

# Research Report Summary



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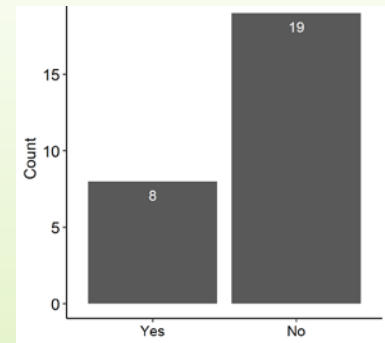
## The Influence of Unmanned Aerial Systems on Driving Performance

Unmanned aerial systems (UAS), or drones, have become increasingly utilized for a myriad of applications in the vicinity of the roadway and can offer a low-cost alternative to many labor-intensive data collection techniques. To collect much of this data with a desired degree of accuracy, UAS must be flown near moving vehicles, pedestrians, and/or bicyclists. However, UAS, and their pilot/crew, have the potential to be a distraction to drivers.

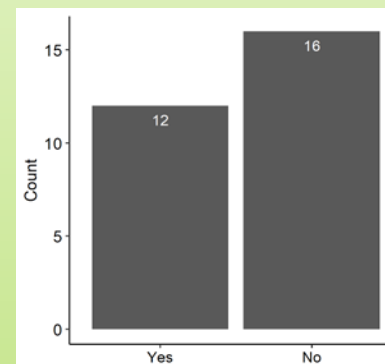
The goal of this project was to study how drivers would be distracted in the vicinity of

drones and drone pilots at varying flight altitudes.

Drivers were found to be visually and potentially cognitively distracted in the driving environments by the drone and drone pilots, with glances lasting up to 2 seconds in 17 out of the 156 analyzed scenarios. In 9 out of the 156 analyzed scenarios, drivers glanced in their rearview mirror after passing the drone and pilots. Combined with the questionnaire results showing that many participants were distracted, a potential cognitive distraction appears to occur.



Count of responses to the question "Have you ever seen a drone in flight near a roadway?"



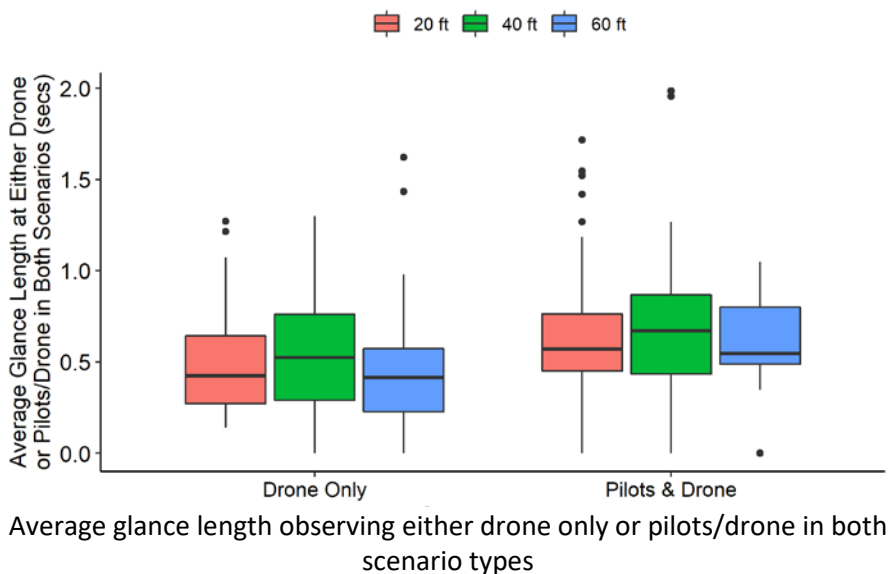
Count of responses to the question "Should Drones be allowed to be flown near roadways?"



UAS at 20-foot altitude

The literature review revealed that a large number of users fly UAS in the United States, and the trend indicates that this number will continue to increase. With this increase, both commercially and recreationally, inside the transportation industry and outside, it is recommended that policy is introduced to reflect the potentially hazardous scenarios that these systems pose when flown in the vicinity of roadways.

Given the high amount of visual distraction and potential cognitive distraction UAS and their operators present to drivers, it is recommended that policy be created to limit the situations in which UAS are allowed to be flown in the vicinity of roadways. These policies, informed by research such as this study, could lead to safer roadway environments now and in the future.



### Outcomes

Potential outcomes of this work would be new regulations related to drone flights near roadways. Given the high amount of visual distraction and potential cognitive distraction small UAS and their operators have on drivers, policy could be created to limit the situations in which they are allowed to be flown in the vicinity of roadways. This could lead to safer roadway environments as UAS continue to be used.

#### Outcome Performance Measures

- Policy related to the distance drones must be flown vertically from the roadway
- Informed FAA regulations related to drone use

### Impacts

The impact of this research is the increased safety of the general public through the reduction in crashes from potential implemented policy.

#### Impact Performance Measures

- Reduction in distracted driving environments
- Reductions in crashes from implemented policy, practice, regulation, rulemaking, or legislation