LIFE CYCLE COST ANALYSIS

The objective of this paper is to describe five fundamental differences arising from the application of Life Cycle Cost Analysis (LCCA) to a technology-oriented Intelligent Transportation System (ITS) project rather than a conventional transportation project.

A viable alternative to quantify user cost is introduced by utilizing outputs from traffic simulations based on traffic delay, vehicle operation and crash risk cost models. Hypothetical failure rate scenarios were developed through the use of an open-source micro-simulation traffic software namely, SUMO, in a connected vehicle environment.

Five Fundamental Differences

- **Scenario O1-1, O1-2, O1-3: OBU are not functional on 10%, 20%, and 30% of the vehicles**
- **Scenario R1-1, R1-2: All RSU are not functional at 10% and 20% of the time**

A closer investigation of the inflation rate at the macro-level reveals that inflation rate of ITS components does not follow the general upward trend of CPI, PPI and NHCCI.