Novel Uses for Unmanned Aerial Systems (UAS) in Intelligent Transportation Systems (ITS)

Introduction

The use of unmanned aerial systems (UAS) by state departments of transportation (State DOTs) is steadily increasing. While monitoring road and bridge conditions remains a leading example of how State DOTs are using UAS, the types of uses are rapidly expanding beyond infrastructure monitoring to support many more agency activities.

For example, a growing body of research has explored using drones for purposes that are typically associated with intelligent transportation systems (ITS) and transportation operations. These uses can include:

- Traffic data collection;
- Real-time traffic monitoring;
- Traffic incident management;
- Emergency operations;
- Locating and managing ITS assets (e.g., traffic cameras, communications infrastructure);
- Traffic control and traffic operations;
- Road weather management; and
- Parking management.

As agencies expand their use of UAS, there is a benefit to exploring ways to optimize UAS for multiple agency functions and services, including integration with ITS and transportation operations. Information about current State DOT use cases such as stage of deployment, type of drone (e.g., tethered or untethered), level of success, benefits, challenges, and lessons learned, will help inform agencies as they consider increasing use of UAS to support transportation operations and ITS activities.

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Project Overview

The ENTERPRISE Pooled Fund Study is conducting a research project to explore ways to optimize UAS integration with ITS. The study is identifying current and planned use cases for UAS that support ITS and transportation operations applications.

The project is gathering information through a literature search and a survey of State DOTs. After this initial information gathering is complete, selected case studies highlighting agency use of UAS to support ITS and transportation operations will be documented. The findings will provide ENTERPRISE members with details for how agencies are deploying UAS to support ITS and transportation operations.

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