Automated Passenger Counter Pilot Test Project

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Abstract

For public transit systems to keep pace with the constantly changing travel behavior of the employment and housing sectors in their service areas, improve overall service productivity, justify changes in service, and maintain the highest levels of service quality at the lowest cost, transit system managers/planners need a comprehensive analysis tool that provides accurate, timely, and detailed information about their ridership at various levels of the transit.

Historically, to gather this important information, transit systems have utilized manual ridechecks using transit system staff to count the number boardings and deboardings (alightings) at each stop along a given route. Typically, this method of data collection has not resulted in very accurate nor detailed ridership-level data; nor has it allowed for the accomplishment of this important task at a reasonable cost or allowed for maintaining a current database of ridership at the route and system levels. One possible solution to a transit agency's need for reliable, accurate, detailed, up-to-date, and cost-effectively obtained ridership data is through the use of Automated Passenger Counters or APCs. By utilizing APCs capable of performing the same and additional functions as manual ridechecks, transit agencies can improve the availability of ridership information in the form of boarding and alighting counts at a host of system levels, the accuracy and the amount of data that is collected, and the ease of data transfer and input, while generally realizing an overall reduction in the cost of ridership data collection.

An APC system can be seen as akin to a magnifying glass in that it permits transit managers to intently focus on the productivity and quality of their system's performance at various levels ranging from individual bus stops, route segments, time point segments, and the overall transit system. Just as the development of new technologies such as the computer microchip has increased knowledge about the world around us, an APC system will allow transit managers to identify problems that may not have been possible to identify when analyzing data gathered via manual ridechecks and to create innovative strategies for improving their transit system's performance.

Basically, an APC system provides an automated method for collecting the number of passenger boardings and alightings at a variety of system levels including route, route segment, or specific bus stops by time period and by day of week, for example. Additional parameters that can be measured by an APC system are maximum and minimum load points boarding and alighting rates, dwell times, door cycles, distance traveled and vehicle average speed, for instance.

The objective of the presentation is to describe the findings from an APC pilot test project that CUTR is currently completing for LYNX transit system located in Orlando, Florida (it is anticipated that the preliminary findings from the project will be ready for presentation by May 1997). In this project, CUTR is testing a variety of APC systems (hardware and software) and related technologies (infra-red [I-R] beams, I-R passive array detectors, treadle mat, and low ultrasonic frequencies) from several North American and European APC vendors for possible implementation on a number of different bus types in LYNX's fleet mix including low floor buses and articulates. The APC systems are being tested under normal operating conditions in actual revenue service on a fixed route with heavy ridership. Specifically, the APC systems are being evaluated based on their reliability, functionality, durability, and accuracy as well as their ability to satisfy LYNX's data needs. Ultimately, based on the results from the pilot test, CUTR will recommend to LYNX the final selection of a specific APC system vendor/technology for implementation into their transit system.