

Research Title:

An examination of safety impacts of high-occupancy vehicle lanes

Primary Investigator:

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Current transport policies promote better use of existing roadways, by using traffic management strategies such as high-occupancy vehicle (HOV) lanes. International experience showed positive mobility impacts of HOV lanes, while research evidence on their safety implications is limited. In Israel, the first HOV lanes were introduced in 2019. This study examined the impacts of HOV lanes on road safety, based on a detailed review of international research and accident analyses, which evaluated safety effects of HOV lanes in Israel. The literature survey applied a systematic screening of research studies from the past two decades and found that HOV lanes were frequently associated with an adverse effect on road safety; yet, findings were limited to North-American experience, with mostly left-side HOV lanes in use, while in Israel right-side HOV lanes were introduced. In Israeli evaluations, before-after comparisons of accident changes with comparison-groups were applied, with regression models fitted to monthly time-series of 17 accident types. Results showed that HOV lanes' operation led to increasing accident trends, particularly at interchange areas and in daytime. Thus, adverse safety effects should be expected and accounted for, in future planning of HOV lanes. Further research should explore design features of HOV lanes, to reduce their negative safety implications.