Bus lane violations: an exploration of causes

Konstantinos Kepaptsoglou\textsuperscript{1*}, Dimitra Pyrialakou\textsuperscript{1}, Christina Milioti\textsuperscript{1}, Matthew G. Karlaftis\textsuperscript{1}, Dimitrios Tsamboulas\textsuperscript{1}

\textsuperscript{1} School of Civil Engineering, National Technical University of Athens, Athens, Greece

Abstract

Bus lanes have been widely implemented internationally for improving the performance and quality-of-service of surface transit systems. Despite their importance to a city’s transit system, bus lanes are frequently violated by road users resulting in subpar service standards. Using extensive field data measurements from Athens, Greece, we analyze violation rates and study their effects on bus lane operational characteristics. Results indicate that: i. reduced perceived enforcement increases violation rates; ii. congestion in adjacent lanes significantly affects bus lane violation characteristics; and, iii. bus speeds are significantly reduced with increased violations.

Keywords: Bus lanes; Violation.

1. Introduction

Bus systems are widely used because of their relatively low investment and operational cost compared to subway systems, along with their potential for easier network modifications and extensions. However, since buses operate on the existing road infrastructure, traffic and congestion significantly impact their performance and result in lower quality of service and declining ridership. To address this, bus priority measures have been widely implemented in the past few decades to improve the performance and quality of service of surface transit systems; such measures include, for example, exclusive transit corridors (bus ways, bus lanes) and the provision of signal priority. Bus lanes in particular, have been widely implemented in cities worldwide: London and Paris have networks of 240 km and 190 km of bus lanes respectively, while in other cities such as Singapore, Sydney, Berlin and Barcelona bus lanes extend between 70 and 140 km (EMTA, 2009). Bus lane impacts include decreases in bus travel times, increases in bus speeds and reliability improvements (Jacques and

* Corresponding author: Konstantinos Kepaptsoglou (kkepap@central.ntua.gr)