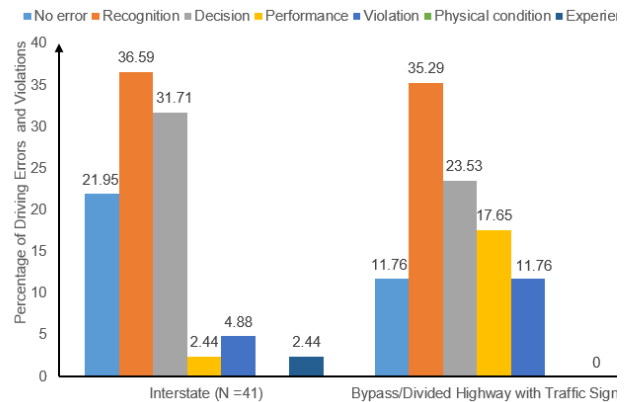


Developing a Taxonomy of Human Errors and Violations that Lead to Crashes

Driver errors and violations are highly relevant to the Safe Systems approach as human errors tend to be a predominant cause of crash occurrence. This study develops a deeper understanding of critical pre-crash driver errors and violations that have significant potential in reducing dangerous behaviors on roadways.

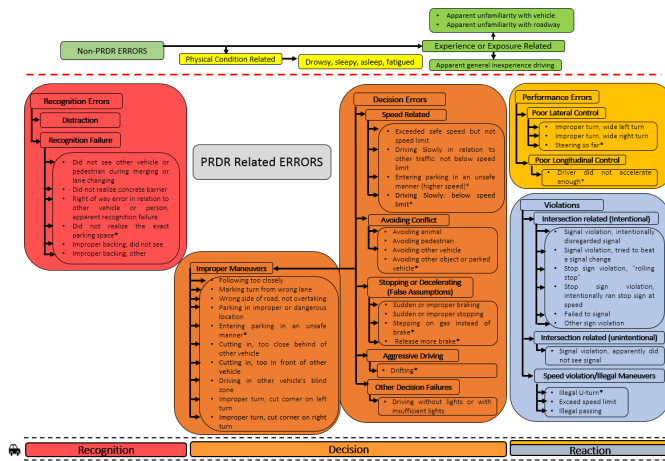
This project first quantifies the contribution of key factors (i.e., human, vehicle, and roadway/environment) resulting in crashes. Furthermore, a driver error and violation taxonomy (TDEV) was developed to understand the factors that contribute to crashes, and it is applied using data from the Naturalistic Driving study (NDS).

performance errors and violations in crashes on principal arterials and interstates are almost 7 and 2.5 times higher respectively compared with baselines. Other land uses where certain types of errors are likely to occur were identified.



Driving Errors and Violations on Interstates and Bypass/Divided Highways with Traffic Signals (in Crashes).

Connected and automated technologies have the potential to mitigate a portion of the driving errors that presently contribute to a significant percentage of crashes. More research is needed on such safety intervention programs to explore how they may assist during the recognition, decision, and reaction phases, and safely interact with the driver.



Systematic Taxonomy for Driver Errors and Violations.

The findings reveal that recognition errors can be particularly hazardous, given their prevalence in crashes compared with their share in baseline data, and they were also more frequently associated with severe crashes (51%) compared with other errors and violations. Furthermore, the percentage contribution of

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