidents, adverse weather or other capacity constricting events

### **Benefits of Intelligent Transport System**

The investments in ITS will help increase the benefits and efficiencies of transportation systems, thereby reducing the need for much costlier physical expansion of systems. This optimism is not to be confused as any kind of illusion that new infrastructure expansion in India can be avoided altogether by resorting to ITS. Significant expansion of infrastructure will still be needed in India for a long time to come. But including ITS in the overall development strategy of India's transportation system can increase the number of beneficiaries of the

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system, significantly enhance the transportation-related safety which is a major concern in most parts of India and in some cases reduce the scale of infrastructure expansion.

Thus, a realistic approach to ITS deployment in India would consist of a balanced component of ITS as part of the ongoing expansion of transportation system. ITS initiatives in industrialized countries have clearly identified a number of benefits associated with such projects. Even though ITS projects are implemented with specific objectives with specific benefits in mind, the overall benefits to the society may prove to be quite substantial in many cases. For example, Toronto's COMPASS Freeway Traffic Management System, one of the first and successful ITS projects in the world has been subjected to a great deal of scrutiny to evaluate its benefits. COMPASS has been found to reduce the incident response times from 86 minutes to 30 minutes, the overall vehicle delay by 5.3 million vehicle-hours per year, the overall emission by 3,100 tones per year and the operating costs of commercial vehicles by \$55 million per year. Cities in the United States have reported an increase in throughput by 25% and reduction in travel times by 25% after implementing appropriate ITS initiatives.

## **Classification of ITS**

### **Advanced public transport system: (APTS)**

APTS technologies are a collection of technologies that increase the efficiency and safety of public transportation systems and offer users greater access to information on system operations. The implementation of APTS technologies is transforming the way public transportation systems operate, and changing the nature of the transportation services that can be offered by public transportation systems. The goal is to provide public transportation decision-makers more information to make effective decisions on systems and operations and to increase travelers Convenience and rider ship. APTS technologies can be organized into three broad categories that describe the technologies relevance to transit applications. Each category is comprised of a variety of technology choices that are available to help transport agencies and organizations meet traveler's service needs while increasing safety and efficiency. The three APTS technology categories are: fleet management system, travelers information system and electronic payment system.

### **Advanced Traveler Information System: (ATIS)**

Advanced travelers information systems (ATIS), a part of new technology applications in transportation, provide accurate and timely information that help travelers to select routes, times of travel and travel modes. They work even better with inclusion of geographic tourist guides and yellow pages that enable

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travelers to select destinations based on proximity to other places. Deliver data directly to travelers, empowering them to make better choices about alternate routes or modes of transportation. When archived, this historical data provides transportation planners with accurate travel pattern information, optimizing the transportation planning process.

### **Advanced Traffic Management System: (ATMS)**

This system can benefit the public with improved traffic and public safety, by monitoring the flow of traffic and making appropriate decisions in a timely manner. Additional benefits include less fuel consumption and reduced environmental impact. They employ a variety of relatively inexpensive detectors, cameras, and communication systems to monitor traffic, optimize signal timings on major arterials, and control the flow of traffic.