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(57) Abstract :
The focus of this research is on how a reduction in speed limits would affect a city's public transportation system. The results were evaluated using Vissim, a miniature traffic simulation model. Moreover, the influence under varying traffic conditions was examined by testing various traffic inputs with various signal coordination scenarios. It was discovered that setting a lower speed limit early in the morning, when traffic is lightest, has a significant effect. Travel speed reduction from a lower speed limit was not appreciable during peak times of congestion, such as level of service E and F. The findings corroborated previous research suggesting that reducing the speed limit has little effect on average travel speed in congested traffic networks. In addition, several strategies for coordinating signals were evaluated. As was to be expected, the signal coordination based on the new lower speed limit was more effective than the previous signal coordination. The findings could be useful in deciding whether to reduce speed limits on existing roads. Urban motorways are a prime example of a vital part of the urban traffic network that falls short of providing adequate service to meet rising demand. CAVs provide another complex demand and new challenges for control systems. This research addresses pollution, energy use, and congestion. This work built a Q-Learning-based variable speed limit (VSL) using electric CAVs as speed-limit actuators in the control loop. We improved the Q-Learning algorithm's mixed traffic flow VSL control policy learning by adding the two-step temporal difference target. We optimized for traffic network vehicle time and energy consumption.

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