MeTrIS: Smoothing Freight into the Los Angeles Ports

Abstract

MeTrIS™, a Metropolitan Transportation Information System, envisages extensive tracking of vehicle movement in a region, supported by associated spatial analysis and modeling methodologies. The ports of Los Angeles and Long Beach were compelling candidates for a first implementation of MeTrIS due to their critical strategic role in the national economy. USDOT funded a project to track up to 500 trucks, to study their activities and to develop models that could improve efficiency.

About half the containerized imports at the San Pedro ports are drayed by truck, to the Hobart railheads and to destinations in the Inland Empire. Partly because the drayage industry has traditionally been dominated by owner-operators, there is little data on the nature of this critical link in goods movement: the preferred routes, segmentation of routes and intermediate stops, time of day, delays, detours, and compliance with regulations. The project is designed not only to document these patterns, but also to investigate potential improvements in logistical efficiency and environmental performance, for the benefit of individual truck owners and the freight system as a whole.

Commercial GPS tracking solutions abound, but are motivated principally by security and are unsuitable in terms of critical performance parameters and cost. A tracking system was specified and developed to suit the needs of the study and longer term commercialization. Vehicle location is sampled every few seconds and relayed wirelessly in real time.

MeTrIS data have proved useful for real-time operations, such as freeway performance measurement, as well as long-range tactical and strategic planning of goods movement infrastructure. We have developed the first maps of import-container routes among the ports, Inland Empire, and intermodal rail terminals, truck-specific speed measurements on freeways and surface streets, turn time measurements at marine and intermodal rail terminals (including queue time), and several other types of analyses. Motor carrier companies benefit from real-time fleet status maps and reports.

Furthermore, MeTrIS data are feeding into modeling efforts that document significant reductions (~50%) in deadhead moves of empty containers, bare chassis, and bobtails and can enable up to 15% efficiency improvements in handling of container stacks at port terminals.

Bio

Dr. Val Noronha is President of Digital Geographic Research Corporation in Santa Barbara, CA. For more than a decade, Val has been closely associated with the University of California, Santa Barbara (UCSB), as Director of the National Consortium on Remote Sensing in Transportation (NCRST), a long-term project funded by the U.S. Department of Transportation, with several university, government and private partners. Val served on the faculty at the University of Alberta in the 1980s. He established a consulting business in Toronto in 1990, and has been a consultant to federal and provincial governments in the U.S., Canada and Australia, and private sector clients. His research focus is on geographic information systems in transportation, particularly GPS, data accuracy, intelligent transportation systems, modeling, security, and remote sensing.