



CASE STUDY

Use of Geospatial Technologies in Transport Management and Traffic Navigation

India

India has been making significant progress in responding to the demands of today's cities by incorporating robust space technologies and GIS into the urban planning, transport management and traffic navigation techniques.

Road Asset Management System

The development of Road Asset Management system for National Highways (NHs) is a flagship project by the National Highways Authority of India in association with the [Indian Space Research Organization](#) (ISRO) and the World Bank. Bringing both public and private funded roads under one umbrella, the main objective of this project is to assist in accurate and scientific maintenance planning, enhance road safety measures and plan the development of the NH network in India.¹

Taking international best practices as global benchmarks, the project makes an optimal use of geospatial technologies for the planning and management of the National Highways, for monitoring road segments under construction, for analysing the patterns of congestion and traffic jams, for better junction arrangement planning, for examining the land use situation for development of NHs and for strengthening road safety measures by identifying black spots. Under this project, a web-based software system has been developed to collect location-based, spatial data for more than 200 attributes of a road. With this comprehensive system of data collection, major stakeholders, like the Transport Ministry, Finance Ministry, National Highways Authority of India, state public works department, police departments, funding agencies, developers and citizens are able to conduct map audits and extract relevant information which is readily available within the system. The software is also equipped to interface with the indigenous [Bhuvan](#) satellite images.



Smart Buses: GIS-based School Bus Tracking

The school transportation system in India is a non-organized sector with only a few measures taken by the schools and transporters to ensure the safety and security of the children. The rate of increase in transport related incidents is worrisome and has created an urgent need for school administrations to invest optimally in their transport management system. In this direction, many state governments have mandated the installation of GPS devices in the school buses transforming them into smart buses. Combining geospatial and mobile technologies addresses the problems faced by parents as capacities have been developed to monitor and track, in real time, the school buses from anywhere, anytime. The mobile applications give regular information alerts about the arrival and departure of school buses and their exact geo-location. In addition to providing convenience to parents, the GIS-based bus tracking system also ensures a safety cover in terms of drivers being conscious of being monitored. School Transport can use a geospatial dashboard to monitor the status of buses and take corrective measures in case of any violations of traffic rules. Business Intelligence and Analytics may add further dimension in providing reports and models which can help school transport authorities to optimize maintenance and fuel cost, reduce speed and route violations and ensure an overall monitoring of fleet movement based on historical location data.²

¹ Federation of Indian Chambers of Commerce & Industry (FICCI), "Geospatial Technologies in India: Select Success Stories", 2017. Available at <http://ficci.in/spdocument/20873/Geospatial%20Technologies%20in%20India%20-%20Success%20Stories.pdf>

² Bhuvan, Indian Geo-Platform of ISRO. National Remote Sensing Centre. Available at https://bhuvan.nrsc.gov.in/bhuvan_links.php and in text link to section on Bhuvan.

Additional details and more practices like this can be found in [*Geospatial Practices for Sustainable Development in Asia and the Pacific 2020: A Compendium*](#)