

Title: control strategy for bi-modal highway lanes

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Abstract: Current evidence shows that commercialization and deployment of connected and autonomous vehicles will most likely first happen in the public transport sector, before their general adoption by private cars. This paper examines such a deployment scenario for a bi-modal highway system with an automated highway lane, which is originally dedicated to autonomous buses. We develop a control framework to allow additional autonomous cars to share this automated lane while not affecting the operations of the buses. Our proposed control strategy can optimize the benefits offered by the autonomous vehicles at wide range of penetration rates, while significantly increase the road space efficiency of the bi-modal system.