



Evaluating the Effectiveness of Toll Strategies on Route Diversion and Travel Times for Specific Origin-destination Pairs in a Regional Transportation Network

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OVERVIEW

Congestion on freeway facilities is a growing menace. I-4 in the Central Florida region has been experiencing delays during peak hours which has warranted research for traffic management strategies. The public, through the media had proposed removing tolls on toll roads to divert traffic from I-4. Micro-simulation model (PARAMICS) was used to examine the potential impact of this idea. SR417 is a relatively uncongested toll road alternative to I-4. SR528 is the east-west toll-road connecting SR417 and I-4. Commuters on SR417 have to travel 15 miles longer and pay \$5 compared to no monetary cost on I-4 for the same trip. The public as well as the politicians are reluctant to toll I-4 to relieve congestion. The results from the simulation indicated that under recurring congestion conditions on I-4, removing tolls on SR417 and SR528 did not divert enough traffic from I-4 due to the 15-mile advantage. Under incident and lane closure scenarios on I-4 with toll reduction on SR417 and SR528, the travel time increased on I-4. This prompted some diversion with volumes and travel times increasing on SR417. It was concluded that the amount of traffic diverted from I-4 to the toll roads did not significantly relieve congestion on I-4. When specific OD pairs were analyzed, average travel times savings on I-4 were only around 5 minutes. It was concluded that contrary to media and public perception, toll reduction would only have a minimum impact on reducing I-4 congestion.

TRB Key Words: Congestion, toll roads, simulation, travel time savings.



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