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Concept of Operations for Trajectory-Based Traffic Signal Control

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Abstract

In recent years, advances in sensor technology have made it feasible to begin obtaining information about vehicle speeds and positions near intersections. This capability has existed within some detection technologies (such as radar) for some time. In addition, connected vehicle data is expected to provide similar data. However, signal controllers cannot directly make use of the data at present. Controllers still rely on binary detector input states for presence in a zone. This poster will present early results from a pooled fund study on trajectory-based actuation that surveys the availability of vehicle trajectory data from connected vehicles, sensors, and third-party data vendors, and links these to appropriate use cases in traffic signal control. These are developed into a concept of operations for new traffic control systems that can potentially integrate such data at different levels with respect to data latency and time resolution. Early results of simulation or field testing of selected methods are also anticipated.