

Development and Evaluation of Temporary Traffic Control Devices for Unmanned Aerial System Operations

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Abstract:

Unmanned aerial systems (UASs) are an emerging technology being used in many fields, including surveying engineering. When UASs are used for these activities, they may operate in close proximity to active traffic. UASs could be distracting to drivers and increase safety concerns in these situations. Currently, there are no temporary traffic control (TTC) signs approved by the Manual on Uniform Traffic Control Devices (MUTCD) to specifically inform drivers of roadside UASs. For this study, new UAS TTC signs were designed and a questionnaire was developed to explore perspectives on UAS specific TTC. Participants drove in a high-fidelity driving simulator, which measured speed reduction, as participants drove past various configurations of TTC elements in advance of a roadside UAS operation. The results showed that drivers do support the use of UAS specific TTC signs. Speed data from the driving simulator showed that a TTC configuration of two advanced signs caused drivers to decrease their speed by an average of more than 2 km=h than when no TTC was present, while also inducing this deceleration at the most gradual rate.